



NATURA IMPACT STATEMENT

JULY 2024

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1. INTRODUCTION

Following on from the conclusion presented in the AA Screening report (Scott Cawley Ltd., 2024), this Natura impact Statement (NIS) has been prepared by Scott Cawley Ltd., on behalf of Arup, for the applicant, Córas Iompair Éireann (CIÉ) who is seeking permission for the DART+ Coastal North Scheme (hereinafter referred to as the Proposed Development).

The DART+ Coastal North project, as part of the DART+ Programme, will deliver an improved and extended electrified rail network and will enable increased passenger capacity and an enhanced train service between Dublin City Centre and Drogheda, including the Howth Branch. The Proposed Development extends across four local authority areas including Louth, Meath and Fingal County Council, as well as Dublin City Council. The total length of the Proposed Development is approximately 50 kilometres. The proposed increased rail capacity will be achieved by implementing an extended electrified railway network with high-capacity DART trains and an increased frequency of rail services. In addition, the DART+ Coastal North scheme requires that some track modifications are implemented, including the provision of turnback facilities at Malahide, Clongriffin and Howth Junction & Donaghmede Stations. These modifications are essential to facilitate the increase in train services by improving operational flexibility, allowing trains to be turned back clear of continuing services and enabling a higher frequency and a more reliable service. The objectives of the Proposed Development are described Section 2 below. The Proposed Development, which is described in Chapter 4 (Description of Proposed Development) of the EIAR, is replicated in Section 2 of this NIS and has been designed to meet these objectives.

The design of the Proposed Development has evolved through comprehensive design iteration, with particular emphasis on minimising the potential for environmental impacts, where practicable, whilst ensuring the objectives of the Proposed Development are attained. In addition, feedback received from the comprehensive consultation programme undertaken throughout the option selection and design development process have been incorporated, where appropriate.

This Natura Impact Statement (NIS) has been prepared in accordance with the provisions of Part XAB of the Planning and Development Act, 2000 (as amended) and the requirements of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (as amended) (the Habitats Directive).

It considers the implications of the Proposed Development, on its own and in combination with other plans or projects, for European sites¹ in view of the conservation objectives of those sites. It includes a scientific examination of evidence and data to identify and assess the implications of the Proposed Development for any European sites in view of the conservation objectives of those sites.

¹ The Natura 2000 network of sites are defined under the Habitats Directive (Article 3) as a European ecological network of Special Areas of Conservation, composed of sites hosting the natural habitat types listed in Annex I and species listed in Annex II, and Special Protection Areas classified pursuant to the Birds Directive (2009/147/EC). The aim of the network is to aid the long-term survival of Europe's most valuable and threatened species and habitats. In Ireland, these sites are designed as *European sites* – as defined under the Planning and Development Acts and/or Birds and Habitats Regulations as (a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area. They are commonly referred to in Ireland as candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs).

It considers whether the Proposed Development, by itself and in combination with other plans or projects, would adversely affect the integrity of any European sites. In reaching a conclusion in this regard consideration is given to any mitigation measures necessary to avoid or reduce any potential negative impacts.

The purpose of this NIS is to provide an examination, analysis and evaluation of the potential impacts of the Proposed Development on European sites and to present findings and conclusions with respect to the Proposed Development in light of the best scientific knowledge in the field. This NIS will inform and assist the competent authority (An Bord Pleanála in this case) in carrying out its Appropriate Assessment as to whether or not the Proposed Development will adversely affect the integrity of any European sites, either alone or in combination with other plans and projects, taking into account their conservation objectives.

The Proposed Development is neither connected with nor necessary to the management of any European sites.

The below list of appendices and figures support this NIS and are referred to within the report:

- Appendices:
 - Appendix 1.1 – Protected Sites for Nature Conservation in the Vicinity of the Proposed Development;
 - Appendix 1.2 – Desktop Records;
 - Appendix 1.3 – Wintering Bird Survey Results;
 - Appendix 1.4 – Surface Water Management Plan;
 - Appendix 1.5 – Invasive Species Management Plan;
 - Appendix 1.6 – Iarnród Éireann Invasive Species Management Plans; and
 - Appendix 1.7 – Construction Environmental Management Plan (CEMP).
- Figures:
 - Figure 1 - European sites;
 - Figure 2 - Habitat mapping;
 - Figure 3 - Otter survey;
 - Figure 4 – Invasive species;
 - Figure 5 - Breeding bird; and
 - Figure 6 - Wintering birds – Special Conservation Interest (SCI) species.

2. DESCRIPTION OF THE PROJECT

The DART+ Coastal North scheme which is the subject of the assessment in this NIS, is the third infrastructure project to launch as part of the DART+ Programme.

The Proposed Development will require modernisation and modifications to the existing railway line. There is a range of general linear works required along the full length of the Proposed Development to enable the electrification of the line and the upgrade of the existing network.

This Project Description sets out the main elements of the Proposed Development and has been used for the purposes of the NIS.

2.1 DART+ Coastal North Overview

The DART+ Programme is a key transportation improvement to form a high-quality and integrated public transport system. It will have benefits for the residents of the Greater Dublin Area and also those living in the other regions. It will assist in providing a sustainable transport system and a societal benefit for current and future generations.

The current electrified DART network is circa 50km long, extending from Malahide/Howth to Bray/Greystones. The DART+ Programme seeks to increase the high capacity and electrified network to 150km. The DART+ Programme is required to facilitate increased train capacity to meet current and future demands which will be achieved through a modernisation of the existing railway corridors. This modernisation includes the electrification, re-signalling and certain interventions to remove constraints across the four main rail corridors within the Greater Dublin Area, as per below:

- DART+ Coastal North (this project) – circa 50km from Drogheda to the City Centre, with the main extent of the works between Malahide and Drogheda for the Overhead Line Equipment (OHLE) and electrification of the line;
- DART+ South West – circa 16km between Hazelhatch & Celbridge Station to Heuston Station and also circa 4km between Heuston Station to Glasnevin Junction, via the Phoenix Park Tunnel Branch Line;
- DART+ West – circa 40km from Maynooth & M3 Parkway Stations to the City Centre;
- DART+ Coastal South – circa 30km from Greystones to the City Centre; and
- DART+ Fleet – purchase of new electrified fleet to serve new and existing routes.

The Proposed Development, as part of the DART+ Programme, will deliver an improved and extended electrified rail network and will enable increased passenger capacity and an enhanced train service between Dublin City Centre and Drogheda, including the Howth Branch. This increased rail capacity will be achieved by implementing an extended electrified railway network with high-capacity DART trains and an increased frequency of rail services. In addition, the DART+ Coastal North project requires that some track modifications are implemented, including the provision of turnback facilities at Malahide, Clongriffin and Howth Junction & Donaghmede Stations. These modifications are essential to facilitate the increase in train services by improving operational flexibility, allowing trains to be turned back clear of continuing services and enabling a higher frequency and a more reliable service.

The majority of Proposed Development and interventions are expected to be carried out within the existing railway corridor boundary. Some works and interventions, however, will be required outside of the existing railway boundary for some project elements such as:

- Bridge modifications/improvements to facilitate extended electrification;
- Construction of substations (to facilitate the provision of power to the line); and
- Use of land for temporary construction/storage compounds.

The key infrastructural components of the DART+ Coastal North Project include:

- Extension of existing 1500V DC electrification, which currently terminates at Malahide, as far as Drogheda MacBride Station (approximately 37km). This includes;
 - The installation of foundations, masts, and overhead wires to supply power to the railway;
 - Undertaking upgrades to existing signalling, telecoms, and power supplies to support the planned increase in train services, including the introduction of new electrical substations at key locations alongside the railway line:
 - Drogheda;
 - Bettystown;
 - Gormanston;
 - Balbriggan;
 - Skerries North;
 - Skerries South;
 - Rush & Lusk (this location also incorporates an overhead line equipment (OHLE) maintenance compound); and
 - Donabate.
 - Undertaking improvements/modifications to bridges spanning the railway arising from track reconfigurations and/or meeting required electrical clearances;
 - Undertaking localised bridge modifications to enable OHLE to be fixed to bridges carrying the railway;
 - Canopy modifications at Drogheda MacBride Station to accommodate OHLE clearances; and
 - Modified railway boundary fences to protect the public from contacting the overhead line.
- Infrastructure works to facilitate the increase in service frequency and capacity, in specific areas of intervention as outlined below.
 - works around Howth Junction & Donaghmede Station;
 - works around Clongriffin Station;
 - works around Malahide Station & Viaduct;
 - works to the existing user worked level crossing (XB001) south of Donabate; and
 - works around Drogheda MacBride Station;
- Modifications to existing depots at Drogheda and Fairview to support the new train fleet, including the provision of additional train stabling at Drogheda; and
- Ancillary civils, utility diversions, drainage, and power work to cater for the changes.

For the purposes of describing the DART+ Coastal North project in this NIS and the overall Railway Order, the Proposed Development has been divided into 5 geographical zones (A-E) from south to north.

The five geographical zones are described using the local authority boundaries. As Fingal County Council covers a large area of the Proposed Development this has been split into two zones. The zones are described in Table 2-1.

Table 2-1 DART+ Coastal North Geographical Zones

Zone	Location	Description	Local Authority
Zone A	North of Connolly Station to south of Howth Junction & Donaghmede Station	The area between north of Connolly Station to south of Howth Junction & Donaghmede Station, including Fairview Depot.	Dublin City Council
Zone B	South of Howth Junction & Donaghmede Station to north of Malahide Viaduct. (Including Howth Branch)	The area between Howth Junction & Donaghmede Station, to north of the Malahide Viaduct, plus the entire Howth Branch. Includes works within Howth Junction & Donaghmede Station, Clongriffin Station and the Malahide Viaduct.	Fingal County Council
Zone C	North of Malahide viaduct to south of Gormanston Station (Fingal boundary)	The area north of Malahide Viaduct to south of Gormanston Station. Area includes Donabate, Rush & Lusk, Skerries and Balbriggan Stations.	Fingal County Council
Zone D	South of Gormanston Station (Fingal border) to Louth/Meath border	The area between Gormanston Station (Fingal border) and the Louth/Meath border (boundary of Louth approx. 1.5km southeast of Drogheda MacBride Station). Includes Gormanston and Laytown Stations.	Meath County Council
Zone E	Drogheda MacBride Station and surrounds	Drogheda MacBride Station and surrounds including the area between the Dublin Road Bridge (UBK01) to the Louth/Meath border	Louth County Council

The existing railway line passes through a variety of habitats, including urban and rural areas. In general, the existing railway corridor is comprised of a mixture of semi-natural habitat, with ballast bordered by managed and unmanaged grassy verges, scrub, hedgerows and treelines. The railway line in Zone A is bordered by residential and urban areas, whilst Zone B is comprised of mainly urban habitats, with some agricultural fields, golf courses, and estate grounds also present. Zone B also includes Malahide Estuary and Causeway, and its associated wetland habitats. Zones C and D are very similar in composition, dominated by rural and agricultural habitats, with towns such as Balbriggan, Laytown, and Skerries present along this route. These zones also include coastal and intertidal habitats around Rogerstown Estuary, and Laytown. Zone E is comprised of Drogheda town and surrounds, and the River Boyne and River Boyne Viaduct in the northern most section of Zone E.

The Proposed Development crosses a number of watercourses, estuaries, and small streams, ditches and drains, including; the Tolka River, Malahide Estuary, Rogerstown Estuary, Laytown Estuary, Delvin River, and the River Boyne. A number of these water features are designated for nature conservation purposes and are discussed further in the sections below.

The main characteristics of the Proposed Development of relevance to the ecological assessment are outlined under the Sections below.

2.1.1 Drainage Infrastructure

New sections of track drainage will be provided as required in areas of proposed works along the route. The drainage design has been developed to meet project requirements in relation to trackside areas and areas located adjacent to the railway corridor. These areas will typically be in areas of new low points on the alignment, where retaining structures are to be constructed, and at stations and depots.

Non-lineside drainage will comprise the surface water drainage affecting the new platform and substation buildings, new hardstanding areas and other retaining structures. This will also include any foul drainage which may be required. This drainage and associated outflows will be managed with the use of attenuation structures and infiltration measures to ensure that the existing drainage network or watercourses are not adversely affected at times of peak flow.

2.1.2 Utility Diversions

Existing 3rd party utilities such as water mains, electricity cables, telecommunication cables and gas mains, both underground and above ground, will require diversion to accommodate the Proposed Development. These diversions will typically involve:

- Relocating existing services along new routes to make space for the new infrastructure;
- Diversion of all existing overhead power line crossings, either over bridge crossings where possible, otherwise through underground track crossing (UTX) to mitigate the maintenance and operational risk associated with working on or near overhead power lines; and
- Diversion of all existing parallel overhead power lines that fall within the risk zone identified for the new railway electrification infrastructure to mitigate the maintenance and operational risk associated with working on or near overhead power lines.

An assessment of the HV electrical infrastructure has been completed to identify the significant main supplies which are impacted, and which will need re-routing, in most cases underground.

2.1.3 Lighting

There are no plans to provide any new lighting along the railway corridor beyond that listed below, around the buildings and in the depot/stabling areas.

2.1.3.1 Substations

External security lighting is to be utilised using the following:

- Use of LED technology;
- Light level in accordance with the minimum requirements applicable to the outdoor access path to the new traction substations;
- Lighting fixtures: \geq IP56; and
- Protection against vandalism as per EN 12464-2.
- Average lux levels are likely to be 15 lux and min of 5 lux.

Flood lighting Photocell and Passive Infrared (PIR) sensors will be mounted on buildings to illuminate areas in front of entrances during darkness in presence of IE and ESNB staff.

2.1.3.2 New Signalling Equipment Buildings (SEB)/Telecommunication Equipment Rooms (TER) Compound Lighting

Similar to the Traction substations above. Located at:

- Drogheda Station
- Malahide Station
- Clongriffin Station
- Howth Junction

2.1.3.3 Platforms/Walkways

Drogheda Station Platform 4 and Clongriffin Station Platform 0

- Lighting improvements to bring lux levels up to minimum required by TSI PRM (DECISION 2008/164/EC concerning the technical specification of interoperability relating to persons with reduced mobility in the trans-European conventional and high-speed rail system). Average 20 lux at floor level with 10 lux minimum.

Drogheda Depot

- There can also be expected to be additional low-level lighting in the Drogheda depot area to improve walkway safety with average 15 lux; and
- new low level bollard lighting will be installed between roads. The bollard lighting shall be of LED type and shall be of a fixed colour: cool white, with 720 lumen per meter, 10 watt per stripe typically 5 m and with a LED live warranty of min 50,000 hours.

Malahide turnback Chainage

- Between tracks low level lighting with average of 15 lux on drivers walkway length about 150m.

Fairview Lighting:

- The lighting requirements for Fairview will consist of external low-level lighting for maintenance activities and/or for the driver platforms.

2.1.4 Construction Compounds

Construction Compounds are temporary facilities that support the construction of different elements of the project. Some will focus on line-wide works spread along the railway, such as trackwork, overhead electrical cables (OHLE) and signalling, whilst others will support more isolated works such as new substations and bridge works. Some compounds will support both isolated and line-wide works. A list of all Construction Compounds is provided in Table 2-2.

Initial site clearance and establishment activities for the Construction Compounds will typically include:

- Forming the site entrances and exits adjoining public roads;
- Clearing the site as required;
- Installing the site hoarding and gates to ensure that the site is secure;
- Installing general site lighting;

- Carrying out any necessary levelling;
- Stripping topsoil and forming any construction access routes that may be required;
- Laying down areas of hardstanding for material storage;
- Performing all the necessary connections to mains water, sewerage, power, and communications;
- Provision of bunded refuelling areas;
- Installing the site office and welfare facilities;
- Installing site security facilities, goods received checking area, unloading, and loading areas and wheel-washing facilities;
- Establishing segregated pedestrian and vehicle routes to the working areas with clear, designated crossing points and establishing areas for materials and waste storage;
- Establishing power and water distribution and wastewater collection; and
- Forming any Heavy Goods Vehicle (HGV) holding area that may be required for each site.

The activities that will take place on these sites, during the construction phase include:

- Material unloading, storage and loading;
- Erection of prefabricated sections for construction;
- Use of welfare and on-site office space;
- Personnel and machinery access to the railway;
- Parking space for personnel and work vehicles;
- Refuelling of construction plant and vehicles;
- Lifting of material/precast elements, especially in the compounds corresponding to modification of existing overbridges, construction of new bridges and erection of buildings;
- Assembling of catenary cantilevers (the cantilevers consist of metallic bars that are connected by bolts);
- Heavy Goods Vehicles (HGV) and usual construction machinery movement;
- Staff vehicles movement;
- Installation and maintenance of dedicated track access points for Road-Rail Vehicles (RRV); and
- Construction traffic on the access routes for the material/equipment supply by HGV.

Each Construction Compound will require to remain operational for the duration of the works with which it is associated. This is dictated by the construction programme and varies for each compound, ranging from several months (in the case of the overbridge modifications) to three years (for instance, those servicing line wide works).

Construction Compounds will often be set up to be operational 24 hours per day, 7 days per week, especially where they are supporting works to be undertaken during track possessions. For much of this time construction plant and materials will be delivered, marshalled, and delivered along the project, with both road and rail vehicles involved. Temporary lighting will be installed to facilitate works during hours of darkness, and new utility connections may be required to service the compounds. Where activities are happening at compounds outside core working hours these will be coordinated with the local authorities and in consultation with the local community.

Construction Compound locations have been selected, based on where most space is available in close proximity to the majority of the proposed major works and with access to the National and Regional Road network. The Construction Compounds are briefly described below in Table 2-2.

Table 2-2 List of Construction Compounds

Code	Zone	Location	Primary Discipline	Proposed Development Chainage	Within IÉ property
CC-2650	A	Fairview Depot South (R834 Entrance car park)	Station	2,650	Yes
CC-2700	A	Fairview Depot Centre (R834 Entrance car park)	Station	2,700	Yes
CC-3000	A	Fairview Depot North (R807 Entrance car park)	Station	3,000	Yes
CC-9000	B	Howth Junction and Donaghmede Station (Donaghmede Entrance)	Station	9,000	No
CC-9050	B	Howth Junction and Donaghmede Station (Kilbarrack Entrance)	Station	9,050	No
CC-9100	B	Howth Junction and Donaghmede Station (Central Access)	Station	9,100	Yes
CC-9200	B	Howth Junction and Donaghmede Station (Baldoyle Industrial Estate)	Station	9,200	No
CC-10600	B	Clongriffin Station	Permanent Way	10,600	No
CC-15900E	B	Malahide Turnback (Strand Court)	Permanent Way	15,900	No
CC-15900W	B	Malahide Turnback (Bissett's Strand)	Permanent Way	15,900	No
CC-16100	B	Malahide Turnback (Caves Strand)	Permanent Way	16,100	No
CC-16250	B	Malahide Turnback (Marina Car Park)	Permanent Way	16,250	No
CC-16400	B	UBB30 Malahide Viaduct	Structures	16,400	No
CC-18800	C	Donabate Substation	Substation & SET line-wide works	18,800	No
CC-19800	C	Donabate Station	SET line-wide works	19,800	Yes
CC-23500	C	Rush and Lusk Station	Substation & SET line-wide works	23,500	No
CC-23772 (E)	C	Rush & Lusk	Utility Diversions	23,772	No
CC-23772 (W)	C	Rush & Lusk	Utility Diversions	23,772	No

Code	Zone	Location	Primary Discipline	Proposed Development Chainage	Within IÉ property
CC-25626 (E)	C	Tyrrelstown	Utility Diversions	25,626	No
CC-25626 (W)	C	Tyrrelstown	Utility Diversions	25,626	No
CC-27460 (E)	C	Baldongan	Utility Diversions	27,460	No
CC-27460 (W)	C	Baldongan	Utility Diversions	27,460	No
CC-29000	C	Skerries South Substation	Substation	29,000	No
CC-29140 (E)	C	Golf Links Road	Utility Diversions	29,140	No
CC-29140 (W)	C	Golf Links Road	Utility Diversions	29,140	No
CC-30200	C	Skerries Station	Permanent Way & SET line-wide works	30,200	Yes
CC-31100	C	Skerries	SET local works	31,100	No
CC-32200	C	Skerries North Substation	Substation	32,200	No
CC-34400 (E)	C	Balbriggan	Utility Diversions	34,400	No
CC-34400 (W)	C	Balbriggan	Utility Diversions	34,400	No
CC-36000	C	UBB56 Balbriggan Viaduct	Structures	36,000	No
CC-37700	C	Balbriggan Substation	Substation & SET line-wide works	37,700	No
CC-39800 (E)	D	Gormanston Station	Utility Diversions	39800	No
CC-39800 (W)	D	Gormanston Station	Utility Diversions	39800	No
CC-40200	D	Gormanston Station	Permanent Way & SET line-wide works	40,200	No
CC-41400	D	Gormanston Substation	Substation	41,400	No
CC-44390 (E)	D	Laytown	Utility Diversions	44,390	No
CC-44390 (W)	D	Laytown	Utility Diversions	44,390	No
CC-44500	D	UBB72 Laytown Viaduct (South Abutment)	Structures	44,500	No
CC-44600	D	UBB72 Laytown Viaduct (South Pier)	Structures	44,600	No
CC-44700	D	UBB72 Laytown Viaduct (North Pier)	Structures	44,700	No
CC-44900	D	Laytown Station	SET line-wide works	44,900	No
CC-44920 (E)	D	Laytown	Utility Diversions	44,920	No
CC-46900	D	Bettystown Substation	Substation	46,900	No
CC-49600	D	OBB78 Track Lowering	Permanent Way	49,600	No

Code	Zone	Location	Primary Discipline	Proposed Development Chainage	Within IÉ property
CC-50270 (S)	D	Drogheda	Utility Diversions	50,270	No
CC-50270 (N)	D	Drogheda	Utility Diversions	50,270	No
CC-51700 (S)	D	Drogheda	Utility Diversions	51,700	No
CC-51800	E	OBB80 (North)	Structures & SET line-wide works	51,800	No
CC-51900	E	OBB80 (South)	Structures	51,900	Yes
CC-52050	E	Drogheda Substation	Substation	52,050	No
CC-52250	E	Drogheda Station	Station	52,250	Yes
CC-52200	E	UBK01 Dublin Road Overbridge (Car Park)	Structures	52,200	Yes

2.1.5 Estimated Project Duration

The overall construction phase of the Proposed Development is anticipated to be approximately 36 months. This construction programme has considered both efficiency in terms of phasing and duration as well as any measures needed to reduce the potential for environmental impacts.

A high-level indicative construction programme is set out in Figure 2-1 identifying the key construction phases and the duration of same over the construction period. It is noted that the period allowed for testing and commissioning also includes sufficient time for decommissioning of redundant assets, other than those decommissioned at the start of the project.

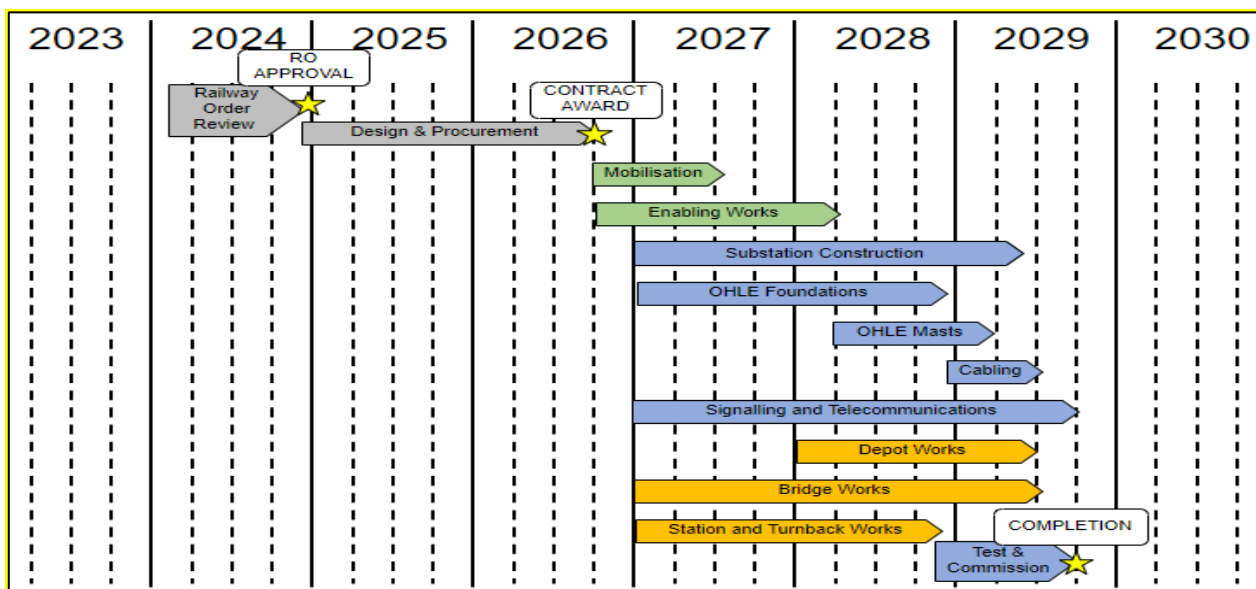


Figure 2-1 High-Level Construction Programme³

³ EIAR Volume 2: Chapter 5 Construction Strategy, DART+ Coastal North

2.1.6 Construction Working Hours

A key consideration in the design of the construction strategy and programme is the requirement to reduce the impact during construction, on the operation of the railway line and hence, to maintain rail services for passengers. The construction works range from those that are located outside of the railway boundary (thus, having no impact or minimal impact on train operations) to those that will require a temporary closure of a section of railway line normally during night-time or weekend possessions to allow construction to proceed and to limit the impact on rail services.

The general construction hours proposed for the project, particularly for works away from the immediate vicinity of railway line (these typically needing track closures) are:

- Monday to Friday 07:00 to 19:00 (12 hours);
- Saturday 08:00 to 14:00 (6 hours); and
- Sunday Only when agreed in advance with the local authority and IÉ.

Where required, track possession times will vary across the rail corridor. The times listed below are indicative and are likely to be utilised to a greater or lesser degree depending on likely disruption of railway operations. Non-disruptive track possessions are those possessions which occur outside of the general operational timetable for the railway line, whereas disruptive possessions refer to those track possessions where normal railway operations are disrupted.

Any proposed track possession periods would be finalised when detailed design and detailed construction planning is undertaken. For the purposes of the application for a railway order, a reasonable worst-case scenario has been assumed here and for the assessments undertaken in this NIS. In general, night-time possessions will be utilised, but it is anticipated that a number of daytime and weekend possessions will also be required, to accommodate the construction works. These possessions will be planned with other railway works and peak railway user demand periods in mind. Specific possession hours would be advised nearer the start of construction however, possible types of track possessions are noted in Table 2-3.

Table 2-3 Possession Types and Durations

Possession Type	Duration/Timings
Non-disruptive Weekday night	4 hours / 01:00 to 05:00
Non-disruptive Saturday night	6 hours / 01:00 to 07:00
Disruptive Extended Saturday night	10-12 hours
Disruptive Long Weekend (October and Easter)	3-4 days, twice per year
Disruptive Full weekend (anticipated rarely)	52 hours/Saturday morning at 01:00 to Monday morning at 05:00
Disruptive Bank Holiday weekend (anticipated rarely except October and Easter)	72-76 hours/for example Saturday morning at 01:00 to Tuesday morning at 05:00
Disruptive Single Line working at weekends (anticipated rarely).	This may be feasible in specific locations, especially at Malahide, where design and logistics allow.

There are a number of temporary Construction Compounds identified for the Proposed Development. Given that some works need to be undertaken when the railway is closed to train services, these Construction Compounds will often need to be active at night and at weekends.

At these times, contractors would be marshalling construction plant and materials via the Construction Compounds, involving both road and rail vehicles. Many deliveries to the compounds can be made during daytime hours, to reduce disturbance at night for the local community and this will be planned and implemented wherever possible during the construction works. Wherever practicable, measures will be taken to minimise impacts in the vicinity of Construction Compounds during night-time works. For example, where night time concrete operations are required, a contractor might obtain their concrete from a local concrete batching plant, or batch it themselves, drive it to a trackside compound, transfer the wet concrete to a suitable vehicle (e.g., RRV dumper) and then transport it along the railway.

2.1.7 Malahide Station area proposed track works (Malahide Turnback)

Malahide Station is located on the Dublin to Belfast Line at approximate mileage 9 miles from Dublin Connolly (approximate chainage 15+650 to 15+880). The station consists of two platforms: Platform 1 on the Up Main line and Platform 2 on the Down Main line. North of Malahide Station is the Malahide Estuary which includes European sites with protections for biodiversity. The railway crosses the estuary by way of a southern and northern causeway, connected by Malahide Viaduct (UBB30) which is a protected structure.

The proposal is for construction of a new turnback facility north of the station, required to improve operational flexibility and support an increase in the frequency of train services.

The works will introduce a new pocket track between the Up and Down Line located along the southern causeway, in the area between the Strand Road underbridge (UBB29) and the Malahide Viaduct (UBB30). To facilitate the new turnback line the existing corridor needs to be widened to the west above the existing embankment. The works will include the construction of a new modular reinforced earth wall, and a modified earthworks embankment alongside the proposed Broadmeadow Way greenway. The existing OHLE and signalling systems will be modified with the installation of new OHLE and signalling assets beginning just south of the viaduct.

Construction plant for these operations will include excavators, dump trucks, rollers (compactors) and a variety of heavy goods vehicles (HGVs) including tipper trucks, low loaders, and concrete wagons. Additionally, there is the potential for a soil nailing equipment, drilling rig, grout pump and mixers if further stabilisation measures are identified.

The construction works will impact on the Broadmeadow Way greenway (if in place prior to the commencement of construction) with the full width of the greenway being reduced for the duration of construction. Working space will vary along the wall but will be kept to the minimum to ensure a minimum 3m width of greenway is maintained to reduce the impact on the newly constructed greenway. Phasing of the work in small sections will also be used to limit the impact to the greenway and the existing embankment. The phasing and reduced width sections will continue over the full construction duration.

Access to the work front for the wall will only be available from the south direction for operations and suitable traffic management plans are to be in place to be most efficient.

Key activities will include using an excavator to remove rock armour and excavate into the existing embankment, loading tipper trucks to remove rock armour, unloading low loader trucks with wall elements and geotextiles, and discharging concrete wagons, as well as then ultimately placing the earthworks and topsoil backfill material and access equipment to install the fence. If soil nailing is required, these operations will be carried out during daytime hours only.

Presently OHLE extends along where the turnback is planned to be built but ceases close to its northern end. To ease the management of track possessions in the area, the staging and temporary reduction of the existing OHLE just north of Malahide Station will need to be agreed by the Contractor with IÉ and checked against operational requirements and timetabling.

3. LEGISLATIVE CONTEXT

The Birds and Habitats Directives - Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive) and Council Directive 92 /43 /EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) – require Ireland to establish protected sites as part of a European wide network of sites (the Natura 2000 network which are known in Ireland as European sites) for habitats and species that are of international importance for conservation. The European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) (the 2011 Regulations) were made by the Minister Arts, Heritage and the Gaeltacht to give effect the Birds Directive and the Habitats Directive.

The European Communities (Birds and Natural Habitats) (Amendment) Regulations 2021 (S.I. No. 293 of 2021) (the 2021 Regulations) were made by the Minister for Housing, Local Government and Heritage for the purpose of giving further effect to the Birds Directive and the Habitats Directive

In Ireland, European sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SACs are selected for habitats listed on Annex I of the Habitats Directive (including priority Annex I habitat types which are in danger of disappearance) and species listed on Annex II. SPAs are selected for bird species (listed on Annex I of the Birds Directive), regularly-occurring populations of migratory bird species (such as ducks, geese and waders), and areas of international importance for migratory birds. The specified habitats and species for which each SAC and SPA is selected, correspond to the Qualifying Interests (in the case of SACs) or Special Conservation Interest species (in the case of SPAs) for the sites, for which conservation objectives are prepared.

Article 6(3) of the Habitats Directive states that:

‘Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.’

This provision is transposed into Irish law by Part XAB of the Planning and Development Acts 2000 (as amended) (the 2000 Act) Section 177U(4) of the 2000 Act provides for screening for Appropriate Assessment as follows:

‘The competent authority shall determine that an appropriate assessment of [...] a proposed development [...] is required if it cannot be excluded, on the basis of objective information, that the [...] proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.’

Section 177U(5) provides as follows:

‘The competent authority shall determine that an appropriate assessment of a [...] proposed development, [...], is not required if it can be excluded, on the basis of objective information, that the [...] proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.’

Section 177T(1) provides that a NIS is ‘a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites’ and Section 177T(2) specifies that an NIS ‘shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites’.

The Court of Justice of the European Union (CJEU) has made a number of rulings in relation to Appropriate Assessment, regarding when it is required, its purpose and the standards it should meet. Two of the key rulings include, Case C-127/02 *Waddenvereniging and Vogelsbeschermingvereniging* (Waddenzee) where the CJEU found that ‘Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site’s conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects’ and that the plan or project may only be authorised ‘where no reasonable scientific doubt remains as to the absence of such effects’, and Case C-258/11 *Sweetman v. An Bord Pleanála* where the CJEU held at para. 44 that ‘[The Appropriate Assessment] cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned’ and determined that “[t]he precautionary principle should be applied for the purposes of that appraisal”.

Consideration has been given in the preparation of this NIS, to the evolution in interpretation and application of directives and national legislation arising from jurisprudence of the European and Irish courts, in respect of Article 6 of the Habitats Directive.

4. METHODOLOGY

4.1 Scientific and Technical Competence Relied Upon

This NIS was authored by Síofra Quigley and reviewed by Tim Ryle and Andrew Speer of Scott Cawley Ltd. The background and experience of the author and contributors to this report are set out below.

Síofra Quigley is a Senior Ecologist with Scott Cawley Ltd. She obtained an honours degree in Zoology, from National University of Ireland Galway, and a Master's degree in Wildlife Biology and Conservation from Edinburgh Napier University. Síofra is a Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). She has six years' professional experience working in the UK and Ireland on a range of projects, from residential to large-scale infrastructure. Síofra is experienced in carrying out field surveys in several protected species; bat, otter, badger, birds, red squirrel, reptile, pine marten, and undertakes and manages surveys for a range of projects. She has also been involved in radio tracking mountain hares and bats, bat call analysis, badger bait marking, has acted as an Ecological Clerk of Works role on construction projects. Síofra is experienced in habitat classification (Joint Nature Conservation Committee, 2010, EU Habitats Directive and Fossitt classification) and mapping (QGIS and ArcGIS). Síofra's work in Scott Cawley involves project management, and the preparation of reports, including Ecological Impact Assessment (EclA) Appropriate Assessment (AA) Screening reports, and Natura Impact Statements (NIS) for residential, commercial, and infrastructure projects across Ireland. Síofra has also been involved in the preparation of bat derogation licence applications, prepared habitat management plans and advised on enhancement measures for planning applications.

Tim Ryle is a Principal Ecologist with Scott Cawley Ltd. He holds an honours degree in Botany from University College Dublin and was later awarded a Ph.D. from the same institution. He is a full Member of the Institute of Environmental Scientists. Tim is an experienced ecological consultant with twenty years' experience in private consultancy in designing, undertaking and managing a wide range of ecological survey and in assessing impacts and designing mitigation measures and biodiversity enhancements, in particular for protected species including badgers, otters, bats, birds, amphibians as well as habitats of conservation importance. He is also experienced in undertaking Appropriate Assessment for small-scale development projects and larger infrastructural projects, land plans as well as national/government plans.

Andrew Speer is a Chief Technical Officer at Scott Cawley Ltd., with over 14 years' professional ecological consultancy experience in ecological impact assessment. Andrew is a Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and holds an honours degree in Zoology from NUI Galway, a Postgraduate Diploma in Geographic Information Systems (GIS) from the University of Ulster and an Advanced Diploma in Planning and Environmental Law from Kings Inns. He has extensive experience in the Appropriate Assessment (AA) process and has been the lead author for the preparation of numerous Screening for Appropriate Assessment Reports, Natura Impact Statements (NISs) and Natura Impact Reports (NIRs). Andrew also provides technical review and due diligence of Appropriate Assessment documentation for public and local authorities to aid their decision-making process as well as peer review of AA documentation prior to lodgement of planning applications.

4.2 Guidance and Approach

This NIS has been prepared having regard to the following documents.

European Commission Guidance

- Assessment of Plans and Projects in Relation to Natura 2000 sites: Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2021);
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (European Commission, 2019);
- Communication from the Commission on the Precautionary Principle (European Commission 2000)⁴;
- Nature and Biodiversity Cases – Ruling of the European Court of Justice (European Commission 2006);
- Article 6 of the Habitats Directive – Rulings of the European Court of Justice (European Commission Final Draft September 2014);
- Managing Natura 2000 sites - The provisions of Article 6 of the Habitats Directive 92/43/EEC (2019/C 33/01). (European Commission, 2019); and
- Interpretation Manual of European Union Habitats. Version EUR 28. (European Commission, 2013).

Irish Guidance

- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government 2010 revision);
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPW 1/10 & PSSP 2/10 (NPWS, 2010); and
- OPR Practice Note PN01. Appropriate Assessment Screening for Development Management (Office of the Planning Regulator, 2021).

In addition, regard has been had to the following guidance in characterising impacts, including determining magnitude and significance of impacts, as relevant in the application to Appropriate Assessment and European sites:

- Guidelines for Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Assessment, 2022)

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

This guidance document notes that the precautionary principle “covers those specific circumstances where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection”.

Applying the precautionary principle in the context of screening for appropriate assessment requires that where there is uncertainty or doubt about the risk of significant effects on a European site(s), it should be assumed that significant effects are likely and AA must be carried out.

4.3 Assessment Methodology

The Proposed Development (including the proposed design, construction methodologies and operational effects) was analysed and assessed to identify the potential impacts associated with the Proposed Development that could affect the ecological environment.

From this, the zone of influence of the Proposed Development was defined. Based on the identified impacts, and their zone of influence, the European sites potentially at risk of any direct or indirect impacts were identified.

In establishing which European sites are potentially at risk (in the absence of mitigation) from the Proposed Development, a source-pathway-receptor approach was applied. In order for an impact to occur, there must be a risk enabled by having a source (e.g. water abstraction or construction works), a receptor (e.g. a European site or its Qualifying Interest(s) (QIs) or Special Conservation Interest(s) (SCIs) species), and a pathway between the source and the receptor (e.g. pathway by air for air borne pollution, or a pathway by a watercourse for mobilisation of pollution). For an impact to occur, all three elements must exist; the absence or removal of one of the elements means there is no possibility for the impact to occur.

The identification of source-pathway-receptor connection(s) between the Proposed Development and European sites essentially is the process of identifying which European sites are within the zone of influence of the Proposed Development, and therefore potentially at risk of significant effects. The zone of influence is defined as the area within which the Proposed Development could affect the receiving environment such that it could potentially have significant effects on the QI habitats or QI/SCI species of a European site, or on the achievement of their conservation objectives (as defined in CIEEM, 2022).

The identification of a source-pathway-receptor risk does not automatically mean that significant effects will arise. The likelihood of significant effects will depend upon the characteristics of the source (e.g. extent and duration of construction works), the characteristics of the pathway (e.g. direction and strength of prevailing winds for air borne pollution) and the characteristics of the receptor (e.g. the sensitivities of the European site and its QIs/SCIs). However, identification of the risk does mean that there is a possibility of ecological or environmental damage occurring, with the significance of the effect depending upon the nature and exposure to the risk and the characteristics of the receptor. In this case, where there is uncertainty, the precautionary principle has been applied.

This assessment has been undertaken in consideration of all potential impact sources and pathways connecting the Proposed Development to European sites, in view of the conservation objectives supporting the conservation condition of the sites' QIs/SCIs.

The conservation objectives relating to each European site and its QIs/SCIs are expressed generally for SACs as *"to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the cSAC has been selected"*, and for SPAs *"to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA"*.

Following on from this, and as defined in the Habitats Directive, favourable conservation status (or condition, at a site level) of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing;
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- the conservation status of its typical species is favourable.

The favourable conservation status (or condition, at a site level) of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Where site-specific conservation objectives have been prepared for a given European site, these include a series of specific attributes and targets against which effects on conservation condition, or integrity, can be measured, i.e. an impact which affects the achievement of favourable conservation condition, as measured by the attributes and targets, is an impact on site integrity.

In the case of some QIs/SCIs in certain European sites, the conservation objective is to restore rather than maintain conservation condition and this distinction is taken into account in the assessment; as is any legacy damage to European sites that has occurred since their designation, insofar as possible.

4.4 Desktop Data Review

A desk study involved collection and review of relevant published and unpublished sources of data, collation of existing information on the ecological environment and consultation with relevant statutory bodies.

The following sources were consulted during the desk study to inform the scope of the ecological surveys:

- Online data available on European sites and on Natural Heritage Areas (NHAs) or proposed Natural Heritage Areas (pNHAs) as held by the NPWS (NPWS 2024)⁵;
- Online data records available on National Biodiversity Data Centre Database (NBDC Online Database, Accessed 2024);
- Ordnance Survey Ireland (OSI) orthophotography (from 2013 - 2018) for the Proposed Development;
- Records of rare and/or protected species for the 10km (kilometre) grid squares O13, O23, O24, O25, O26, O16, O17, and O07 held by the NPWS;
- Habitat and species Geographic Information System (GIS) datasets provided by the NPWS, including Article 12 and Article 17 data⁶;

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

⁶ Article 17 of the EU Directive on the Conservation of habitats, Floras and Fauna (Habitats Directive) requires that all member states report to the European Commission every six years on the status and on the implementation of the measures taken under the Habitats

- Bat records from Bat Conservation Ireland's (BCI) database;
- Records from the Botanical Society of Britain and Ireland (BSBI);
- Information contained within the Flora of County Dublin (Doogue *et al.* 1998);
- Environmental information/data for the area available from the EPA website (EPA 2024);
- Information on the status of European Union (EU) protected habitats and species in Ireland (NPWS 2019a, NPWS 2019b and NPWS 2019c);
- Information contained within the Environmental Impact Assessment Report (EIAR) prepared for the railway order application, including Chapter 2 Policy Context and Need for the Scheme, Chapter 5 Construction Strategy, Chapter 9 Land and Soils, Chapter 10 Water, Chapter 11 Hydrogeology, Chapter 12 Air Quality, Chapter 14 Noise and Vibration, and Chapter 15 Landscape and Visual;
- Information on light-bellied Brent goose inland feeding sites (Scott Cawley Ltd., 2017); and
- Macklin, R., Brazier, B. and Sleeman, P. (2019) Dublin City otter survey. Report prepared by Triturus Environmental Ltd for Dublin City Council as an action of the Dublin City Biodiversity Action Plan 2015-2020.

4.5 Ecology Surveys

The majority of field surveys for the Proposed Development were undertaken in 2021, 2022 and 2023. Additional wintering bird surveys were undertaken in 2023-2024 season in respect of the proposed Construction Compound locations, with breeding bird and habitat surveys at the Malahide compounds and proposed work areas along the Malahide Causeway also undertaken in 2024⁷ (See Table 4-1 for details). The surveys aimed to detect the presence, or likely presence, of rare/threatened, protected and invasive species, and to record the habitats present in the Proposed Development. The surveys provided baseline information regarding the existing ecology of the Proposed Development. Incidental records of plants, bird species and protected species were collected throughout the surveys in 2021, 2022 and 2023, as well as localised areas arising from design iterations, in 2024. Specific ecological surveys were carried out with respect to the following:

- Habitats (including Annex I habitats);
- Bats;
- Otter;
- Badger;
- Amphibian habitat suitability;
- Reptile habitat suitability;
- Birds (wintering and breeding); and,
- Invasive Species.

Section 4.5.1 describes the various ecological survey methodologies used to collate baseline ecological information in the preparation of this report. Results of these surveys are presented in Section 5.

Directive. In a similar manner, there is an obligation to report on the status and trends of bird species required under Article 12 of the Bird's Directive.

⁷ Additional breeding bird and habitat surveys were undertaken in Malahide in 2024 due to changes in the design and Proposed Development boundary for the proposed Malahide Turnback, in response to significant feedback raised following public consultation no. 2.

The ecological surveys carried out, dates and personnel involved are summarised in Table 4-1. It is noted that some of the surveys, and the ecological receptors are not pertinent to the Appropriate Assessment process as they are not Qualifying features of European sites as defined under the EU (Birds and Natural Habitats) Regulations 2011 (as amended). In this regard the Assessment presented in this report relates to habitats, rare and protected species, marine mammals, otters, and birds, the remainder being assessed in the Biodiversity Chapter (Chapter 8 of the EIAR). Whilst dedicated marine mammal surveys were not carried out as part of the project, they are assessed below under Section 5.3.4.

Table 4-1 Ecological Surveys Carried out in 2021, 2022, 2023 for the Proposed Development

Survey	Date	Surveyor
Habitats (including Annex I habitats and invasive species)	August 2021 June 2022 August – September 2023 (Construction Compounds, substation and utilities locations) May 2024 (Malahide Causeway and Malahide Construction Compounds)	Scott Cawley Ltd.
Otter	October 2022 November 2022 December 2022	Scott Cawley Ltd.
Bats ⁸	<i>Bridge PRAs</i> July 2021 August 2021 January 2022 May 2022 <i>Activity surveys</i> August 2021 – September 2021 May – July 2022 <i>Static detector deployments</i> August – September 2021 October – November 2021 January – February 2022	Scott Cawley Ltd.
Breeding birds	April – June 2022 April – June 2023 May 2024 (Malahide Causeway and Malahide Construction Compounds)	Scott Cawley Ltd.
Wintering birds	October 2021 – March 2022 October 2022 – March 2023	Scott Cawley Ltd.

⁸ The lesser horseshoe bat is the only bat species in Ireland listed on Annex II of the EU's Habitats Directive and is only found in the west and southwest of the country. As there are no European sites designated for bats in the east of Ireland, there are no impacts likely on this species. Bats are therefore not discussed further.

Survey	Date	Surveyor
	September 2023 – March 2024 (Construction Compound and substation locations)	

4.5.1 Survey Methodology

4.5.1.1 Habitats

Terrestrial and coastal habitat surveys were undertaken along the length of the Proposed Development by Shane Brien B.Sc. M.Sc. ACIEEM, Cathal O'Brien B.Sc. M.Sc., Wayne Daly B.Sc. and Lorna Gill BA M.Sc. between August 2021 and June 2022. Shane, Cathal and Wayne conducted the primary surveys along the current rail line between Drogheda MacBride station and Malahide station between 9th and 12th August 2021 with IÉ track safety coordinators (TSC). Other offline habitats such as proposed substation locations, Construction Compound locations on lands adjacent to the line were recorded on multiple dates between August and September 2023. Methodology for recording habitats on the rail line followed the *Best Practice Guidance for Habitat Survey and Mapping* (Smith et al., 2011). Additional habitat surveys were undertaken at the Malahide Causeway and Malahide Construction Compounds on 22nd May 2024 by Wayne Daly.

All habitat types were classified using the *Guide to Habitats in Ireland* (Fossit, 2000), recording the indicator species and abundance using the DAFOR scale⁹ and recording any species of conservation interest. Vascular and bryophyte plant nomenclature generally follow that of *The National Vegetation Database* (Weekes & Fitzpatrick, 2010) having regard to more recent taxonomic changes to species names after the *New Flora of the British Isles* (Stace, 2019) and the British Bryological Society's *Mosses and Liverworts of Britain and Ireland: A Field Guide* (Atherton et al., 2010). Non-native invasive plant species listed on the Third Schedule of the Birds and Habitats Regulations were also recorded. The habitat's extent was mapped onto a field tablet using proprietary QField software. Vascular plant nomenclature follows that of the *New Flora of the British Isles Fourth Edition* (Stace 2019).

Shane Brien B.Sc. M.Sc. ACIEEM and Tim Ryle BSc (Hons)., Ph.D., MEnvSc conducted a survey for Annex I habitats on 22 June 2022, which were classified after the *Interpretation manual of European Union Habitats EUR28* (CEC, 2013) with reference to the corresponding national habitat survey reports and NPWS wildlife manuals, as applicable. The nomenclature for Annex I habitats follows that of the Interpretation manual of European Union Habitats EUR28 with abbreviated names after those used in *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview* (NPWS, 2019). Relevés (i.e. sampling points of a defined size) were also taken within saltmarsh/estuary habitats i.e. Atlantic Salt Meadows [1330] in close proximity to the existing railway line in order to determine whether or not they conformed to Annex I habitats. The relevé size was 2m² for the saltmarsh habitat, and information collected included the following:

⁹ The DAFOR scale is an ordinal or semi-quantitative scale for recording the relative abundance of plant species. The name DAFOR is an acronym for the abundance levels recorded: Dominant, Abundant, Frequent, Occasional and Rare.

- A list of all plant species present along with their associated percentage cover;
- A habitat condition assessment based on criteria which were drawn from the national surveys of this Annex I habitat conducted on behalf of NPWS (i.e. Long *et al.*, 2018; Martin *et al.*, 2018; O'Neill *et al.*, 2013; Perrin *et al.*, 2014; Wilson & Fernández, 2013); and,
- Notes on the threats and/or management of the overall surrounding area. Where applicable, the Annex I habitat was also assigned to a vegetation community.

4.5.1.2 Otter

Surveys to check for the presence of otter *Lutra lutra* within the Proposed Development were undertaken between October – December 2022 at a number of watercourses crossed by the railway line, where works are proposed and included suitable accessible habitat 150m upstream and downstream from the railway line. Locations surveyed were; the Tolka River by the R131 at Fairview Park, Moyne river south of the Moyne road, Malahide Estuary, Rogerstown Estuary, River Matt at Balbriggan viaduct, River Delvin at Delvin Bridge, Mosney River at Mosney beach, and the River Nanny at Laytown. The survey involved a search for signs of otter activity (prints, spraints, trails, holts, couches, slides, feeding remains etc.). Drainage ditches and small streams were not surveyed due to inaccessibility and as no works are being undertaken within or at any drainage ditches/small streams.

Two Infra-Red motion-activated cameras were deployed along the northern side of the Malahide Causeway, where a sluice gate is located under the railway line on the River Turvey/Pill. This was to determine the use of the railway line by commuting otters as movement is impeded by the sluice gate. Cameras were deployed for a period of 4 weeks between the 16 August 2023 and 13 September 2023 (inclusive).

4.5.1.3 Breeding Birds

Breeding bird surveys were undertaken by Síofra Quigley B.Sc. MSc. MCIEEM, SORCHA Shanley B.Sc. M.Sc., Shane Brien B.Sc. M.Sc. ACIEEM, Cathal O'Brien B.Sc. M.Sc., Lorna Gill B.A M.Sc., and Wayne Daly B.Sc. using a methodology adapted from the *Bird Monitoring Methods - A Manual of Techniques for Key UK Species* (Gilbert *et al.*, 1998) (see Table 4-2 or more details). The surveys covered specific areas outside of the existing railway line where works are proposed (substations, proposed Construction Compound locations), and where very suitable breeding bird habitat was identified i.e. dense scrub, mature hedgerows/treelines, reed habitats, wetlands/sand dunes south of Laytown, as shown in Figure 5 (Breeding birds). While not all of the Proposed Development was surveyed (for practical reasons owing to surveying on a live railway), the surveys undertaken covered a representative sample of all habitat types likely to be used by breeding birds. Birds were identified by sight and song, and general location and activity were recorded using the British Trust for Ornithology (BTO) species and activity codes.

Table 4-2 Breeding Bird Survey Details

Date (Sunrise)	Survey Time	Weather Conditions
26/04/2022 (06:00)	06:15- 11:50	Mild, partly sunny weather with temperatures around 4 to 10°C. (conducted by Shane Brien and Cathal O'Brien)
26/05/2022 (05:08)	06:00- 12:00	Humid day, mist rain conditions with overcast clouds, with temperatures around 11 to 14°C and moderate south west breeze. (conducted by Cathal O'Brien and Lorna Gill)
22/06/2022 (04:55)	05:30- 09:45	Humid day, mist rain conditions with overcast clouds, with temperatures around 15 to 16°C. (conducted by Shane Brien and Cathal O'Brien)
06/04/2023 (06:47)	06:50- 11:00	Humid day, light drizzle conditions with overcast clouds, with temperatures around 5 to 8°C. (conducted by Shane Brien and Síofra Quigley)
04/05/2023 (05:45)	05:55- 11:45	Mild day, few clouds and light breeze conditions, with temperatures around 9 to 10°C. (conducted by Síofra Quigley and Sorcha Shanley)
07/06/2023 (04:59)	05:15- 09:15	Temperate day, few clouds in the sky and moderate wind conditions, with temperatures around 9-14°C. (conducted by Shane Brien and Síofra Quigley)
22/05/2024 (05:14)	05:30 – 09:30	Temperate day, overcast with a gentle breeze, temperatures around 12°C. (Conducted by Wayne Daly)
28/05/2024 (05:06)	06:00 – 09:00	Intermittent rain, overcast with a moderate breeze, temperatures around 13°C (Conducted by Wayne Daly)

4.5.1.4 Wintering Birds

A desk study was carried out to identify any potential suitable sites for wintering birds located within or directly adjacent to the Proposed Development. This included a review of recent aerial photography and known inland feeding sites for the SCI bird species light-bellied Brent goose *Branta bernicla hrota* (Scott Cawley Ltd. 2017). A habitat suitability assessment was carried out in August 2021 to verify the suitability of potential inland feeding / roosting sites identified during the desk study.

The desk study identified five sites along or adjacent to the Proposed Development with potential for wintering birds that will be subject to direct habitat loss or collision risk as a result of the new Over Head Line Equipment (OHLE) for the electrification of the line. Each site was surveyed twice a month over six months across October 2021 - March 2022, and over six months across October 2022 - March 2023 using a methodology based on the *Bird Monitoring Methods - A Manual of Techniques for Key UK Species* (Gilbert *et al.*, 1998).

The results of the desk study and field surveys have informed the assessment of potential impacts on wintering bird species arising from the Proposed Development. The impact was determined to be greatest in the estuaries and areas of highly suitable habitat that are adjacent to the exposed railway, so other areas outside of the aforementioned localities were not surveyed due to health and safety concerns with working on a live railway, and the railway being screened in some areas by residential and urban habitats, and treelines.

Additional wintering bird surveys were undertaken in September 2023 – March 2024, at the proposed compound and substation locations with suitable wintering bird habitat (i.e. agricultural fields, grasslands), following the same methodology as described above and below.

Four Construction Compounds/Substation locations were determined to have potential wintering bird habitat, and included; Drogheda Substation/Construction Compound, Laytown Construction Compound, Skerries Substation/Construction Compound, and Gormanston Construction Compound. Two additional Construction Compounds at Malahide by Caves Strand and Bissett's Strand were identified to accommodate the Malahide Turnback following a design change responding to feedback received following public consultation no.2. Due to the timing of when these Construction Compounds were added, it was not possible to complete wintering bird surveys in these locations. However, this is not considered to be a limitation to the assessment as a habitat survey was undertaken in these areas, and the proposed Construction Compound locations at Caves Strand and Bissett's Strand were not suitable for foraging and/or roosting wintering birds, due to being comprised of overgrown grassland and scrub.

The Proposed Development crosses five localities that are considered to harbour high numbers of wintering bird species and are likely to fly across the existing rail line to use habitats on either side of the line. Three of the localities (River Nanny Estuary, Rogerstown Estuary, Malahide Estuary) are currently exposed bridges, with the railway line traversing areas of high habitat suitability for wintering bird species (i.e. estuarine habitat). The other two localities (Gormanston and Balbriggan) are areas that contain short sward grassland, bordered by low hedgerows, with the existing railway traversing through the fields.

Surveys were timed to cover a range of tidal conditions, using a binoculars/scope from vantage points at a suitable visual distance viewing the estuaries and current rail line. The survey time at these vantage points was determined around sunlight hours during low or high tide for 4 hours (1 before peak tide and 3 after).

Surveys at the estuaries mentioned above, surveyed the 500m area either side of the existing railway line from vantage points. Each vantage point was covered once a month at high and low tide, as shown in Figure 6 (Wintering birds). Balbriggan was an exception with walkovers of green spaces adjacent to the current rail line undertaken as there were no suitable vantage points available that would allow surveyors to cover large areas from one location.

Any birds flying over or close proximity to the rail line were recorded within height bands and height based on level with the current rail line e.g. band 0 was used when birds flew under the bridge & band 1 was used when birds flew over the rail line at risk of collided with the OHLE, as outlined in the Table 4-3 below.

Table 4-3 Wintering Bird Survey Height Bands

Band number	Approximate height (m)	Possibility of colliding with OHLE
0	Under the bridge	None
1	0-10	High
2	10-20	Moderate
3	20-35	Low
4	35-50	Low
5	>50	Low

An additional approach was a “look-see” methodology i.e. whereby the surveyor scans the entirety of a predefined survey area and records all birds present (based on Bibby *et al.*, 2000) within proximity of the current rail line, and in areas outside of the boundary of the railway line, i.e. Construction Compounds and substation compounds. All birds present within the sites were identified with reference to *Collins Bird Guide* (Svensson, 2010) to confirm identification (where necessary), and were recorded using the BTO species codes. The total flock size of birds present, their general location within the site and any activity exhibited were also recorded. Evidence of bird droppings where noted were recorded.

5. BASELINE DESCRIPTION

5.1 European Sites

The Proposed Development overlaps with five European sites;

- Malahide Estuary SAC and Malahide Estuary SAC where the existing Malahide Viaduct and railway traverses Malahide Estuary;
- Rogerstown Estuary SAC and Rogerstown Estuary SPA where the existing Rogerstown Viaduct and railway traverses Rogerstown Estuary; and,
- River Nanny Estuary and Shore SPA where the existing Laytown Viaduct and railway traverses the River Nanny Estuary.

The Proposed Development does not traverse any other European site, except those listed above, but does come close to several other European sites (as shown in Figure 1 (European sites)). In Zone A, the Proposed Development is in close proximity to European sites in Dublin Bay, which is variously designated for a number of overlapping European sites. The nearest European site to the Proposed Development in Zone A is South Dublin Bay and River Tolka Estuary SPA, located c. 500m east from the Proposed Development boundary at its closest point. North Dublin Bay SAC and North Bull Island SPA, are also in close proximity to the Proposed Development, located approximately 800m, east.

The aforementioned European sites, i.e. South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC, and the North Bull Island SPA, are also hydrologically connected to the Proposed Development via the River Santry, which flows under the railway line in Raheny, and outfalls c. 1.3km downstream into Dublin Bay at the Bull Island Causeway. There are a number of other European sites that are within the ZOI but are not directly hydrologically linked to the Proposed Development or located offshore, namely; South Dublin Bay SAC, North-West Irish Sea SPA, Rockabill to Dalkey Island SAC, Howth Head SAC, Howth Head Coast SPA, Lambay Island SAC, Irelands Eye SAC, Clogher Head SAC, Dalkey Island SPA.

There are three European sites containing marine mammals which are known to frequent Dublin Bay and the eastern coastline. These are Rockabill to Dalkey Island SAC, Lambay Island SAC and Codling Fault Zone SAC.

In Zone B, whilst the Proposed Development boundary comes within metres of European sites in Baldoyle Estuary, i.e. Baldoyle Bay SAC and Baldoyle Bay SPA, no works are proposed along the Howth line, with works only proposed at Howth Junction and Donaghmede, Clongriffin, and Malahide Station and Viaduct. Therefore, Baldoyle Bay SAC which is located c. 250m east of the Proposed Development, and Baldoyle Bay SPA located c. 600m east, are also hydrologically connected to the Proposed Development via the River Mayne, which flows under the existing railway line, and outfalls into Baldoyle Bay c. 950m downstream of the Proposed Development.

There are a number of European sites associated with the River Boyne. The Boyne Estuary SPA, Boyne Coast and Estuary SAC, and the River Boyne and River Blackwater SAC are all downstream and hydrologically linked to the Proposed Development. The River Boyne and River Blackwater SPA designated for kingfisher, is located c. 4km upstream of the Proposed Development, and therefore also within the ZOI of the Proposed Development.

There are 21 SPAs designated for SCI bird species that are known to forage and/or roost across Dublin City, and/or utilise Dublin Bay, and the eastern coastline and estuarine/wetland habitats within. These are Malahide Estuary SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, Skerries Islands SPA, North Bull Island SPA, South Dublin Bay and River Tolka SPA, North-West Irish Sea SPA, Ireland's Eye SPA, Lambay Island SPA, Rockabill SPA, Dalkey Islands SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Stabannan-Braganstown SPA, Wicklow Mountains SPA, Howth Head Coast SPA, Dundalk Bay SPA, The Murrough SPA, Seas Off Wexford SPA, Wicklow Head SPA, and the Saltee Islands SPA..

There are 34 European sites (SACs and SPAs) located within the vicinity of the Proposed Development, listed in Table 5-1, and illustrated in Figure 1 (European Sites). There are 31 European sites within the Zol of the Proposed Development, Table 5-1 lists these sites, their distance from the Proposed Development, and the sites Qualifying Interests (QIs) / Special Conservation Interests (SCIs).

Table 5-1 European Sites (SACs and SPAs) located within the Zol (highlighted in table in light grey), and those in the wider area of the Proposed Development Boundary

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
Special Areas of Conservation (SACs)		
Malahide Estuary SAC [000205]	The Proposed Development lies within this European site boundary	<p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p><i>S.I. No. 91/2019 - European Union Habitats (Malahide Estuary Special Area Of Conservation 000205) Regulations 2019</i></p> <p>NPWS (2013) <i>Conservation Objectives: Malahide Estuary SAC 000205</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
Rogerstown Estuary SAC [000208]	The Proposed Development lies within this European site boundary	<p>1130 Estuaries</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p><i>S.I. No. 286/2018 - European Union Habitats (Rogerstown Estuary Special Area of Conservation 000208) Regulations 2018</i></p> <p>NPWS (2013) <i>Conservation Objectives: Rogerstown Estuary SAC 000208</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (*priority Annex I Habitat)
River Boyne and River Blackwater SAC [002299]	Located c. 130m north of the Proposed Development	<p>7230 Alkaline fens</p> <p>91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)*</p> <p>1099 River Lamprey <i>Lampetra fluviatilis</i></p> <p>1106 Salmon <i>Salmo salar</i></p> <p>1355 Otter <i>Lutra lutra</i></p> <p>NPWS (2021) <i>Conservation objectives for River Boyne and River Blackwater SAC [002299]</i>. Version 1. Department of Housing, Local Government and Heritage.</p>
Baldoyle Bay SAC [000199]	Located c. 250m east of the Proposed Development	<p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 <i>Salicornia</i> and other annuals colonizing mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)</p> <p>1410 Mediterranean salt meadows(<i>Juncetalia maritimi</i>)</p> <p><i>S.I. No. 472/2021 - European Union Habitats (Baldoyle Bay Special Area of Conservation 000199) Regulations 2021</i></p> <p>NPWS (2012) <i>Conservation Objectives: Baldoyle Bay SAC 000199</i>. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
North Dublin Bay SAC [000206]	Located c. 1km south east of the Proposed Development	<p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)</p> <p>1395 Petalwort <i>Petalophyllum ralfsii</i></p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>2110 Embryonic shifting dunes</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p>2190 Humid dune slacks</p> <p><i>S.I. No. 525/2019 - European Union Habitats (South Dublin Bay Special Area of Conservation 000210) Regulations 2019</i></p> <p>NPWS (2013) <i>Conservation Objectives: North Dublin Bay SAC 000206</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
Boyne Coast and Estuary SAC [001957]	Located c. 1.2km north east of the Proposed Development	<p>1130 Estuaries</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>2110 Embryonic shifting dunes</p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
		<p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p>S.I. No. 433/2021- European Union Habitats (Boyne coast and Estuary Special Area of Conservation 001957) Regulations 2021</p> <p>NPWS (2012) <i>Conservation Objectives: Boyne Coast and Estuary SAC 001957</i>. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
Rockabill to Dalkey Island SAC [003000]	Located c. 3km east of the Proposed Development	<p>1170 Reefs</p> <p>1351 Harbour porpoise <i>Phocoena phocoena</i></p> <p>S.I. No. 94/2019 - European Union Habitats (Rockabill To Dalkey Island Special Area of Conservation 003000) Regulations 2019</p> <p>NPWS (2013) <i>Conservation Objectives: Rockabill to Dalkey Island SAC 003000</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
South Dublin Bay SAC [000210]	Located c. 3km south-east of the Proposed Development	<p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>2110 Embryonic shifting dunes</p> <p>S.I. No. 525/2019 - European Union Habitats (South Dublin Bay Special Area of Conservation 000210) Regulations 2019</p> <p>NPWS (2013) <i>Conservation Objectives: South Dublin Bay SAC 000210</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
Howth Head SAC [000202]	Located c. 4.6km south east of the Proposed Development	<p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>4030 European dry heaths</p> <p>S.I. No. 524/2021 - European Union Habitats (Howth Head Special Area of Conservation 000202) Regulations 2021</p> <p>NPWS (2016) <i>Conservation Objectives: Howth Head SAC 000202</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>
Ireland's Eye SAC [002193]	Located c. 5.3km east of the Proposed Development	<p>1220 Perennial vegetation of stony banks</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>S.I. No. 501/2017 - European Union Habitats (Ireland's Eye Special Area of Conservation 002193) Regulations 2017</p> <p>NPWS (2017) <i>Conservation Objectives: Ireland's Eye SAC 002193</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>
Lambay Island SAC [000204]	Located c. 7.5km east of	<p>1170 Reefs</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>1364 Grey seal <i>Halichoerus grypus</i></p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
	the Proposed Development	<p>1365 Harbour seal <i>Phoca vitulina</i></p> <p>1351 Harbour Porpoise <i>Phocoena phocoena</i></p> <p><i>S.I. No. 294/2019 - European Union Habitats (Lambay Island Special Area of Conservation 000204) Regulations 2019</i></p> <p>NPWS (2013) <i>Conservation Objectives: Lambay Island SAC 000204. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.¹⁰</p>
Clogher Head SAC [001459]	Located c. 10.7km north east of the Proposed Development	<p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>4030 European dry heaths</p> <p><i>S.I. No. 610/2019 - European Union Habitats (Clogher Head Special Area of Conservation 001459) Regulations 2019</i></p> <p>NPWS (2017) <i>Conservation Objectives: Clogher Head SAC 001459. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>
Codling Fault Zone SAC [003015]	Located c. 36.6km east of the Proposed Development	<p>1180 Submarine structures made by leaking gases</p> <p>1351 Harbour Porpoise <i>Phocoena phocoena</i></p> <p>NPWS (2023) <i>Conservation Objectives: Codling Fault Zone SAC 003015. Version 1.</i> National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.¹¹</p>
Special Protection Areas (SPAs)		
Malahide Estuary SPA [004025]	The Proposed Development lies within this European site boundary	<p>A005 Great Crested Grebe <i>Podiceps cristatus</i></p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A054 Pintail <i>Anas acuta</i></p> <p>A067 Goldeneye <i>Bucephala clangula</i></p> <p>A069 Red-breasted Merganser <i>Mergus serrator</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A999 Wetlands</p>

¹⁰ Harbour porpoise was added as a QI species to this European site in March 2024, however the Conservation Objectives document for the Lambay Island SAC has not been updated by NPWS since and is as advised in the Amendment Notification document.

¹¹ Harbour porpoise was added as a QI species to this European site in March 2024, however the Conservation Objectives document for the Codling Fault Zone SAC has not been updated by NPWS since and is as advised in the Amendment Notification document.

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
		<p>S.I. No. 285/2011 - European Communities (Conservation of Wild Birds (Malahide Estuary Special Protection Area 004025)) Regulations 2011.</p> <p>NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
Rogerstown Estuary SPA [004015]	The Proposed Development lies within this European site boundary	<p>A043 Greylag Goose <i>Anser anser</i></p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A056 Shoveler <i>Anas clypeata</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A149 Dunlin <i>Calidris alpina alpina</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A999 Wetlands</p> <p>S.I. No. 271/2010 - European Communities (Conservation of Wild Birds (Rogerstown Estuary Special Protection Area 004015)) Regulations 2010</p> <p>NPWS (2013) Conservation Objectives: Rogerstown Estuary SPA 004015. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
River Nanny Estuary and Shore SPA [004158]	The Proposed Development lies within this European site boundary	<p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A999 Wetlands</p> <p>S.I. No. 140/2012 - European Communities (Conservation of Wild Birds (River Nanny Estuary and Shore SPA 004158)) Regulations 2012.</p> <p>NPWS (2012) Conservation Objectives: River Nanny Estuary and Shore SPA 004158. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
North-West Irish Sea SPA [004236]	Located c. 10m east of the Proposed Development	<p>[A065] Common Scoter <i>Melanitta nigra</i></p> <p>[A001] Red-throated Diver <i>Gavia stellata</i></p> <p>[A003] Great Northern Diver <i>Gavia immer</i></p> <p>[A009] Fulmar <i>Fulmarus glacialis</i></p> <p>[A013] Manx Shearwater <i>Puffinus puffinus</i></p> <p>[A018] Shag <i>Phalacrocorax aristotelis</i></p> <p>[A017] Cormorant <i>Phalacrocorax carbo</i></p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
		<p>[A177] Little Gull <i>Larus minutus</i></p> <p>[A188] Kittiwake <i>Rissa tridactyla</i></p> <p>[A179] Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>[A182] Common Gull <i>Larus canus</i></p> <p>[A183] Lesser Black-backed Gull <i>Larus fuscus</i></p> <p>[A184] Herring Gull <i>Larus argentatus</i></p> <p>[A187] Great Black-backed Gull <i>Larus marinus</i></p> <p>[A195] Little Tern <i>Sterna albifrons</i></p> <p>[A192] Roseate Tern <i>Sterna dougallii</i></p> <p>[A193] Common Tern <i>Sterna hirundo</i></p> <p>[A194] Arctic Tern <i>Sterna paradisaea</i></p> <p>[A204] Puffin <i>Fratercula arctica</i></p> <p>[A200] Razorbill <i>Alca torda</i></p> <p>[A199] Guillemot <i>Uria aalge</i></p> <p>NPWS (2023b) Conservation Objectives: North-West Irish Sea SPA 004236. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>
Boyne Estuary SPA [004080]	Located c. 400m north east of the Proposed Development	<p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A142 Lapwing <i>Vanellus vanellus</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A169 Turnstone <i>Arenaria interpres</i></p> <p>A195 Little Tern <i>Sterna albifrons</i></p> <p>A999 Wetlands</p> <p>S.I. No. 626/2011 - European Communities (Conservation of Wild Birds (Boyne Estuary Special Protection Area 004080)) Regulations 2011.</p> <p>NPWS (2013) Conservation Objectives: Boyne Estuary SPA 004080. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
South Dublin Bay and River Tolka Estuary SPA [004024]	Located c. 500m south east of the Proposed Development	<p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
		<p>A162 Redshank <i>Tringa totanus</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>A999 Wetlands</p> <p><i>S.I. No. 212/2010 - European Communities (Conservation of Wild Birds (South Dublin Bay and River Tolka Estuary Special Protection Area 004024)) Regulations 2010.</i></p> <p>NPWS (2015) <i>Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
Baldoyle Bay SPA [004016]	Located c. 600m east of the Proposed Development	<p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A999 Wetlands</p> <p><i>S.I. No. 275/2010 - European Communities (Conservation of Wild Birds (Baldoyle Bay Special Protection Area 004016)) Regulations 2010</i></p> <p>NPWS (2013) <i>Conservation Objectives: Baldoyle Bay SPA 004016. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
North Bull Island SPA [004006]	Located c. 1km east of the Proposed Development	<p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A052 Teal <i>Anas crecca</i></p> <p>A054 Pintail <i>Anas acuta</i></p> <p>A056 Shoveler <i>Anas clypeata</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A160 Curlew <i>Numenius arquata</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A169 Turnstone <i>Arenaria interpres</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A999 Wetlands</p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
		<p>S.I. No. 211/2010 - European Communities (Conservation of Wild Birds (North Bull Island Special Protection Area 004006)) Regulations 2010.</p> <p>NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
Skerries Islands SPA [004006]	Located c. 1.4km east of the Proposed Development	<p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A018 Shag <i>Phalacrocorax aristotelis</i></p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A148 Purple Sandpiper <i>Calidris maritima</i></p> <p>A169 Turnstone <i>Arenaria interpres</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>S.I. No. 245/2010 - European Communities (Conservation of Wild Birds (Skerries Islands Special Protection Area 004122)) Regulations 2010.</p> <p>NPWS (2022a) Conservation Objectives for Skerries Islands SPA [004122]. First Order site Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.</p>
Rockabill SPA [004014]	Located c. 3.5km east of the Proposed Development	<p>A148 Purple Sandpiper <i>Calidris maritima</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>S.I. No. 94/2012 - European Communities (Conservation of Wild Birds (Rockabill Special Protection Area 004014)) Regulations 2012.</p> <p>NPWS (2013) Conservation Objectives: Rockabill SPA [004122]. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
River Boyne and River Blackwater SPA [004232]	Located c. 3.7km north west of the Proposed Development	<p>A229 Kingfisher <i>Alcedo atthis</i></p> <p>S.I. No. 462/2012 - European Communities (Conservation of Wild Birds (River Boyne and River Blackwater Special Protection Area 004232)) Regulations 2012.</p> <p>NPWS (2022b) Conservation objectives for River Boyne and River Blackwater SPA [004232]. First Order site Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.</p>
Ireland's Eye SPA [004117]	Located c. 5.4km east of the Proposed Development	<p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>A199 Guillemot <i>Uria aalge</i></p> <p>A200 Razorbill <i>Alca torda</i></p> <p>S.I. No. 240/2010 - European Communities (Conservation of Wild Birds (Ireland's Eye Special Protection Area 004117)) Regulations 2010.</p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
		NPWS (2022c) <i>Conservation objectives for Ireland's Eye SPA [004117]</i> . First Order site Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage
Howth Head Coast SPA [004113]	Located c.6.5km east of the Proposed Development	A188 Kittiwake <i>Rissa tridactyla</i> <i>S.I. No. 185/2012 - European Communities (Conservation of Wild Birds (Howth Head Coast Special Protection Area 004113)) Regulations 2012.</i> NPWS (2022d) <i>Conservation objectives for Howth Head Coast SPA [004113]</i> . First Order site Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.
Lambay Island SPA [004069]	Located c. 7.5km east of the Proposed Development	A009 Fulmar <i>Fulmarus glacialis</i> A017 Cormorant <i>Phalacrocorax carbo</i> A018 Shag <i>Phalacrocorax aristotelis</i> A043 Greylag Goose <i>Anser anser</i> A183 Lesser Black-backed Gull <i>Larus fuscus</i> A184 Herring Gull <i>Larus argentatus</i> A188 Kittiwake <i>Rissa tridactyla</i> A199 Guillemot <i>Uria aalge</i> A200 Razorbill <i>Alca torda</i> A204 Puffin <i>Fratercula arctica</i> <i>S.I. No. 242/2010 - European Communities (Conservation of Wild Birds (Lambay Island Special Protection Area 004069)) Regulations 2010.</i> NPWS (2022e) <i>Conservation objectives for Lambay Island SPA [004069]</i> . First Order site Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.
Dalkey Islands SPA [004172]	Located c.12.8km south east of the Proposed Development	A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i> NPWS (2022f) <i>Conservation objectives for Dalkey Islands SPA [004172]</i> . First Order Site specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage. <i>S.I. No. 238/2010 - European Communities (Conservation of Wild Birds (Dalkey Islands Special Protection Area 004172)) Regulations 2010.</i>
Wicklow Mountains SPA [004040]	Located c. 14km south west of the Proposed Development	A098 Merlin <i>Falco columbarius</i> A103 Peregrine <i>Falco peregrinus</i> <i>S.I. No. 586/2012 - European Communities (Conservation of Wild Birds (Wicklow Mountains Special Protection Area 004040)) Regulations 2012</i> NPWS (2022g) <i>Conservation Objectives for Wicklow Mountain SPA 004040</i> . First Order site Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.
Dundalk Bay SPA [004026]	Located c. 17.5km north	A005 Great Crested Grebe <i>Podiceps cristatus</i>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
	of the Proposed Development	<p>A043 Greylag Goose <i>Anser anser</i> A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A052 Teal <i>Anas crecca</i> A053 Mallard <i>Anas platyrhynchos</i> A054 Pintail <i>Anas acuta</i> A065 Common Scoter <i>Melanitta nigra</i> A069 Red-breasted Merganser <i>Mergus serrator</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A137 Ringed Plover <i>Charadrius hiaticula</i> A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A142 Lapwing <i>Vanellus vanellus</i> A143 Knot <i>Calidris canutus</i> A149 Dunlin <i>Calidris alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A160 Curlew <i>Numenius arquata</i> A162 Redshank <i>Tringa totanus</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A182 Common Gull <i>Larus canus</i> A184 Herring Gull <i>Larus argentatus</i> A999 Wetlands</p> <p>S.I. No. 310/2012 - European Communities (Conservation of Wild Birds (Dundalk Bay Special Protection Area 004026)) Regulations 2012. NPWS (2011) Conservation Objectives: Dundalk Bay SAC 000455 and Dundalk Bay SPA 004026. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>
Stabannan-Braganstown SPA [004091]	Located c. 19.2km north of the Proposed Development	<p>A043 Greylag Goose <i>Anser anser</i></p> <p>S.I. No. 546/2011 - European Communities (Conservation of Wild Birds (Stabannan-Braganstown Special Protection Area 004091)) Regulations 2011</p> <p>NPWS (2022h) Conservation Objectives: Stabannan-Braganstown SPA 004091. First Order site Specific Conservation Objectives Version 1.0 National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>
The Murrough SPA [004186]	Located c. 30km from the Proposed Development	<p>A001 Red-throated Diver <i>Gavia stellata</i> A043 Greylag Goose <i>Anser anser</i> A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A050 Wigeon <i>Anas penelope</i> A052 Teal <i>Anas crecca</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A184 Herring Gull <i>Larus argentatus</i></p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
		<p>A195 Little Tern <i>Sterna albifrons</i></p> <p>S.I. No. 298/2011 - European Communities (Conservation of Wild Birds (The Murrough Special Protection Area 004186)) Regulations 2011</p> <p>NPWS (2022i) Conservation objectives for The Murrough SPA [004186].</p> <p>First Order Sites Specific Conservation Objectives Version 1.0.</p> <p>Department of Housing, Local Government and Heritage</p>
Wicklow Head SPA [004127]	Located c. 42km south of the Proposed Development	<p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>NPWS (2022) Conservation objectives for Wicklow Head SPA [004127].</p> <p>First Order Site specific Conservation Objectives Version 1.0.</p> <p>Department of Housing, Local Government and Heritage.</p>
Seas Off Wexford SPA [004237]	Located c. 90km south of the Proposed Development	<p>A001 Red-throated Diver <i>Gavia stellata</i></p> <p>A009 Fulmar <i>Fulmarus glacialis</i></p> <p>A013 Manx Shearwater <i>Puffinus puffinus</i></p> <p>A016 Gannet <i>Morus bassanus</i></p> <p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A018 Shag <i>Phalacrocorax aristotelis</i></p> <p>A065 Common Scoter <i>Melanitta nigra</i></p> <p>A176 Mediterranean Gull <i>Larus melanocephalus</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A183 Lesser Black-backed Gull <i>Larus fuscus</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>A191 Sandwich Tern <i>Sterna sandvicensis</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>A195 Little Tern <i>Sterna albifrons</i></p> <p>A199 Guillemot <i>Uria aalge</i></p> <p>A200 Razorbill <i>Alca torda</i></p> <p>A204 Puffin <i>Fratercula arctica</i></p> <p>NPWS (2024) Conservation Objectives: Seas off Wexford SPA 004237. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>
Saltee Islands SPA [004002]	Located 137km south of the Proposed Development	<p>A009 Fulmar <i>Fulmarus glacialis</i></p> <p>A016 Gannet <i>Morus bassanus</i></p> <p>A018 Shag <i>Phalacrocorax aristotelis</i></p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>A199 Guillemot <i>Uria aalge</i></p> <p>A200 Razorbill <i>Alca torda</i></p> <p>A204 Puffin <i>Fratercula arctica</i></p>

Site Name	Distance	Reasons for Designation – QIs or SCIs (* = priority Annex I Habitat)
		NPWS (2011) Conservation Objectives: Saltee Islands SAC 000707 and Saltee Islands SPA 004002. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

A number of other SPA, some that are similar to the Saltee Islands SPA provide breeding territory for SCI species associated with the Seas Off Wexford SPA, have been assessed and are described in Table 5-2.

Table 5-2 Assessment of other SPA sites (Conservation Objectives for each are listed in table)

European site (Conservation Objective Version)	Special Conservation Interests	Approximate Distance from Proposed Development	Reasoning
Cahore marshes SPA 004113 (NPWS 2022h Conservation objectives for Cahore Marshes SPA [004143]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.)	[A050] Wigeon <i>Anas penelope</i> [A140] Golden Plover <i>Pluvialis apricaria</i> [A142] Lapwing <i>Vanellus vanellus</i> [A395] Greenland White-fronted Goose <i>Anser albifrons flavirostris</i> [A999] Wetlands	85km	No impact pathway to Proposed Development as SCI species are typically coastal birds with limited foraging range. No impact supporting habitat given its distance from the Proposed Development, tidal current flowing in opposite direction and dispersion in coastal waters.
Lady's Island Lake SPA 004009 (NPWS 2022i Conservation objectives for Lady's Island Lake SPA [004009]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.)	[A051] Gadwall <i>Anas strepera</i> [A179] Black-headed Gull <i>Chroicocephalus ridibundus</i> [A191] Sandwich Tern <i>Sterna sandvicensis</i> [A192] Roseate Tern <i>Sterna dougallii</i> [A193] Common Tern <i>Sterna hirundo</i> [A194] Arctic Tern <i>Sterna paradisaea</i> [A999] Wetlands	125km	Although sharing some SCI species with Seas off Wexford cSPA, no impact pathway to Proposed Development as SCI species are typically coastal birds with limited foraging range. No impact supporting habitat given its distance from the Proposed Development, tidal current flowing in opposite direction and dispersion in coastal waters.
Tacumshin Lake SPA 004092 (NPWS 2022j Conservation objectives for Tacumshin Lake SPA [004092]. First Order Site-specific Conservation Objectives Version 1.0. Department of	[A004] Little Grebe <i>Tachybaptus ruficollis</i> [A037] Bewick's Swan <i>Cygnus columbianus bewickii</i> [A038] Whooper Swan <i>Cygnus cygnus</i> [A050] Wigeon <i>Anas penelope</i> [A051] Gadwall <i>Anas strepera</i> [A052] Teal <i>Anas crecca</i>	125km	Although sharing some SCI species with Seas off Wexford cSPA, no impact pathway to Proposed Development as SCI species are typically coastal birds with limited foraging range. No impact supporting habitat given its distance from the Proposed Development, tidal current flowing in

European site (Conservation Objective Version)	Special Conservation Interests	Approximate Distance from Proposed Development	Reasoning
Housing, Local Government and Heritage).	[A054] Pintail <i>Anas acuta</i> [A056] Shoveler <i>Anas clypeata</i> [A061] Tufted Duck <i>Aythya fuligula</i> [A125] Coot <i>Fulica atra</i> A140 Golden Plover <i>Pluvialis apricaria</i> [A141] Grey Plover <i>Pluvialis squatarola</i> [A142] Lapwing <i>Vanellus vanellus</i> [A156] Black-tailed Godwit <i>Limosa limosa</i> [A999] Wetlands		opposite direction and dispersion in coastal waters.
Ballyteigue Burrow SPA 004020 (NPWS 2014b Conservation Objectives: Ballyteigue Burrow SPA 004020. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht).	[A046] Brent Goose <i>Branta bernicla hrota</i> [A048] Shelduck <i>Tadorna tadorna</i> [A140] Golden Plover <i>Pluvialis apricaria</i> [A141] Grey Plover <i>Pluvialis squatarola</i> [A142] Lapwing <i>Vanellus vanellus</i> [A156] Black-tailed Godwit <i>Limosa limosa</i> [A157] Bar-tailed Godwit <i>Limosa lapponica</i> [A999] Wetlands	126 km	No impact pathway to Proposed Development as SCI species are typically coastal birds with limited foraging range. No impact supporting habitat given its distance from the Proposed Development, tidal current flowing in opposite direction and dispersion in coastal waters.
Bannow Bay SPA 004033 (NPWS 2012 Conservation Objectives: Bannow Bay SPA 004033. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht).	[A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i> wintering [A048] Shelduck <i>Tadorna tadorna</i> wintering [A054] Pintail <i>Anas acuta</i> wintering [A130] Oystercatcher <i>Haematopus ostralegus</i> wintering [A140] Golden Plover <i>Pluvialis apricaria</i> wintering [A141] Grey Plover <i>Pluvialis squatarola</i> wintering [A142] Lapwing <i>Vanellus vanellus</i> wintering	124km	No impact pathway to Proposed Development as SCI species are typically coastal birds with limited foraging range. No impact supporting habitat given its distance from the Proposed Development, tidal current flowing in opposite direction and dispersion in coastal waters.

European site (Conservation Objective Version)	Special Conservation Interests	Approximate Distance from Proposed Development	Reasoning
	<p>[A143] Knot <i>Calidris canutus</i> wintering</p> <p>[A149] Dunlin <i>Calidris alpina</i> wintering</p> <p>[A156] Black-tailed Godwit <i>Limosa limosa</i> wintering</p> <p>[A157] Bar-tailed Godwit <i>Limosa lapponica</i> wintering</p> <p>[A160] Curlew <i>Numenius arquata</i> wintering</p> <p>[A162] Redshank <i>Tringa tetanus</i> wintering</p> <p>[A999] Wetlands</p>		
<p>Keeragh Island SPA 004118</p> <p>(NPWS 2022k Conservation objectives for Keeragh Islands SPA [004118]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage).</p>	<p>[A017] Cormorant <i>Phalacrocorax carbo</i></p>	130 km	<p>There is no potential for impacts to occur to these SCI species by virtue of their being beyond the foraging distance (see Table 7-12) of the Proposed Development.</p>

5.2 Habitats

The Proposed Development includes and traverses a variety of different habitat types, as shown on Figure 2 (Habitat Mapping). Habitats present in the footprint and in the vicinity of the Proposed Development include the following:

- Other Artificial Lakes and Ponds (FL8);
- Reed and large sedge swamps (FS1);
- Tall-herb swamps (FS2);
- Depositing/Lowland Rivers (FW2);
- Dry calcareous and neutral grassland (GS1);
- Dry meadows and grassy verges (GS2);
- Dry-humid acid grassland (GS3);
- Wet grassland (GS4);
- Hedgerows (WL1);
- Treelines (WL2);
- (Mixed) broadleaved woodland (WD1);
- Mixed broadleaved/conifer woodland (WD2);
- (Mixed) conifer woodland (WD3);
- Scattered trees and parkland (WD5);

- Scrub (WS1);
- Ornamental/non-native shrub (WS3);
- Spoil and bare ground (ED2);
- Recolonising vegetation (ED3);
- Shingle and gravel banks (CB1);
- Lower salt marsh (CM1);
- Upper salt marsh (CM2);
- Tidal rivers (CW2);
- Embryonic dunes (CD1);
- Fixed dunes (CD3);
- Sea walls, piers and jetties (CC1);
- Shingle and gravel shores (LS1);
- Sand shores (LS2); and,
- Estuaries (MW4).

The following habitat types listed on Annex I of the EU Habitats Directive were recorded within the Proposed Development site:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] located in the north of Malahide Estuary the eastern side of the railway line, with a small area on the western site of the railway line where the River Turvey enters the estuary. Also located in Rogerstown Estuary on the western side of the railway line, on the outskirts of Beaverstown Golf Club; and
- Estuaries [1130], located in Rogerstown and Malahide Estuaries adjacent to the railway line.

These Annex I QI habitats are located within the Rogerstown Estuary SAC and SPA, and Malahide Estuary SAC and SPA.

5.3 Flora and Fauna Species

5.3.1 Rare and Protected Flora

There were no protected plant species contained within the Flora (Protection) Order, 2022 identified within the Proposed Development during habitat surveys undertaken.

The desk study returned records of a total of five species listed on the Flora Protection Order across the wider Proposed Development (i.e., Grid Squares O23, O17) and are listed in Appendix 1.2. All of these species are bryophytes. Records within close proximity of the Proposed Development (i.e., within c. 2km of the boundary) include *Cercuious thread-moss* *Bryum uliginosum* in Malahide, and many-seasoned thread-moss *Bryum intermedium*, Petalwort *Petalophyllum ralfsii*, and Warne's thread-moss *Bryum warneum* all recorded on Bull Island. Plant species listed on the Flora Protection Order are considered to be of National Importance.

There were no species listed on *Ireland Red List No. 8: Bryophytes* (Lockhart *et al.*, 2012) recorded within the Proposed Development.

5.3.2 Non-native Invasives

There were 11 (eleven) areas of non-native, invasive plant species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011) (as amended) recorded within the Proposed Development in 2021, 2022, and 2023. The locations of these non-native invasive plant species are summarised below in Table 5-3. None of these stands were located within the existing railway line but were located on the verge of the tracks or in lands adjacent to the railway line.

The desk study returned records of 22 species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011, across the wider Proposed Development (i.e., Grid Squares O13, O14, O07, O08, O23) and area listed in Appendix 1.2.

Records within close proximity to the Proposed Development include; common cord-grass *Spartina anglica*, giant hogweed *Heracleum mantegazzianum*, Indian balsam *Impatiens glandulifera*, Japanese knotweed *Reynoutria japonica*, Rhododendron *Rhododendron ponticum*, sea-buckthorn *Hippophae rhamnoides*, Spanish bluebell *Hyacinthoides hispanica*, and three-cornered garlic *Allium triquetrum*.

Table 5-3 Summary of non-native invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011(S.I. No. 477 of 2011) recorded along or adjacent to the Proposed Development.

Zone/Location	Species	Description
Zone B/Malahide Estuary	Common cord-grass <i>Spartina anglica</i>	Extensive stands of <i>Spartina</i> in the salt-marsh habitat of Malahide Estuary
Zone C/Donabate	Japanese knotweed <i>Reynoutria japonica</i>	In fenced off section of Donabate station
Zone C/Skerries	Himalayan balsam <i>Impatiens glandulifera</i>	On banks of stream adjacent to the railway line
Zone C/Ardgillan demesne	Rhododendron <i>Rhododendron ponticum</i>	In understorey of woodland adjacent to railway line
Zone C/Ardgillan demesne	Himalayan balsam <i>Impatiens glandulifera</i>	Stand in woodland adjacent to railway line
Zone C/Skerries	Himalayan balsam <i>Impatiens glandulifera</i>	Stand located in a bank adjacent to the Mill Stream
Zone C/Ardgillan demesne	Japanese knotweed <i>Reynoutria japonica</i>	Stands in woodland adjacent to railway line
Zone C/Delvin Bridge	Himalayan balsam <i>Impatiens glandulifera</i>	Three stands covering the bank east and west of the railway line

Zone/Location	Species	Description
Zone D/Gormanston	Spanish bluebell <i>Hyacinthoides hispanica</i>	In a planted area adjacent to Gormanston railway station
Zone D/Laytown	Common cord-grass <i>Spartina anglica</i>	Present in River Nanny Estuary
Zone E/Drogheda	Japanese knotweed <i>Reynoutria japonica</i>	In area adjacent to Drogheda MacBride train station car park

5.3.3 Otter

Otter *Lutra lutra*, and their breeding and resting places, are protected under the Wildlife Acts. Otter are also listed on Annex II and Annex IV of the EU Habitats Directive and are afforded strict protection under the Habitats Directive and the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011) (as amended). The desk study returned 76 records for otter in the wider Proposed Development (i.e. Grid Squares O06, O07, O08, O14, O15, O16, O17, O18, O23, O24, and O26) and are listed in Appendix 1.2.

All of these records are located along watercourses within the area, including: the River Boyne, the River Nanny, the River Matt, Inner Rogerstown Estuary, Broadmeadow River and the inner Malahide Estuary, Baldoyle, the Tolka River and Dublin Bay, all of which have hydrological connections to the Proposed Development.

Otter surveys were carried out at watercourses that the existing railway line crosses over (i.e. the Tolka River by the R131 at Fairview Park, Mayne River south of the Moyne road, Malahide Estuary, Rogerstown Estuary, River Matt at Balbriggan viaduct, River Delvin at Delvin Bridge, Mosney River at Mosney beach, and the River Nanny at Laytown) with suitable accessible habitat 150m upstream and downstream from the railway line also surveyed. No holts were identified at any of the surveyed locations. An otter couch was identified c. 75m upstream of the railway line at Laytown Estuary along the transitional body of the River Nanny. An otter print was identified in Mosney, on the southern bank of the Mosney River, located c. 77m downstream of the railway line, and a potential slide was identified in Rogerstown Estuary c. 20m east of the railway line, where a drainage ditch outflows into the north of the estuary. No other signs of otter were identified within the ZOI of the Proposed Development.

Two trail cameras were deployed for a period of four weeks between August and September 2023 on either side of the railway by the sluice river gate on the River Turvey/Pill in the Malahide Estuary, to determine if the local otter population were crossing over the railway line to travel between the River and the Estuary. Analysis of the cameras determined that otters were not using the railway to cross over at the time of deployment.

Otter are known to utilise the watercourses within the Proposed Development, including; Liffey Estuary Upper, the Tolka River, Grand Canal, Dublin Port (Scott Cawley Ltd, 2022), Malahide Estuary (Broadmeadow Way Project, An Bord Pleanála Reference number: 304624), River Nanny and the River Boyne (Bailey & Rochford, 2006).

It is considered likely that otter continue to utilise these watercourses and their tributaries within the catchment for breeding, foraging and commuting activities.

In an Irish context, the conservation concern of otter is 'Least Concern' (Marnell *et al.*, 2019) due to population recoveries since 2009. However, otter remains 'Near Threatened' at a European and Global context, as per the International Union for Conservation of Nature (IUCN) Red List of Threatened Species (Roos *et al.*, 2021).

The River Boyne and River Blackwater SAC is the closest European site designated for otter, located c. 150m north of the Proposed Development. The Proposed Development is located upstream and within the Zol of this European site, and as such otter populations present on the River Boyne in the vicinity of the Proposed Development are considered to be associated the QI population associated with the River Boyne and River Blackwater SAC.

5.3.4 Marine Mammals

There were no dedicated marine mammal surveys carried out as part of the assessment due to the Proposed Development being located inland. However, a watching brief was maintained during all vantage point wintering bird surveys. The desk study returned a number of records for marine mammals in the vicinity of the Proposed Development, all of which are included in Appendix 1.2. All of these records were located offshore or within the estuaries along the eastern coastline. Harbour porpoise *Phocoena phocoena*, bottlenose dolphin *Tursiops truncatus*, grey seal *Halichoerus grypus*, harbour/common seal *Phoca vitulina* are all listed on Annex II of the Habitats Directive and are therefore the only species relevant to this assessment.

Harbour seal, grey seal, and harbour porpoise are known to be present in Dublin Bay, and along the eastern coastline. These species are all protected under the Wildlife Acts. Harbour porpoise is also a QI species designated as part of Rockabill to Dalkey Island SAC located approximately 3km east of the Proposed Development. The nearest European site for which harbour seal, grey seal have been designated is Lambay Island SAC located c. 7.4km east of the Proposed Development, of which harbour porpoise is also a QI species. Harbour porpoise is also a QI species designated as part of Codling Fault Zone SAC, located c. 37km offshore from the Proposed Development.

A number of additional protected marine mammals are known to occur within Dublin Bay and off the eastern coast downstream of the Proposed Development, including:

- Common Dolphin *Delphinus delphis*;
- Minke Whale *Balaenoptera acutorostrata*;
- Fin whale *Balaenoptera physalus*;
- White-beaked Dolphin *Lagenorhynchus albirostris*;
- Common Bottlenose Dolphin *Tursiops truncatus*;
- Humpback Whale *Megaptera novaeangliae*;
- Striped Dolphin *Stenella coeruleoalba*; and
- Risso's Dolphin *Grampus griseus*.

These cetacean species are all protected under the Wildlife Acts and Habitats Directive (see Appendix 1.2). Bottlenose dolphin is common to Irish coastlines, particularly the west coast, throughout the year and are infrequently recorded within Dublin Bay.

There are 10 SACs designated for Bottlenose dolphin, most of which are located along the west and south coast, and therefore well outside the ZOI of the Proposed Development. This species is protected under Annex II and Annex IV of the Habitats Directive and the Wildlife Acts.

Common dolphin, Risso's dolphin, white-beaked dolphin, striped dolphin, fin whale, minke whale, and humpback whale are species listed on Annex IV of the Habitat Directive, and are not listed as Qualifying Interests for any European sites, and therefore are not discussed further.

5.3.5 Birds

The desktop study found a total of 46 birds of Special Conservation Interest (SCIs) associated within European sites illustrated in Appendix 1.1 and also listed in Table 5-4 of this report. The desktop study also identified an additional 78 bird species that are SCI associated with European Sites more than 15km from the Proposed Development and/or are listed as: Birds Directive Annex I species; Amber/Red Birds of Conservation Concern in Ireland. The majority of birds identified in the desk-based review are typically found in coastal, estuarine and intertidal habitats in the Malahide, Rogerstown, and River Nanny Estuaries.

Light-bellied Brent goose *Branta bernicla hrota* and wintering waders regularly use Dublin's amenity parks and sports grounds for foraging. There are multiple known Brent goose feeding sites located near the existing railway line and Proposed Development area, including; Fairview Park, Clontarf Golf Club, St. Annes Park, Donaghmede Park, Malahide Demesne, and Beaverstown Golf Club (Scott Cawley Ltd., 2017). Whilst this study covers suitable feeding sites in Dublin, there are a number of other areas with suitable feeding habitat for Brent Geese north of Dublin. Potential suitable habitat sites in close proximity to the Proposed Development area include; Skerries Golf Club, GAA pitches in Balbriggan, Gormanston Camp, McBride Pitch, and Putt in Drogheda, and Caves Strand in Malahide (adjacent to the proposed Construction Compound location in Caves Strand). Brent goose is an SCI species of Malahide Estuary SPA, Rogerstown Estuary SPA, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, and Baldoyle Bay SPA. Greylag goose *Anser anser*, has similar habitat preferences as Brent goose, and is a SCI species for Rogerstown Estuary SPA, Stabannan-Braganstown SPA, Lambay Island SPA, The Murrough SPA, and Dundalk Bay SPA.

Table 5-4 Desktop Results of SCI Bird Species associated with European Sites

Bird species	Bird species
Arctic Tern <i>Sterna paradisaea</i>	Grey Plover <i>Pluvialis squatarola</i>
Bar-tailed Godwit <i>Limosa lapponica</i>	Greylag Goose <i>Anser anser</i>
Black-headed Gull <i>Chroicocephalus ridibundus</i>	Herring Gull <i>Larus argentatus</i>
Kittiwake <i>Rissa tridactyla</i>	Lesser Black-backed Gull <i>Larus fuscus</i>
Black-tailed Godwit <i>Limosa limosa</i>	Little Tern <i>Sternula albifrons</i>
Light-bellied Brent Goose <i>Branta bernicla hrota</i>	Merlin <i>Falco columbarius</i>
Goldeneye <i>Bucephala clangula</i>	Fulmar <i>Fulmarus glacialis</i>
Common Guillemot <i>Uria aalge</i>	Lapwing <i>Vanellus vanellus</i>
Kingfisher <i>Alcedo atthis</i>	Pintail <i>Anas acuta</i>
Redshank <i>Tringa totanus</i>	Shoveler <i>Anas clypeata</i>

Bird species	Bird species
Shelduck <i>Tadorna tadorna</i>	Peregrine Falcon <i>Falco peregrinus</i>
Common Tern <i>Sterna hirundo</i>	Purple Sandpiper <i>Calidris maritima</i>
Dunlin <i>Calidris alpina</i>	Razorbill <i>Alca torda</i>
Curlew <i>Numenius arquata</i>	Knot <i>Calidris canutus</i>
Oystercatcher <i>Haematopus ostralegus</i>	Red-breasted Merganser <i>Mergus serrator</i>
Teal <i>Anas crecca</i>	Ringed Plover <i>Charadrius hiaticula</i>
Golden Plover <i>Pluvialis apricaria</i>	Roseate Tern <i>Sterna dougallii</i>
Shag <i>Phalacrocorax aristotelis</i>	Turnstone <i>Arenaria interpres</i>
Cormorant <i>Phalacrocorax carbo</i>	Sanderling <i>Calidris alba</i>
Great Crested Grebe <i>Podiceps cristatus</i>	Common scoter <i>Melanitta nigra</i>
Red-throated diver <i>Gavia stellata</i>	Manx shearwater <i>Puffinus puffinus</i>
Great-northern diver <i>Gavia immer</i>	Little gull <i>Larus minutus</i>
Great black-backed gull <i>Larus marinus</i>	Puffin <i>Fratercula artica</i>

5.3.5.1 Breeding Birds

Kingfisher *Alcedo atthis* reside within the River Boyne corridor (Cummins *et al.*, 2010), with records of this species returned from the NBDC database from 2017 in the O07 10km Grid Square, which covers an area on the outskirts of the existing railway line in Drogheda. This Birds Directive Annex I species is associated with watercourses throughout Ireland, and nests in sandy banks over and in the vicinity of its river habitat. The closest European site for which Kingfisher is an SCI species is the River Boyne and River Blackwater SPA, located c. 3.9km west of the Proposed Development area.

There are desktop records of the raptor species peregrine falcon *Falco peregrinus* and merlin *Falco columbarius*, both of which are listed on Annex I of the Birds Directive. Peregrine falcon was also recorded during the wintering and breeding bird surveys within the vicinity (either flying over or hunting in lands adjacent). Both species are associated with a range of habitats, with peregrine falcon tending to nest in rocky sites such as quarries, and merlin nesting in young coniferous forestry. There are numerous quarries across the Proposed Development, ranging from active to disused, which may provide nesting habitat for these species. The closest European site for which merlin and peregrine are SCI species is the Wicklow Mountains SPA, located c. 14km south of the Proposed Development area. Peregrine have foraging ranges of up to 6km (Hardey *et al.*, 2013), but will largely stay within 2km of their eyrie. For merlin, the core foraging range from a nest site during breeding season is within 5km (SNH, 2016). Therefore, it is unlikely merlin and peregrine populations utilising the lands within or in the vicinity of the Proposed Development are associated with the Wicklow Mountains SPA populations due to the distance between these European sites and the Proposed Development and are not discussed further. Mapped results from breeding bird surveys are illustrated on Figure 5 (Breeding Birds).

5.3.5.2 Wintering Birds

Wintering bird vantage point surveys were carried out at five separate locations along or adjacent to the Proposed Development, focusing on the estuaries along the existing rail corridor, and other areas of suitable habitat (described in Section 4.5.1), across two seasons (2021 – 2022, and 2022 – 2023). Additional surveys at Construction Compounds and substation compounds were undertaken in September 2023 – March 2024. Two additional Construction Compounds at Malahide by Caves Strand and Bissett's Strand were identified to support the construction of the Malahide turnback which was re-designed following feedback received in response to public consultation no.2. Due to the timing of when these Construction Compounds were added, it was not possible to complete wintering bird surveys in these locations. However, this is not considered to be a limitation to the assessment as a habitat survey was undertaken in these areas, and the proposed Construction Compound locations at Caves Strand and Bissett's Strand were not suitable for foraging and/or roosting wintering birds, due to being comprised of overgrown grassland and scrub.

A full table of the results and summaries of activities is detailed in Appendix 1.3, and is illustrated in Figure 6 (Wintering Birds). A summary for each species across the whole scheme is provided below. In respect of the wintering birds recorded across the various surveys, Appendix 1.3 also provides a comparison to the recorded threshold of international and national populations.

5.3.5.2.1 Bar-tailed Godwit

This species was generally observed foraging in the estuaries, and occasionally flying over the railway line to suitable foraging grounds adjacent to the railway line. Peak count of bar-tailed godwit was at Rogerstown Estuary, across both seasons with 34-36 birds observed foraging in the estuary. 3 of 7 (43%) flights of this species over the railway line across both seasons and all survey sites were within 0-10m, i.e. within the collision risk zone. This species was not observed at Gormanston or Balbriggan. Bar-tailed godwit is an SCI species for Baldoyle Bay SPA, Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, and the South Dublin Bay and River Tolka Estuary SPA.

5.3.5.2.2 Black-headed Gull

Black-headed gulls were observed at all survey locations across both seasons, with a peak count of 650 foraging in grassland at Gormanston camp. This species was also observed flying at height on all surveys and foraging within the estuaries. Out of 675 records, 262 (39%) of all flight lines observed across the two seasons and all survey sites, were within the 0-10m flight zone. Black-headed gull is an SCI species of Dundalk Bay SPA, North Bull Island SPA, North-West Irish Sea SPA, South Dublin Bay and River Tolka Estuary SPA, Seas Off Wexford SPA, and The Murrough SPA.

5.3.5.2.3 Black-tailed Godwit

Black-tailed godwit were either observed foraging within the estuaries, flying over the railway line, or foraging in grasslands adjacent to the railway line. This species was not observed in Balbriggan. A peak count of 450 individuals loafing was recorded in Rogerstown Estuary in March 2022. Large flock numbers were also observed in Malahide Estuary on multiple occasions across both seasons. Out of 146 records, 55 (37%) of all flight lines observed across the two seasons and all survey sites, were within the 0-10m flight zone. Black-tailed godwit is an SCI species of the Boyne Estuary SPA, Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, and Rogerstown Estuary SPA.

5.3.5.2.4 *Light-bellied Brent Goose*

Brent goose was observed at all survey sites, with a peak count of 564 on agricultural grassland north of Rogerstown Estuary. Generally, this species was observed foraging within the estuaries, and within agricultural grasslands across the Proposed Development. Out of 286 records, 144 (50%) of flight lines observed across the two seasons and all survey sites, were within the 0-10m flight zone. Light-bellied brent goose is an SCI species for Baldoyle Bay SPA, Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, Rogerstown Estuary SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA and The Murrough SPA.

5.3.5.2.5 *Common Gull*

Common gull was mostly observed flying over the railway line or survey areas across both seasons. A peak count of 38 foraging birds were recorded in GAA pitches in Laytown in November 2022. Out of 106 records, 22 (20%) of flight lines observed across the two seasons and all survey sites, were within the 0-10m flight zone. Common gull is an SCI species for Dundalk Bay SPA, and the North-West Irish Sea SPA.

5.3.5.2.6 *Common Scoter*

Common scoter was only observed during surveys at Gormanston across both seasons, swimming offshore in very high numbers. A peak flock count of 2,000 birds was recorded in February 2023, and 1,750 birds recorded in March 2022, between 2 - 400m from the shoreline. This species was not observed within or in the vicinity of the railway line, or in any fields/lands adjacent to the Proposed Development. Common scoter was also not observed flying over the line during any survey across both seasons. Common scoter is an SCI species for Dundalk Bay SPA, North-West Irish Sea SPA, and the Seas Off Wexford SPA.

5.3.5.2.7 *Common Tern*

Common tern was only recorded once during surveys in September 2021, with two individuals observed flying over the railway line in the 10-20m flight zone in Malahide Estuary. As this species is a summer breeder, it is not considered to be frequent visitor during the winter period. Common tern is a breeding SCI species of Dalkey Islands SPA, Rockabill SPA, South Dublin Bay and River Tolka Estuary SPA, and the Seas Off Wexford SPA and the North-West Irish Sea SPA.

5.3.5.2.8 *Cormorant*

Cormorant was observed foraging and swimming in the estuaries and Irish Sea on multiple occasions across the two seasons and survey sites, but was not observed in Balbriggan during any survey. A peak count of 43 individuals observed foraging in Malahide Estuary was recorded in December 2022. Out of 290 records, 184 (63%) of flight lines recorded across the two seasons and all survey sites, were within the 0-10m flight zone. Cormorant is an SCI species of Ireland's Eye SPA, Lambay Island SPA, North-West Irish Sea SPA, Saltee Islands SPA and Seas Off Wexford SPA.

5.3.5.2.9 *Curlew*

Curlew was observed at all survey sites during both seasons, either foraging in the estuaries or grasslands adjacent to the Proposed Development or flying over the railway line. A peak count of 295 individuals observed foraging was recorded in Rogerstown Estuary. Out of 354 records, 122 (34%) of flight lines recorded across the two seasons and all survey sites, were within the 0-10m flight zone. Curlew is an SCI species of Dundalk Bay SPA, and North Bull Island SPA.

5.3.5.2.10 *Dunlin*

Dunlin was recorded foraging at the estuaries during both seasons. A peak count of 3,000 individuals foraging was recorded in Rogerstown Estuary in January 2022, and 1,313 were recorded in December 2022 in the same location. Dunlin was not observed flying over the railway line on many occasions, however out of 31 occasions, 15 of these (48%) were within the 0-10m flight zone. The numbers of Dunlin observed in Rogerstown Estuary is significantly higher than the threshold of National Population, which is 460. Dunlin is an SCI species of Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, Rogerstown Estuary SPA, and South Dublin Bay and River Tolka Estuary SPA.

5.3.5.2.11 *Golden Plover*

Golden plover was generally observed foraging in the estuaries and grasslands adjacent to the Proposed Development. Golden plover was only recorded on one occasion in Malahide during surveys in November 2022. A peak count of 1,160 individuals foraging was recorded in the grassland habitat in Gormanston camp in January 2022. This is greater than the threshold of National Population, which is 920. High numbers were also recorded in Rogerstown Estuary. Out of 38 records, 3 (7%) of flight lines recorded across the two seasons and all survey sites, were within the 0-10m flight zone. Golden plover is an SCI of Baldoyle Bay SAC, Boyne Estuary SPA, Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, and River Nanny Estuary and Shore SPA.

5.3.5.2.12 *Great-black Backed Gull*

Generally great-black backed gulls were identified flying over the estuaries and/or railway line, but not observed in great numbers. A peak count of 8 individuals roosting/loafing were recorded in Malahide Estuary in October 2021. Out of 67, 35 (52%) of flight lines recorded across the two seasons and all survey sites, were within the 0-10m flight zone. Great-black backed gull is an SCI species for the North-West Irish Sea SPA.

5.3.5.2.13 *Great Crested Grebe*

Great crested grebe were observed foraging in Malahide Estuary, and swimming/loafing offshore in Laytown, and Gormanston. A peak count of 9 individuals was recorded offshore near Laytown in November 2022. Great crested grebe was not recorded flying over the Proposed Development. Great crested grebe is an SCI species of Dundalk Bay SPA, and Malahide Estuary SPA.

5.3.5.2.14 *Great Northern Diver*

Great northern diver was observed offshore in Laytown and Gormanston on two occasions, foraging and/or swimming in the Irish Sea, with a peak count of 8 observed in March 2022. Great northern diver was not recorded flying over the Proposed Development. Great northern diver is an SCI species of the North-West Irish Sea SPA.

5.3.5.2.15 *Grey Plover*

Grey plover was identified foraging in the estuaries and associated habitats in Rogerstown, Malahide, Laytown and Gormanston. A peak count of 104 individuals foraging was recorded in Rogerstown Estuary in February 2023. Out of 4 flight lines over the railway recorded, none were recorded in the 0-10m flight zone. Grey plover is an SCI species of Baldoyle Bay SPA, Boyne Estuary SPA, Dundalk Bay SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, and South Dublin Bay and River Tolka Estuary SPA.

5.3.5.2.16 *Common Guillemot*

Guillemot was only recorded in Gormanston swimming offshore in the Irish Sea, with 3 individuals observed. Guillemot was not recorded flying elsewhere over the Proposed Development. Common guillemot is an SCI species of Ireland's Eye SPA, Lambay Island SPA, North-West Irish Sea SPA, Seas Off Wexford SPA, and the Saltee Islands SPA.

5.3.5.2.17 *Herring Gull*

Herring gull was recorded across the Proposed Development, either flying over the railway line, or loafing/foraging in the estuaries and Irish Sea. A peak count of 230 individuals flying over the railway line was observed in January 2022. Out of the 1,406 flight lines recorded, 374 (26%) were within the 0-10m flight zone. Herring gull is an SCI species of Dundalk Bay SPA, Ireland's Eye SPA, Lambay Island SPA, the North-West Irish Sea SPA, River Nanny Estuary and Shore SPA, Skerries Islands SPA, Murrough SPA, Seas Off Wexford SPA, Saltee Islands SPA.

5.3.5.2.18 *Knot*

Knot was recorded in Malahide, Rogerstown and Laytown Estuaries, foraging, loafing and flying between areas of suitable habitat adjacent to the railway line. A peak count of 1,650 individuals foraging was recorded in Rogerstown Estuary in January 2022. This is significantly higher than the Threshold of National population, which is 160. Out of the 19 flight lines recorded, 5 (26%) were within the 0-10m flight zone. Knot are an SCI species of Boyne Estuary SPA, Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, River Nanny Estuary and Shore SPA, Rogerstown Estuary SPA, and South Dublin Bay and River Tolka Estuary SPA.

5.3.5.2.19 *Lapwing*

Lapwing were recorded either foraging in the grasslands adjacent to the estuaries/railway line, or flying over the railway line. A peak count of 170 individuals was recorded in agricultural fields in Laytown in November 2022. Out of 50 flight lines recorded, 6 (12%) were within the 0-10m flight zone. Lapwing are an SCI species for Boyne Estuary SPA, and Dundalk Bay SPA.

5.3.5.2.20 Lesser Black-backed Gull

Lesser black-backed gull was recorded in low numbers in the estuaries and associated habitats across the Proposed Development, generally observed flying or loafing in the estuaries. A peak count of 7 individuals was recorded in Rogerstown Estuary in March 2022. Out of 12 flight lines recorded, 5 (42%) were within the 0-10m flight zone. Lesser black-backed gull are an SCI species of Lambay Island SPA, North-West Irish Sea SPA, Seas Off Wexford SPA and the Saltee Islands SPA.

5.3.5.2.21 Little Gull

Little gull was only recorded on one occasion in Rogerstown Estuary, with 28 individuals observed flying over the railway line. The only flight line recorded for this species was not within the 0-10m flight zone. Little gull is an SCI species of the North-West Irish Sea SPA.

5.3.5.2.22 Mallard

Mallard was generally observed foraging and loafing in the estuaries, with a peak count of 63 individuals recorded in Rogerstown Estuary in October 2021. Out of the 78 flight lines recorded, 21 (30%) were within the 0-10m flight zone. Mallard is an SCI species of Dundalk Bay SPA.

5.3.5.2.23 Oystercatcher

Oystercatcher was recorded across the Proposed Development, foraging in the estuaries and grassland habitats adjacent to the railway line, with a peak count of 700 observed soaring over Rogerstown Park in October 2021. This is above the threshold of national population, which is 610. Out of the 373 flight lines recorded, 256 (69%) were within the 0-10m flight zone. Oystercatcher is an SCI species of Boyne Estuary SPA, Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, River Nanny Estuary and Shore SPA, Rogerstown Estuary SPA, and South Dublin Bay and River Tolka Estuary SPA.

5.3.5.2.24 Pintail

Pintail was only observed in Malahide Estuary, swimming in the estuary on two occasions. A peak count of 37 was recorded in January 2023. This is above the threshold of national population, which is 20. No flight lines were recorded for this species. Pintail is an SCI species for Malahide Estuary SPA, Dundalk Bay SPA, and North Bull Island SPA.

5.3.5.2.25 Razorbill

Razorbill was recorded on one occasion in Gormanston, with two individuals observed perched on rocks at Ben Head in January 2021. This species did not fly over the railway line. Razorbill are an SCI species of Ireland's Eye SPA, Lambay Island SPA, and the North-West Irish Sea SPA, Saltee Islands SPA and Seas off Wexford SPA.

5.3.5.2.26 Red-breasted Merganser

Red-breasted merganser was only recorded foraging and loafing in Malahide and Rogerstown Estuaries, with a peak count of 10 recorded in October 2021. Out of the 19 flight lines recorded, 13 (68%) were within the 0-10m flight zone. Red-breasted merganser is an SCI species of Dundalk Bay SPA, and Malahide Estuary SPA.

5.3.5.2.27 *Redshank*

Redshank was recorded across the survey areas, generally observed roosting and foraging in the estuaries, with a peak count of 120 individuals observed in Malahide Estuary in January 2023. Out of the 265 flight lines recorded, 197 (74%) were within the 0-10m flight zone. Redshank is an SCI species for Boyne Estuary SPA, Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, Rogerstown Estuary SPA, and South Dublin Bay and River Tolka Estuary SPA.

5.3.5.2.28 *Red-throated Diver*

Red-throated diver was observed foraging in the Irish Sea off Gormanston and Laytown Beach, with a peak count of 17 observed in Gormanston in January 2022. Red-throated diver is an SCI species of the North-West Irish Sea SPA, The Murrough SPA, Seas Off Wexford SPA.

5.3.5.2.29 *Ringed Plover*

Ringed plover was observed in the estuaries and grasslands adjacent to the railway line, with a peak count of 150 individuals observed in Rogerstown Estuary in January 2022. Out of the 4 flight lines recorded, 2 (50%) were within the 0-10m flight zone. Ringed plover is an SCI species of Baldoyle Bay SPA, Dundalk Bay SPA, River Nanny Estuary and Shore SPA, Rogerstown Estuary SPA, and South Dublin Bay and River Tolka Estuary SPA.

5.3.5.2.30 *Sanderling*

Sanderling was observed at foraging at Laytown Beach and the beach at Ben Head, with a peak count of 20 recorded in Laytown in November 2022. Sanderling is an SCI species of Boyne Estuary SPA, North Bull Island SPA, River Nanny Estuary and Shore SPA, and South Dublin Bay and River Tolka Estuary SPA.

5.3.5.2.31 *Shag*

Shag was observed on one occasion, foraging in the Irish Sea off Gormanston, with one individual recorded. Shag is an SCI species of Lambay Island SPA, the North-West Irish Sea SPA, and Skerries Islands SPA.

5.3.5.2.32 *Shelduck*

Shelduck was only observed swimming in Rogerstown and Malahide Estuaries, with a peak count of 500 observed in Malahide in January 2021. This is above the threshold of national population, which is 100. Out of the 54 flights recorded, 18 (33%) were within the 0-10m flight zone. Shelduck is an SCI species of Baldoyle Bay SPA, Boyne Estuary SPA, Dundalk Bay SPA, Malahide Estuary SPA, North Bull Island SPA, and Rogerstown Estuary SPA.

5.3.5.2.33 *Shoveler*

Shoveler was only observed swimming and foraging in Rogerstown and Malahide Estuaries, with a peak count of 11 observed in Malahide in December 2022. Out of the 4 flights recorded, 2 (50%) were within the 0-10m flight zone. Shoveler is an SCI species of North Bull Island SPA, and Rogerstown Estuary SPA.

5.3.5.2.34 Teal

Teal was recorded in the estuaries, foraging and loafing, with a peak count of 285 recorded in Malahide Estuary. Out of the 95 flight lines recorded, 68 (71%) were within the 0-10m flight zone. Teal is an SCI species of Dundalk Bay SPA, North Bull Island SPA, and The Murrough SPA.

5.3.5.2.35 Turnstone

Turnstone was recorded in the estuaries foraging, with a peak count of 54 recorded foraging in Malahide Estuary in March 2022. Out of the five flight lines recorded, three were within the 0-10m flight zone. Turnstone is an SCI species of Boyne Estuary SPA, North Bull Island SPA, and Skerries Islands SPA.

5.3.5.2.36 Wigeon

Wigeon was recorded foraging and loafing in the estuaries, with a peak count of 430 recorded in Rogerstown Estuary in January 2022. Out of the 130 flight lines recorded, 28 (22%) were within the 0-10m flight zone. Wigeon are an SCI species of The Murrough SPA.

5.3.5.2.37 Construction Compounds/Substations

Full results and survey details can be found in Appendix A 1.3 of this NIS, with a brief summary for each location described under their respective headings below.

Drogheda Compound/Substation

During all of the wintering bird surveys between September 2023 – March 2024, no bird species were identified landing within the site. There were however a number of wintering bird species noted to be flying over the site. The vast majority of these recordings were gull species, namely; herring gull, black-headed gull and lesser black-backed gull, flying between 20 -150m high over the site, but never landing within. Other birds identified flying over the site in low numbers (i.e. one or two individuals maximum) included; common gull, cormorant, and mallard. These birds were likely commuting from roosting and foraging grounds within the Boyne Estuary.

Laytown Compound

During the wintering bird surveys undertaken in Laytown, birds were not identified within the compound to the north of the River Nanny. A number of bird species were identified flying over the site from the adjacent wetland habitats adjacent. The species identified can be found in Appendix A 1.3 of this NIS.

The compounds to the south of the River Nanny, comprising of short sward grassland are very suitable for wintering bird species. Wintering bird species were recorded foraging in the compound east of the railway line included; black-headed gull, oystercatcher, common gull, and curlew in small flocks. No birds were noted in the compound west of the railway line. A range of species were also identified flying over the compound location, as described in Appendix A1.3 of this NIS.

Gormanston Compound

The surveys within this location did not identify any bird species utilising the lands for foraging or roosting. All these recordings were gull species, namely; herring gull, and black-headed gull, flying between 20 -150m high over the site, but never landing within. No other birds were recorded flying over or landing within the site.

Skerries Substation/Compound

The surveys within this location did not identify any bird species utilising the lands for foraging or roosting. The vast majority of recordings were gull species, namely; herring gull, lesser black-headed gull and black-headed gull, flying between 20 -150m high over the site, but never landing within. No other birds were recorded flying over or landing within the site. Other birds identified flying over the site included a flock of 20 brent goose and a flock of 15 curlew. Neither species landed within the site.

5.3.5.3 Summary

To summarise, flight lines of the following species were recorded within the 0-10m range, above 20% of their total flight lines across the survey areas; bar-tailed godwit, black-headed gull, black-tailed godwit, light-bellied brent goose, cormorant, curlew, dunlin, great black-backed gull, herring gull, knot, lesser black-backed gull, mallard, oystercatcher, red-breasted merganser, redshank, ringed plover, shelduck, shoveler, teal, and wigeon.

Flight lines for wintering bird surveys are presented in Figure 6 (Wintering Birds).

5.3.6 Other Fauna

Marsh fritillary butterfly (*Euphydryas aurinia*) is protected through its inclusion on Annex II of the EU Habitats Directive. None of the European sites in the Proposed Development or its vicinity include this species as a QI, and the closest site where it is a QI species is Ballynafagh Lake SAC, located c. 36km west of the Proposed Development. The species is dependent on the presence of its host plant species, *Succisa pratensis*¹², which tends to occur in wetland, heathland and diverse semi-natural grassland habitats. The records retrieved from the NBDC data search of the Proposed Development are mostly broad scale, with the most recent record located on Bull Island from 2020. Due to the distance between the Proposed Development and the nearest European site designated for marsh fritillary, this species is not further considered in this assessment.

Desmoulin's whorl snail *Vertigo moulinsiana* is protected through its inclusion on Annex II of the EU Habitats Directive. The NBDC database search of the 10km grid squares returned records for this species from 1972 in the O07 10km Grid Square, which covers an area on the outskirts of the existing railway line in Drogheda. The closest European site for which Desmoulin's whorl snail is a QI species is the Rye Water Valley/Cartron SAC, located c. 16.6km west of the Proposed Development, which is not hydrologically connected to the Proposed Development and therefore is not discussed further.

¹² Information on Marsh Fritillary ecology posted on the NPWS website [Marsh Fritillary *Euphydryas aurinia* | National Parks & Wildlife Service \(npws.ie\)](https://www.npws.ie/en/conservation/protected-species/marsh-fritillary-euphydryas-aurinia)

5.4 Hydrology

The Proposed Development areas are located within three different catchments; the Boyne Catchment, the Nanny-Delvin Catchment and the Liffey and Dublin Bay Catchment. The northern area adjacent to Drogheda drains to the Boyne catchment; the central rail line from Drogheda to Malahide marina drains to the Nanny-Devlin catchment; and from Malahide to Connolly station drains to the Liffey and Dublin Bay catchment. According to EPA data¹³, several rivers, and their associated tributaries, are located within the Proposed Development. The Stagrennan river is a tributary of the Boyne and crosses under the current rail line in the Boyne catchment and ultimately discharges into the Irish Sea via the Boyne Estuary. The Betaghstown, Nanny, Mosney, Delvin, Matt, Mill stream (Skerries), Balcunnin, Palmerstown, Ballyboghil, and Turvey rivers all cross under the current rail line in the Nanny-Devlin catchment and ultimately discharge into the North-western Irish Sea. The Sluice, Mayne, Santry, and Tolka rivers all cross under the current rail line in the Liffey and Dublin Bay catchment and ultimately discharge into Dublin Bay. There is also the addition of the Royal Canal going under the current rail line in the Liffey and Dublin bay catchment.

The EPA undertakes monitoring and reporting of the Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (Water Framework Directive or WFD) status of Irish waterbodies. Good ecological status (good status) is defined in Annex V of the WFD, in terms of quality of the biological community, the hydrological characteristics and the chemical characteristics of a waterbody¹⁴. The WFD classification scheme in Ireland includes five status classes: high, good, moderate, poor, and bad¹⁵. The WFD status of a waterbody reflects the biological, chemical and morphological conditions associated with it, and these elements together make up the ecological status of a waterbody. The WFD status of the waterbodies within the Proposed Development are as follows:

- Stagrennan River – moderate status;
- Betaghstown River – poor status;
- River Nanny (Meath) – poor status;
- Mosney River – poor status;
- Delvin River – poor status;
- River Matt – poor status;
- Mill Stream (Skerries) – poor status;
- Balcunnin River – poor status;
- Palmerstown River – poor status;
- Ballyboghil River – poor status;
- Turvey River – poor status;
- Sluice River – poor status;
- Mayne River – poor status;

¹³ Environmental Protection Agency (2020) Data available for download at <http://gis.epa.ie/GetData/Download>

¹⁴ [Introduction to the EU Water Framework Directive - Environment - European Commission \(europa.eu\)](#) [Accessed 14/09/2023, rechecked February 2024, and May 2024].

¹⁵ Information on WFD classification categories and characterisation from the EPA website www.epa.ie/water/watmg/wfd/ [Accessed 18/09/2023, rechecked February 2024 and May 2024]

- Santry River – poor status;
- Tolka River – poor status; and
- Royal Canal – good status.

In addition to monitoring WFD status, the EPA characterises whether waterbodies are at risk of failing to meet their environmental objectives. With the exception of the Stagrennan, Betaghstown, Balcunnin, Palmerstown, Sluice Rivers and the Royal Canal waterbodies, which are listed as currently under review, all other river waterbodies in the Proposed Development are listed as being ‘at risk’ of failing to meet their environmental objectives.

5.5 Hydrogeology

The Proposed Development is comprised of eight different WFD Groundwater Body (GWB) management units as follows:

- Drogheda (Code IE_EA_G_025);
- Bettystown (Code IE_EA_G_016);
- Duleek (Code IE_EA_G_012);
- Balbriggan (Code IE_EA_G_039);
- Balrothery (Code IE_EA_G_043);
- Lusk-Bog of the Ring (Code IE_EA_G_014);
- Waste Facility (W0009-02) (Code IE_EA_G_088);
- Swords (Code IE_EA_G_011); and
- Dublin (Code IE_EA_G_008).

With the exception of the Bettystown groundwater body, which has a poor groundwater status, all of the aforementioned groundwater bodies have a good WFD groundwater status.

Aquifer vulnerability is the term used to describe the intrinsic geological and hydrogeological characteristics which determine the ease with which a groundwater body may be contaminated by human activities. This is generally a function of the thickness and permeability of the subsoils that underlie the topsoil. Groundwater vulnerability along the current rail line ranges from ‘Extreme’ where bedrock is close or at the surface (i.e. OBB47 adjacent to Skerries golfclub) and to ‘Low’ vulnerability in areas where thick subsoil deposit is present (i.e. urban areas in southern Drogheda).

5.6 Soils and Geology

The landcover for the Proposed Development includes artificial, recreational and urban fabric in urban and developed areas and along the railway corridor with agricultural areas in between.

The subsoils along the Proposed Development are comprised of recent fine and coarse grained alluvial, peatland estuarine and marine sediments associated with the rivers, estuaries and marine locations. These overlie or are adjacent to Quaternary glacial deposits derived from the underlying bedrock with widespread glacial tills including Irish Sea till adjacent to the coast.

The underlying bedrock is variable and dominated by Carboniferous limestones and calcareous shales with older Silurian deep marine sediments (mudstones, greywacke and conglomerates) indicated along the route from Skerries to Laytown and volcanic Ordovician basalt (andesite, tuff, slate & mudstone) expected in the area around Balbriggan.

5.6.1 Soil Suitability

The GSI landslide susceptibility mapping has classified the area as being of low susceptibility to landslides. However, there is a potential for soft and unstable soils associated with waterbodies and the estuary crossings at Malahide and Rogerstown.

5.6.2 Contaminated Land and Existing Quarries and Pits

Potential sources of contamination within the Proposed Development have been investigated and identified ranging from historic heavy industries, such as gas works and linen factories in urban areas, to a number of historical quarries, pits and brickworks on and along the proposed route. There are numerous light industries within the Proposed Development which are not considered to be a significant constraint for soils and geology.

The railway itself poses a potential source for contaminated land. Landfills of interest along the Proposed Development area include the remediated Balleally Landfill now Rogerstown Park, Newport Synthesis in Grange Parade, and Milverton Waste Recovery Facility to the south of Skerries Station.

5.7 Air Quality

The effects of air pollution derived from anthropogenic activities is known to have negative impacts on the environment, either directly by causing vegetation die-back, or indirectly by affecting the acidity and nutrient status of soils and waters (Aherne, 2021). Governments have set limit values for a range of air pollutants in ambient air, known as Air Quality Standards (AQS). The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) transpose Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe into Irish law.

According to the Air Quality Chapter of the EIAR¹⁶ prepared for the Proposed Development, a desk study of the EPA air quality monitoring programmes has been undertaken. The most recent annual report at the time of the assessment, Air Quality in Ireland 2021 (EPA 2022), details the range and scope of monitoring undertaken throughout Ireland. In addition, scheme-specific baseline air quality monitoring has been conducted. The data collected has been included to provide site-specific baseline concentrations of NO₂ in areas which have the potential to be impacted by the Proposed Development. The Proposed Development site falls within Zones A (Dublin Conurbation), C (Cities and towns) and D (Rural Ireland) for air quality zoning. The continuous monitoring data from EPA monitoring stations in Zone A, C and D are outlined in the Air Quality Chapter of the EIAR, which presents a five-year maximum of background pollutant concentration values for NO₂, NO_x, PM_{2.5} and PM₁₀.

¹⁶ EIAR Volume 2: Chapter 12 Air Quality, DART+ Coastal North

The background concentrations are within the Air Quality Standards for all pollutants in Zone A, except for NO_x which exceeded its Air Quality Standard for the protection of vegetation. The background concentrations are well within the air quality standards for all pollutants in Zone C and Zone D.

There is a potential impact from air quality during the Construction Phase from construction dust emissions, PM₁₀/PM_{2.5} emissions and nuisance dust. Deposition of dust typically occurs in close proximity to the source and with TII Standard (TII, 2022) defining a maximum impact area of 200m from the dust generating activity. Dust deposition impacts on ecology can occur due to chemical or physical effects. This includes reduction in photosynthesis due to smothering from dust on the plants and chemical changes such as acidity to soils. Often impacts will be reversible once the works are completed and dust deposition ceases. The Proposed Development will be within close proximity to the Malahide Estuary SPA, SAC, Baldoyle Bay SPA, SAC, Rogerstown Estuary SPA, SAC, and River Nanny Estuary and Shore SPA and the North-West Irish Sea SPA which are classed as highly sensitive receptors.

6. POTENTIAL IMPACTS, ZONE OF INFLUENCE AND IDENTIFYING EUROPEAN SITES AT RISK OF EFFECTS

Based on the baseline and receiving ecological environment and the nature and characteristics of the Proposed Development the following potential impacts have been identified:

- Habitat loss and fragmentation during construction;
- Habitat degradation/effects on QI / SCI species as a result of hydrological impacts during construction and operation;
- Habitat degradation as a result of hydrogeological impacts during construction and operation;
- Habitat degradation as a result of introducing/spreading non-native invasive species during construction;
- Habitat degradation as a result of air quality impacts during construction and operation;
- Disturbance and displacement impacts during construction and operation; and
- Direct injury/mortality.

6.1 Habitat Loss and Fragmentation

The Proposed Development overlaps with five European sites: Malahide Estuary SAC, Malahide Estuary SPA, Rogerstown Estuary SAC, Rogerstown Estuary SPA, and the River Nanny Estuary and Shore SPA. However, the areas where the Proposed Development overlaps with the Malahide Estuary SAC, Malahide Estuary SPA, Rogerstown Estuary SAC, and Rogerstown Estuary SPA, do not contain, or provide a supporting role to any QI EU Annex I habitat (for the SACs), or SCI species (for the SPAs), as the works will be on the Viaducts (and associated access roadways in the case of Malahide) themselves, and not within the estuary or the associated habitats. In addition, none of the QI habitats of the SACs are located within or adjacent to the Proposed Development corridor.

However, there will be works at the Laytown Viaduct (UBB72) which will involve the installation of scaffolding installed at the northern and southern piers, in order to facilitate works on the Viaduct. These temporary works are within the River Nanny Estuary and Shore SPA boundary, where the existing Viaduct piers are located. The habitat within this area is shingle and gravel bank (Fossitt Code CB1), which is suitable foraging and/or roosting habitat for bird species. However, the area that will be utilised for the work is minor (c. 300m²) in comparison to the suitable habitat in the wider estuary and surrounding lands. Wintering bird species were not observed utilising this habitat during wintering bird surveys carried out between 2021 – 2024 by Scott Cawley Ltd. In addition, this area is frequently used by IÉ for routine maintenance of the piers and the Viaduct. A public road (Coastview Cottages road) and pedestrian bridge are also immediately adjacent, this area is constantly disturbed and is not important roosting habitat for SCI species from the River Nanny Estuary and Shore SPA, or any other SPAs in the wider environment, as noted from two seasons of wintering bird surveys. In addition, the works area is temporary and will only be in place for the duration of the works on the Laytown Viaduct (i.e. approximately 2 months, with works taking place opportunistically over that time when line possession allows) and will be reinstated following works. Therefore, there is no risk of direct habitat loss or removal of any QI habitats or habitat for SCI species from any European site arising from works at these locations.

Howth Head SAC, Ireland's Eye SAC, and Clogher Head SAC are designated for their QI terrestrial habitats, i.e., Vegetated Sea cliffs [1203], European dry heaths [4030], and perennial vegetation of stony banks [1220]. As these sites are not hydrologically connected or otherwise, to the Proposed Development and are located over 4km away, there are no pathways for potential impacts from the Proposed Development and these European sites. They are therefore not discussed further.

The potential for the loss of *ex-situ* inland feeding and/or roosting sites¹⁷ utilised by SCI bird species as a consequence of the Proposed Development to impact on the conservation objectives of any SPA has also been assessed. Potential impacts may arise due to the direct loss of important *ex-situ* inland sites that individual SCI bird species of local SPA populations rely upon as feeding and/or roosting habitat where these sites fall within the Proposed Development boundary.

A number of overwintering SCI species from the SPAs in the vicinity of the works, i.e. Malahide Estuary SPA, Rogerstown Estuary SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, North Bull Island SPA, North-West Irish Sea SPA, River Nanny Estuary And Shore SPA, Irelands Eye SPA, Lambay Island SPA, Skerries Islands SPA, The Murrough SPA, Seas Off Wexford SPA, Saltee Islands SPA, and Wicklow Head SPA, use suitable habitats outside the European sites designated boundaries as *ex-situ* sites for foraging and roosting, such as amenity grasslands for Brent geese. There are a number of *ex-situ* sites in close proximity or adjacent to the Proposed Development throughout the entirety of the Proposed Development, including agricultural lands, and short sward grassland. Whilst the majority of the works to facilitate the OHLE will be confined to the existing railway corridor (which does not contain suitable habitat for SCI species), there are a number of locations outside of this area where additional land take is proposed for substation compounds, Construction Compounds, and access roads to these compounds. A number of these locations are in carparks or urban areas (see Section 2.1.4 for details) and will not involve any additional land take. However, there are several locations that are proposed that are on private lands adjacent to the railway, that will involve removal of suitable wintering bird habitat (i.e. short sward grassland and agricultural grasslands). In total, approximately 13.4ha of land will be temporarily used to accommodate the Construction Compounds (ranging in duration from weeks – years). However, the majority of these locations with suitable wintering bird habitat will only be utilised for a number of weeks and up to a maximum of five months outside of the wintering bird season (i.e. September to March).

Therefore, *ex-situ* habitat loss for wintering bird species is confined to compound and substation locations that will be active for a year or more, including CC-51800 in Drogheda, CC-44700 Laytown Station, CC-40200 Gormanston Station, CC-32200 Skerries North Substation. These areas total c. 6.5ha Much of the land surrounding the Proposed Development is composed of habitats suitable for foraging wetland birds, e.g. arable land, and improved agricultural grassland. Therefore, there is an abundance of alternative suitable habitat for wintering wetland bird species in the surrounding area.

¹⁷ "Several of the listed waterbird species may at times use habitats situated within the immediate hinterland of the SPA or in areas ecologically connected to it [i.e., *ex-situ* sites]. The reliance on these habitats will vary from species to species and from site to site. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species from areas within the SPA, and/or a reduction in their numbers"

The loss of the lands for the compound locations, which is 6.5ha in area, would not be significant in the context of the wider environment, given the abundance of similar habitat in the immediate and surrounding area. It is also worth noting that field parcels will change in rotation between grassland, winter crops, stubble etc., year on year, and that this would constitute “natural patterns of variation”. The fact that these field parcels are constantly changing from season to season and year to year, means that wintering birds using land in the area are habituated to these changes and are accustomed to moving from field to field in order to find suitable foraging habitat. In addition, results from the wintering bird surveys in these areas undertaken between September 2023 – March 2024, noted that these areas were not being utilised by large flocks of wintering birds, with the majority of birds noted to be flying over the site. The loss of the Proposed Development would not result in population level effects on SCI bird number and would not adversely affect the integrity of SCI species from distal SPAs identified as being within the ZOI of the Proposed Development.

As the Proposed Development will not result in habitat loss or habitat fragmentation within any European site, there is no potential for any in combination effects to occur in that regard.

6.2 Habitat Degradation as a result of Hydrological Impacts

Surface water run-off and discharges from the Proposed Development will drain to the existing local surface water drainage network. In the case of works located in the Liffey and Dublin Bay Catchment, i.e. works south of Malahide Viaduct, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream to Malahide Estuary, ultimately entering the Irish Sea. In the case of works located in the Nanny-Delvin Catchment, i.e. works north of the Malahide Viaduct, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream, and ultimately discharge into the Irish Sea via the Rogerstown, Malahide or River Nanny Estuaries, ultimately discharging into the Irish Sea via the nearest surface water feature. In the case of works located in the Boyne Catchment i.e. works around Drogheda and surrounds, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream, and ultimately discharge into the Irish Sea via the Boyne Estuary. The potential Zone of Influence of potential effects on water quality from the Proposed Development could extend downstream of the study area, via the local surface water network. There are no foul waters associated with the Proposed Development.

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during the construction or operation stage of the Proposed Development, has the potential to affect water quality in the receiving aquatic environment. Due to the close proximity of surface water features to the Proposed Development, in the absence of mitigation, the associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the discharge point or location of the accidental pollution event. Such an occurrence, of a sufficient magnitude, either alone or in combination with other pressures on water quality, and in the absence of mitigation could undermine the conservation objectives of the European sites in Dublin Bay, Baldoyle Bay, Malahide Estuary, Rogerstown Estuary, River Nanny Estuary, and Boyne Estuary transitional waterbodies and the Irish Sea i.e., River Boyne and River Blackwater SAC, Lambay Island SAC, Boyne Estuary SPA, Boyne Coast and Estuary SAC, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SPA, Baldoyle Bay SAC, Baldoyle Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Ireland's Eye SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, the North-West Irish Sea

SPA, North Bull Island SPA, North Dublin Bay SAC, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Codling Fault Zone SAC. This reduction in water quality (either alone or in combination with other pressures on water quality) could result in the degradation of sensitive habitats present within these European sites, which in turn would negatively affect the SCI bird species that rely upon these habitats as foraging and/or roosting habitat. It could also negatively affect the quantity and quality of prey available to SCI bird species. In addition, impacts on water quality, if of a sufficient magnitude and duration, could negatively affect the SCI populations for which SPAs are designated by affecting their foraging resources. As birds are mobile species, it is possible that wintering birds occurring in Dublin Bay, Baldoyle Bay, Rogerstown, Malahide, Nanny, Boyne Estuaries are not limited to these sites. Despite the distance, the recent guidance on bird foraging ranges (Woodward *et al.*, 2019) suggest that some of the SCI species from other European sites along the eastern coastline may be subject to likely significant effects from the Proposed Development. Some of the SCI species listed in Table 6-1, are also listed as SCIs for other SPAs within the Zol of the Proposed Development. Others are beyond their normal forage range and thus outside the Zol of the Proposed Development (See Table 6-1). However, the Proposed Development is within the foraging distance of some. While it is likely that most of these SCI species from the SPA would not be subject to direct impacts arising from the Proposed Development by virtue of location and dispersal potential within coastal waters, indirect impacts arising from Habitat degradation as a result of pollution/contamination of receiving waterbodies, on SCI birds that have mixed with SCI species in closer proximity to the Proposed Development remain. For this reason, populations of SCI bird species of the following SPAs may also fall within the Zol of effects of hydrological impacts: Dundalk Bay SPA, Dalkey Islands SPA, Murrough SPA, Stabannan-Braganstown SPA, The Murrough SPA, Seas off Wexford SPA, Wicklow Head SPA and the Saltee Islands SPA.

A number of offshore SACs have been updated in March 2024 to include Annex II QI species, harbour porpoise, and common bottlenose dolphin¹⁸. Some of the European sites in the vicinity of the Proposed Development support harbour porpoise (as discussed in Section 5.3.4) i.e., Lambay Island SAC, Rockabill Island to Dalkey Island SAC, and the Codling Fault Zone SAC, and are included within the assessment of potential hydrological impacts above due to being less than 8km from the boundary of the Proposed Development. It is recognised that cetaceans have very wide foraging and dispersal ranges (Robinson *et al.*, 2012), and therefore these QI species from SACs around the entire Irish Coastline and beyond, could overlap with populations in Dublin Bay and the Irish Sea due to wide foraging ranges. However; there will be no works within any watercourse or waterbody associated with the Proposed Development, and by virtue of coastal dilution, only a localised percentage of the marine environment would be impacted temporarily. Furthermore, the Proposed Development will not restrict access to suitable habitat within the species range, result in any disturbance to these species, or affect habitat condition in critical areas used by the species. Therefore, European sites supporting cetaceans that are not located off the eastern coastline are unlikely to be impacted by the hydrological impacts from the Proposed Development, and Lambay Island SAC, Rockabill to Dalkey Island SAC, and Codling Fault Zone SAC, are the only European sites that fall within the Zol of effects of hydrological impacts from the Proposed Development.

¹⁸ <https://iwdg.ie/npps-new-protection-measures/>

The release of contaminated waters (via the groundwater or surface water) and/or a spillage or pollution event during construction, or operation, also has the potential to affect QI mammal species that commute or forage within the watercourses intersected by the Proposed Development. It could also negatively affect the quantity and quality of prey available to QI populations. River lamprey *Lampetra fluviatilis* and salmon *Salmo salar*, could also be negatively impacted by a reduction in water quality. A hydrological connection exists between the Proposed Development and the River Boyne and River Blackwater SAC. It is considered possible that otter, river lamprey, and salmon present within the ZOI of the Proposed Development may be connected with the River Boyne and River Blackwater SAC population, and as such these pollution/contamination impacts could occur to such a degree that the conservation objectives of River Boyne and River Blackwater are undermined.

As the Proposed Development has the potential to result in habitat degradation and effects on of the QIs/SCIs of European sites (i.e, River Boyne and River Blackwater SAC, Boyne Estuary SPA, Boyne Coast and Estuary SAC, Lambay Island SAC, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SPA, Baldoyle Bay SAC, Codling Fault Zone SAC, Baldoyle Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, the North-West Irish Sea SPA, North Bull Island SPA, North Dublin Bay SAC, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, The Murrough SPA, Dundalk Bay SPA, Dalkey Islands SPA, Stabannan-Braganstown SPA, Seas Off Wexford SPA, Wicklow Head SPA, Saltee Islands SPA) as the result of hydrological impacts, there is the potential for in combination effects to occur. All other European sites are not considered to be within the ZOI of the Proposed Development, and therefore are not at risk of any hydrological impacts as a result of the Proposed Development.

Table 6-1 Special Conservation Interest for recently published "Seas off Wexford" SPA and Foraging Distances

Special Conservation Interest	Forage Distance (and confidence level)*	Within ZOI of Proposed Development
[A001] Red-throated Diver <i>Gavia stellata</i>	9km (low confidence)	No, based on foraging distance
[A009] Fulmar <i>Fulmarus glacialis</i>	1200km (good confidence)	Cannot be ruled out that SCI population do not travel and intermix with populations from SPAs within originally identified ZOI of Proposed Development.
[A013] Manx Shearwater <i>Puffinus puffinus</i>	2365.5km (Moderate confidence)	Cannot be ruled out that SCI population do not travel and intermix with populations from SPAs within originally identified ZOI of Proposed Development.
[A016] Gannet <i>Morus bassanus</i>	509.4km (high confidence)	Cannot be ruled out that SCI population do not travel and intermix with populations from SPAs within originally identified ZOI of Proposed Development.
[A017] Cormorant <i>Phalacrocorax carbo</i>	33.9km (moderate confidence)	No, based on foraging distance

Special Conservation Interest	Forage Distance (and confidence level)*	Within ZOI of Proposed Development
[A018] Shag <i>Phalacrocorax aristotelis</i>	23.7km (high confidence)	No, based on foraging distance
[A065] Common Scoter <i>Melanitta nigra</i>	None given in 2019 guidance and none explicitly quoted in any SPA for which this sea duck is listed as an SCI	Cannot be ruled out that intermixing of foraging ducks in distal coastal SPAs
[A176] Mediterranean Gull <i>Larus melanocephalus</i>	20km (Uncertain)	No, based on foraging distance
[A179] Black-headed Gull <i>Chroicocephalus ridibundus</i>	18.5km (Uncertain)	No, based on foraging distance
[A183] Lesser Black-backed Gull <i>Larus fuscus</i>	236km (High confidence)	Cannot be ruled out that SCI population do not travel and intermix with populations from SPAs within originally identified ZOI of Proposed Development
[A184] Herring Gull <i>Larus argentatus</i>	85.6km (good confidence)	Cannot be ruled out that SCI population do not travel (edge of forage range within Proposed Development ZOI) and intermix with populations from SPAs within originally identified ZOI of Proposed Development
[A188] Kittiwake Rissa tridactyla	None given in 2019 guidance. However, Saltee Islands SPA Conservation Document notes: Maximum forage range 200km, mean maximum 65.81km and mean as 24.45km	Cannot be ruled out that SCI population do not travel and intermix with populations from SPAs within originally identified ZOI of Proposed Development
[A191] Sandwich Tern <i>Sterna sandvicensis</i>	57.5km (moderate confidence)	No, based on foraging distance
[A192] Roseate Tern <i>Sterna dougallii</i>	23.2km (moderate confidence)	No, based on foraging distance
[A193] Common Tern <i>Sterna hirundo</i>	26.9km (good confidence)	No, based on foraging distance
[A194] Arctic Tern <i>Sterna paradisaea</i>	40.5km (good confidence)	No, based on foraging distance
[A195] Little Tern <i>Sterna albifrons</i>	5km (moderate confidence)	No, based on foraging distance
[A199] Guillemot <i>Uria aalge</i>	95.2km (highest confidence)	Cannot be ruled out that SCI population do not travel and intermix with populations from SPAs within originally identified ZOI of Proposed Development
[A200] Razorbill <i>Alca torda</i>	122.2km (good confidence)	Cannot be ruled out that SCI population do not travel and intermix with populations from SPAs within originally identified ZOI of Proposed Development

Special Conservation Interest	Forage Distance (and confidence level)*	Within ZOI of Proposed Development
[A204] Puffin <i>Fratercula arctica</i>	265.4km (good confidence)	Cannot be ruled out that SCI population do not travel and intermix with populations from SPAs within originally identified ZOI of Proposed Development

6.3 Habitat Degradation as a result of Hydrogeological Impacts

The Proposed Development lies within several groundwater bodies (GWB), outlined in Section 5.5. The European sites within groundwater bodies that are designated for groundwater dependant habitats and/or species are:

- River Boyne and River Blackwater SAC (Drogheda GWB);
- North Dublin Bay SAC (Dublin GWB);
- Rye Water Valley/Carton SAC (Dublin GWB); and,
- Mouds Bog SAC (Dublin GWB).

The River Boyne and River Blackwater SAC has two groundwater-dependent Qualifying Interest habitats; Annex I habitat Alkaline fens and the priority Annex I habitat Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae). Both of these habitats are located c. 4.7km upstream of the Proposed Development¹⁹. Based on the information published by Geological Survey Ireland (GSI) on the Drogheda GWB²⁰, 'Groundwater flow in the aquifer will be from the main recharges areas, i.e. the areas of thin subsoil, in the west and north towards the discharge areas i.e. River Boyne and the coast.' As the Proposed Development lie down gradient of the main waterbody of the River Boyne and River Blackwater SAC and these groundwater-dependent QI habitats, and as the Proposed Development will be taking place on the Boyne Viaduct itself and within the Drogheda MacBride Station, it cannot influence groundwater conditions in the European site.

The North Dublin Bay SAC (the Annex I habitat humid dune slacks), Rye Water Valley/Carton SAC (the priority Annex I habitat Petrifying springs and the two whorl snail species), and Mouds Bog SAC (the priority Annex I habitat Active raised bogs) are dependent upon the existing condition and functioning of the groundwater regime. Based on information published by Geological Survey Ireland (GSI) on the Dublin GWB²¹, 'The general groundwater flow direction in this aquifer is towards the coast and also towards the River Liffey and Dublin City'. As the Proposed Development lie down gradient of the SACs, and are temporary and localised in nature, it cannot influence groundwater conditions in the European site.

¹⁹ NPWS (2021) Conservation Objectives: River Boyne and River Blackwater SAC 002299. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

²⁰ https://secure.dccae.gov.ie/GSI_DOWNLOAD/Groundwater/Reports/GWB/DroghedaGWB.pdf

²¹ https://secure.dccae.gov.ie/GSI_DOWNLOAD/Groundwater/Reports/GWB/DublinGWB.pdf

Therefore, there is no possibility of the Proposed Development undermining the conservation objectives of any of the Qualifying Interests or Special Conservation Interests of any European sites, either alone or in combination with any other plans or projects, as a result of hydrogeological effects.

6.4 Habitat Degradation as a result of Introducing/Spreading Non-Native Invasive Species

Five non-native invasive plant species, listed on the Third Schedule of the EU (Birds and Natural Habitats) Regulations 2011 (S.I. No 477 of 2011) (as amended) were present in 11 locations within or in close proximity to the Proposed Development. In addition, records of invasive species in the vicinity of the Proposed Development were returned from the desk study.

During construction and/or routine maintenance/management work, four terrestrial species (i.e. Himalayan balsam, rhododendron, Spanish bluebell, and Japanese knotweed) could potentially spread or be introduced to aquatic habitats located within downstream European sites via surface water features. Himalayan balsam and Japanese knotweed are both found in a wide variety of habitats including river banks, roadsides, and urban areas such as waste ground and railways; the former species spreading by seed dispersal, the latter vegetatively (NBDC, 2013b; NBDC, 2013c).

Rhododendron is also found in a wide variety of habitats including; bog, grassland, heath, woodland, and artificial habitats. It generally invades disturbed areas as seedlings have difficulty establishing in areas covered by native plants (Hulme, 2009). Spanish bluebell's seed freely and often hybridize through insect pollination. The Spanish bluebell has hybridised frequently with the native common bluebell and the resulting hybrids are regarded as invasive. Himalayan Balsam, rhododendron and Japanese knotweed are all classified as high impact invasive species, while Spanish bluebell is classified as a low-impact invasive species.

The only estuarine species listed on the Third Schedule recorded within the ZOI of the Proposed Development was common cord-grass, recorded from estuaries adjacent to the Proposed Development. This species spreads through the establishment of seedlings or plant fragments on open mudflats, which then expand into tussocks by radial clonal growth (Hammond & Cooper, 2002). Spreading tussocks then fuse to form clumps that can expand into extensive meadows (Hammond & Cooper, 2002). This is a well-established invasive species in these areas and is classified as a high impact invasive species.

The introduction and/or spread of these invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could undermine the conservation objectives of these European sites.

Therefore, in the absence of mitigation there is potential for invasive species to spread or be introduced during construction and operation to terrestrial habitat areas in European sites downstream in Dublin Bay (i.e. North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA), Baldoyle Bay (i.e. Baldoyle Bay SAC and Baldoyle Bay SPA), Malahide Estuary (i.e. Malahide Estuary SAC and Malahide Estuary SPA), Rogerstown Estuary (i.e. Rogerstown Estuary SAC and Rogerstown Estuary SPA), Nanny Estuary (i.e. River Nanny Estuary and Shore SPA), the River Boyne (i.e. River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA), and the North-West Irish Sea SPA due to its proximity to the Proposed Development. These in turn may result in the degradation of the existing habitats and therefore undermine the conservation objectives of these European sites. As the Proposed Development has the potential to result in habitat degradation of the QIs / SCIs of European sites as the result of the spread of invasive species, there is the potential for in combination effects to occur in association with other activities/plans/projects.

6.5 Habitat Degradation as a result of Air Quality Impacts

A reduction in air quality within the immediate vicinity of the construction works may occur as a consequence of dust deposition associated with construction activities. This includes reduction in photosynthesis due to smothering from dust on the plants and chemical changes such as acidity to soils. Whilst potential impacts on vegetation and habitats arising from air pollution associated with a project of this nature is generally greatest within c. 50-100m; impacts may also occur beyond this to a maximum distance of c. 200m from the road development and haul routes construction vehicles (NRA, 2011; Natural England, 2016; Bignal *et al.*, 2004).

The risk of dust impacts as a result of the Proposed Development are summarised in Chapter 12 Air Quality of the EIAR as part of this application for a railway order. The magnitude of risk determined is used to prescribe the level of site-specific mitigation required for each activity to prevent significant impacts occurring. In accordance with the EPA Guidelines (EPA 2022) the likely effects associated with the Construction Phase dust emissions pre-mitigation are overall negative, moderate, and short-term. Therefore, European sites within 200m of the Proposed Development have the potential to be impacted by dust during the construction phase of the development, i.e. Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC.

The impact of the Proposed Development on the nearby ecologically sensitive areas during the Construction Phase using the REM tool is outlined in Table 6-2. The annual mean NO_x concentration has been compared to the critical level of 30µg/m³ at each of the designated habitat sites in proximity to affected routes, i.e. within 200m of road links and construction traffic routes. Two European sites come within this criteria, North Bull Island SPA at Laytown Road West, and North Dublin Bay SAC at Mill Road. The predicted concentration of mean annual NO_x at all sections modelled comply with the critical level for NO_x. All sites are below the lower critical load for the designated habitat site.

Table 6-2 Impacts at Key Ecological Receptors for the Construction Phase Simple Assessment (NO_x Annual Mean Concentration)

Ecological Receptor	Receptor Location (ITM)	Do Nothing (µg/m ³)	Distance from road beyond which concentration is below critical level (30 µg/m ³) (m)	Do Something (µg/m ³)	Distance from road beyond which concentration is below critical level (30 µg/m ³) (m)	Impact (DS –DN) (µg/m ³)	Change as a percentage of critical level (30 µg/m ³) (%)
North Bull Island SPA - R150 Laytown Road West	713828, 770785	27.84	n/a	29.38	n/a	1.54	5.13%
North Dublin Bay SAC - Mill Road	712156, 775725	25.79	n/a	27.2	n/a	1.41	4.70%

During the operational phase of the Proposed Development the bulk of the rolling stock using the railway will change from diesel units to electric rail units. The Proposed Development is therefore considered beneficial, as reductions in emissions of all pollutants modelled will occur. In accordance with the EPA Guidelines (EPA 2022) the likely effects associated with the Operational Phase rail traffic emissions pre-mitigation are overall positive, slight and long-term.

6.6 Disturbance and Displacement Impacts

A temporary increase in noise, vibration, lighting and/or human activity levels during the construction or operation of the Proposed Development could result in the disturbance to and/or displacement of fauna species present within the vicinity of the Proposed Development.

6.6.1 Construction

Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the Proposed Development. For mammal species such as otter, disturbance effects would not be expected to extend beyond 150m²². Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the Proposed Development. For mammal species such as otter, disturbance effects would not be expected to extend beyond 150m²³. The River Boyne is c. 150m from the Proposed Development boundary and therefore just outside the potential disturbance Zol for otter.

²² This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (2006) and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes)(2005) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual Zol of construction related disturbance likely to be much less in reality.

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The works will be confined to the deck of the Boyne Viaduct south of the River Boyne, and not over the River itself, with the vast amount of works in Drogheda occurring in the existing station area. However, the Stagrennan River, a tributary of the River Boyne, flows under the existing railway line and Proposed Development, and is within 150m of the River Boyne or its tributaries, and therefore within the potential disturbance Zol for otter, a QI species of the River Boyne and River Blackwater SAC. Noisy works associated with the Proposed Development could include piling works close to watercourses known to support otter. These potential impacts could occur to such a degree that the conservation objectives of the River Boyne and River Blackwater SAC are undermined. Whilst some works are planned during the day, due to the restrictions with working on an active railway line, works will be required at night time. An increase in noise levels in close proximity to watercourses used by otter could result in disturbance impacting otter movements. It is predicted that the disturbance could affect the local population over the short term, but that the local otter population could utilise other unaffected suitable habitat along the watercourse during this temporary period. This is not uncommon among otter who can maintain a number of resting sites within their territory²⁴. However; otters could establish holts or resting places in the vicinity of the railway line, and therefore, there is potential for the Proposed Development to result in significant effects (albeit short-term) which could have implications for the conservation objectives of River Boyne and River Blackwater SAC as a result of disturbance/displacement impacts on otter during construction.

For birds, disturbance effects would not be expected to extend beyond a distance of c.300m, as noise levels associated with general construction activities would attenuate to close to background levels at that distance²⁵. There are five European sites within the Zol of the Proposed Development in relation to disturbance to bird species, including; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, North-West Irish Sea SPA and the South Dublin Bay and River Tolka Estuary SPA, all of which are designated for overwintering bird species.

The Construction Compound locations in Malahide at Caves Strand (CC-16100) and Bissett's Strand (CC-15900W) do not contain suitable wintering bird habitat due to the sward height and lack of management, in the case of Caves Strand, and lack of grassland at Bissett's Strand. Immediately adjacent to the Caves Strand Compound on the eastern side however, there is a short sward amenity grassland that is suitable for brent geese and is a known area of high significance for the species (Scott Cawley Ltd., 2017). Construction noise generated from works within the Compound could disturb foraging and/or roosting brent geese utilising this grassland during the winter months. Four other Construction Compounds/Substation locations were determined to have potential wintering bird habitat and are adjacent to areas of high suitability for wintering bird species, and included Drogheda Substation/Construction Compound, Laytown Construction Compound, Skerries Substation/Construction Compound, and Gormanston Construction Compound. In relation to these four Construction Compounds, whilst they contain suitable wintering bird habitat, surveys in these

²⁴ Species Profiles: Otter. Vincent Wildlife Trust (VWT). Accessed here: <https://www.vincentwildlife.ie/species/otter>

²⁵ The disturbance zone of influence for waterbirds is based on the relationship between the noise levels generated by general construction traffic/works (BS 5228:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1 Noise) and the proximity of those noise levels to birds – as assessed in Cutts, N. Phelps, A. & Burdon, D. (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*, and Wright, M., Goodman, P & Cameron, T. (2010) Exploring Behavioural Responses of Shorebirds to Impulsive Noise. *Wildfowl* (2010) 60: 150–167. At 300m, noise levels are below 60dB or, in most cases, are approaching the 50dB threshold below which no disturbance or displacement effects would arise.

locations determined they are not important foraging and/or roosting sites, as the majority of species were identified flying over the proposed Compound locations. Utility works are proposed in an area south of the Laytown Construction Compound (CC-44390E), and will include minor, temporary works to this area. Surveys in this area identified wintering bird species foraging on the amenity grassland habitat present, and therefore works here could result in disturbance and displacement of SCI bird species.

There are a number of SPAs located in relatively close proximity to the Proposed Development and/or Construction Compounds which are designated for SCI species that are known to forage and/or roost at inland *ex-situ* sites (as described in Section 6.1), such as amenity grassland playing pitches and other short sward grassland, i.e. Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, South Dublin Bay and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, the North-West Irish Sea SPA. These species include light-bellied Brent goose, curlew, grey plover, black-tailed godwit, bar-tailed godwit, oystercatcher, lapwing, golden plover, ringed plover, grey plover, greylag geese, black-headed gull, herring gull and lesser black-backed gull. Suitable inland foraging/roosting sites, which these bird species utilise, are located within the potential Zol of the Proposed Development. Current understanding of construction related noise disturbance to wintering waterbirds is based on the research presented in Cutts *et al.*, (2009) and Wright *et al.*, (2010). In terms of construction noise, levels below 50dB would not be expected to result in any response from foraging or roosting birds. Noise levels between 50dB and 70dB would provoke a moderate effect/level of response from birds, i.e., birds becoming alert and some behavioural changes (e.g., reduced feeding activity), but birds would be expected to habituate to noise levels within this range. Noise levels above 70dB would likely result in birds moving out of the affected zone or leaving the site altogether. At c. 300m, typical noise levels associated with construction activity (BS 5228) are generally below 60dB or, in most cases, are approaching the 50dB threshold. Chapter 14 Noise and Vibration of the EIAR, details the noise levels across the Proposed Development throughout the construction phase. At 100m all construction works are below 74dB, reducing thereafter this distance, with the bulk of the works between 50-65dB at 100m. Therefore, there is potential for the construction stage of the Proposed Development to result in disturbance / displacement impacts on SCI populations associated with European sites listed above.

Kingfisher is a SCI species of the River Boyne and River Blackwater SPA, located c. 3.9km west of the Proposed Development. Kingfisher breeding territories for the SPA population are strongly associated with the River Boyne and Blackwater main channels and their tributaries (Cummins *et al.*, 2010). The Proposed Development will not involve works across the River Boyne Viaduct, as the Proposed Development boundary only goes until the R150, 170m from the River Boyne. As the Proposed Development is located over 3km from the River Boyne and River Blackwater SPA, and given the works are not located on any major tributary of the River Boyne, there is no potential for disturbance related impacts on kingfisher as a result of the Proposed Development.

6.6.2 Operation

During operation, the maximum noise level LAF_{max} of an existing diesel Enterprise train measured at 25m from the nearest track is approximately 90dB. This would apply at Malahide, Rogerstown and the River Nanny estuary where the maximum line speed is 145km/h. The existing DART trains (that run between Dublin City Centre and Greystones) are approximately 10dB quieter than the diesel

enterprise trains (maximum speed 100 km/h) and the future DART+ trains are approximately 6dB quieter than the existing diesel Enterprise trains (max speed 145km/h). At 100m from the trainline, noise levels from the DART would be approximately 78dB. Wintering bird surveys at the estuaries identified birds roosting and foraging right up to the existing railway line and Viaducts (Malahide, Rogerstown and River Nanny Viaducts). Bird species in these estuaries are habituated to constant disturbance from the existing diesel trains that pass through these estuaries. Whilst the DART trains will be more regular than the current passing trains, they are quieter, and therefore bird species in the estuaries will be less disturbed than is currently experienced. During the operation of Proposed Development there will be several ongoing maintenance activities associated with the operation of the railway to ensure the safe and efficient operation. To maintain the service provision, several maintenance activities need to be carried out at night. Some of the activities have the potential to generate noise with a risk of noise disturbance during the activity. It is understood that the railway maintenance activities that can result in adverse noise impacts are generally: alignment and levelling of tracks; track tamping; and rail grinding / reprofiling. As birds are generally roosting at night when maintenance activities will be undertaken, there is potential for disturbance related impacts on SCI species during the operation of the Proposed Development.

Marine mammals associated with European sites may commute and forage within lower parts of estuaries along the east coast. It is not considered to be likely that there will be any impacts on these species as a result of the Proposed Development, as the works are largely proposed inland along or adjacent to the existing rail corridor, where water levels can drop diurnally, reducing the likelihood of marine mammals venturing this far inland.

As the Proposed Development has the potential to result in the disturbance / displacement of the QI / SCI species of the following European sites during the construction stage; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Skerries Islands SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, South Dublin Bay and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, and the North-West Irish Sea SPA, there is the potential for in combination effects to occur.

6.7 Direct Injury/Mortality

A potential increase in the mortality and/or direct injury risk to SCI species associated with increased collisions arising from the introduction of proposed new Overhead Line Equipment on the railway line in the Malahide, Rogerstown, and River Nanny Estuaries has been considered. As the current railway line north of Malahide currently has no overhead lines, areas that are exposed (i.e. are not screened by vegetation and/or the railway is in line or above the surrounding landscape and therefore exposed) and have suitable wintering bird habitat and *ex-situ* habitat (as discussed above in Section 6.1 and Section 6.6) have also been considered in terms of potential collision risks to SCI species. This is namely at Gormanston, Balbriggan, and Laytown.

The OHLE is formed by primarily two aerial electrical live wires (catenary and contact wire) located above the tracks which power the trains through the contact between the train pantograph and the OHLE contact wire.

To support the OHLE wires, masts and other infrastructure will be erected along the line and through stations, from north of Malahide to Drogheda (including Drogheda depot). Typical spacing between OHLE support structures will be between 40m and 50m, with a maximum spacing of 65m. The OHLE support heights vary between 6.5m and 8.5m (i.e. maximum height is 8.5m from the line).

Wintering bird surveys at Malahide, Rogerstown, Laytown, Gormanston, and Balbriggan, recorded flight lines and the approximate heights birds were flying at over the existing railway line and Viaducts (for Malahide, Rogerstown and Laytown). The number of flights over the railway of each bird species was compared between each height band (i.e. as described in Section 4.5.1.4) and converted into a percentage across all sites surveyed (see Appendix 1.3). The majority of birds were flying over the line in the 0-10m height band for surveys in 2021 – 2022, with the 10-20m height band being the second highest number of flights. Whilst in 2022 – 2023, more birds were flying at the 10-20m height band, with the 0-10m height band having the second highest number of flights. Therefore, there is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA. Other SPAs that are within the ZoI of the Proposed Development, i.e. Howth Head Coast SPA, Dalkey Islands SPA, Rockabill SPA, and River Boyne and River Blackwater SPA, are not considered as the designated SCI species within these sites were not identified flying over the Proposed Development during wintering bird surveys carried out in 2021 – 2023.

6.8 Summary

The potential impacts associated with the Proposed Development have the potential to affect the receiving environment and, as a result, the conservation objectives supporting the Qualifying Interest/Special Conservation Interests of 31 European sites: Malahide Estuary SAC [000205], Rogerstown Estuary SAC [000208], River Boyne and River Blackwater SAC [002299], Baldoyle Bay SAC [000199], Boyne Coast and Estuary SAC [001957], Rockabill to Dalkey Island SAC [003000], Lambay Island SAC [000204], North Dublin Bay SAC [000206], South Dublin Bay SAC [000210], Codling Fault Zone SAC [003015], River Nanny Estuary and Shore SPA [004158], River Boyne and River Blackwater SAC [004232], Boyne Estuary SPA [004080], South Dublin Bay and River Tolka Estuary SPA [004024], Howth Head Coast SPA [004113], North Bull Island SPA [004006], Baldoyle Bay SPA [004016], Dalkey Island SPA [004172], Malahide Estuary SPA [004025], Rogerstown Estuary SPA [004015], Dundalk Bay SPA [004026], Skerries Islands SPA [004122], Ireland's Eye SPA [004117], Lambay Island SPA [004069], Rockabill SPA [004014], The Murrough SPA [004186], Stabannan-Braganstown SPA [004091], North-West Irish Sea SPA [004236], Seas Off Wexford SPA [004237], Saltee Islands SPA [004002], Wicklow Head SPA [004127].

The potential impacts of the Proposed Development on the receiving environment, their zone of influence, and the European sites at risk of likely significant effects are summarised in Table 6-3 below.

The habitat degradation as a result of hydrological impacts and air quality impacts during construction, disturbance and displacement impacts, habitat degradation as a result of introducing/spreading non-native invasive species, and direct injury/mortality as a result of the OHLE associated with the Proposed Development have the potential to affect the receiving environment and, consequently, have the potential to affect the conservation objectives supporting the qualifying interest/special conservation interests of European sites. Therefore, the Proposed Development is likely to have significant effects on European sites.

Table 6-3 Summary of Analysis of Likely Significant Effects on European Sites

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the Proposed Development?
<p>Habitat loss</p> <p>Habitat loss will be confined to the lands within the Proposed Development boundary.</p>	<p>No</p> <p>Although some works are located within the Malahide Estuary SAC, Malahide Estuary SPA, Rogerstown Estuary SAC, Rogerstown Estuary SPA, and River Nanny Estuary and Shore SPA, no works are proposed within any QI Annex I habitats. No works are proposed which could result in loss of habitat for any QI/SCI Annex II species.</p>
<p>Habitat degradation as a result of hydrological impacts</p> <p>Habitats and species downstream of the Proposed Development site and the associated surface water drainage discharge points, and downstream of offsite wastewater treatment plants.</p>	<p>Yes</p> <p>There are European sites at risk of hydrological effects associated with the Proposed Development, namely; Baldoyle Bay SAC, Baldoyle Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>River Boyne and River Blackwater SAC.</p>
<p>Habitat degradation as a result of hydrogeological impacts</p> <p>Groundwater-dependent habitats, and the species those habitats support, in the local area that lie downgradient of the Proposed Development site.</p>	<p>No</p> <p>There are no European sites at risk of hydrogeological effects associated with the Proposed Development</p>
<p>Habitat degradation as a result of introducing/spreading non-native invasive species</p> <p>Habitat areas within, adjacent to, and potentially downstream of the Proposed Development site.</p>	<p>Yes</p> <p>There are non-native invasive species present adjacent to the Proposed Development site and, therefore, a risk associated with the Proposed Development to the following European sites from the spread/introduction of non-native invasive species; North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay</p>

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the Proposed Development?
	and River Tolka Estuary SPA, Baldoyle Bay SAC and Baldoyle Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA.
Disturbance and displacement impacts Potentially up to several hundred metres from the Proposed Development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the Proposed Development, taking into account the sensitivity of the qualifying interest species to disturbance effects	Yes Disturbance effects associated with the construction of the Proposed Development are predicted on the following European sites: River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA.
Direct Injury/Mortality	Yes there is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA.
Air Quality	Yes The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC.

7. ASSESSMENT OF EFFECTS ON EUROPEAN SITES

This section of the NIS assesses the direct and indirect impacts of the Proposed Development on the European sites which fall within its zone of influence. For each of these European sites, the assessment below sets out the relevant ecological baseline information, the analysis of the potential impacts, the Qualifying Interests/Special Conservation Interests at risk of these potential impacts, in view of the sites' conservation objectives, and the mitigation measures (if required) to avoid/reduce the effects of any potential impacts.

The assessment of the Proposed Development in combination with any other plans or projects on European sites is presented in Section 0.

7.1 Malahide Estuary SAC [000205], Rogerstown Estuary SAC [000208], North Dublin Bay SAC [000206], South Dublin Bay SAC [000210] and Baldoyle Bay SAC [000199]

7.1.1 Ecological Baseline Description for Malahide Estuary SAC

The Natura 2000 Standard Data Form (NPWS, 2020) lists the SAC as an important example of intertidal sand and mud flats, with *Zostera* spp. Their quality is variable but generally good. Salt marshes are well represented, particularly Atlantic salt meadows and *Salicornia* flats. Most of the sand dune system is managed for a golf course but significant areas of fixed dunes and shifting white dunes remain. The site has *Viola hirta*, a Red Data Book plant species. It is of high importance for wintering waterfowl, with an internationally important population of *Branta bernicla horta* and nationally important populations of a further 14 species, including *Pluvialis apricaria*. It also supports a regionally important population of *Limosa lapponica*. This site has educational value and has been the subject of a number of research projects.

7.1.2 Ecological Baseline Description for Rogerstown Estuary SAC

The Natura 2000 Standard Data Form (NPWS, 2018) lists the SAC as a typical eastern estuary with fairly extensive intertidal sand and mud flats. Quality variable owing to pollution from a number of sources, especially a large landfill site which was built on the mudflats. The salt marshes which fringe the estuary are of moderate importance and quality and include both Atlantic and Mediterranean salt meadows, as well as *Salicornia* flats. The sand dune element at site is limited in its distribution and quality. Rogerstown Estuary SAC has three Red Data Book plant species. It is of high importance for wintering waterfowl, with an internationally important population of *Branta bernicla horta* and nationally important populations of a further 16 species including *Pluvialis apricaria*. *Sterna albifrons* has bred here.

7.1.3 Ecological Baseline Description for North Dublin Bay SAC

The Natura 2000 Standard Data Form (NPWS 2020a) lists the SAC as having an excellent diversity of coastal habitats. The dune system is one of the most important systems on the east coast, one of few in Ireland that is actively accreting. Saltmarsh habitat is well represented at the site with particularly good zonation evident. Of note is the occurrence of Petalwort, a QI, its only known location away from the western seaboard. Threats to the site include pollution from Dublin Port, commercial bait digging, recreational activities and water abstraction by golf clubs.

7.1.4 Ecological Baseline Description for South Dublin Bay SAC

According to the Natura 2000 standard data form for South Dublin Bay SAC (NPWS 2020b), the European site possesses a fine and fairly extensive example of intertidal flats, mudflats and sandflats not covered by seawater at low tide [1140]. Sediment type is predominantly sand, with muddy sands in the more sheltered areas and a typical macro-invertebrate fauna exists. The largest stand of *Zostera* on the east coast is located at Merrion Gates. The site supports Internationally Important numbers of wintering waterfowl, including light-bellied Brent geese which feed on *Zostera*. South Dublin Bay SAC also supports small areas of annual vegetation of drift lines [1210], *Salicornia* and other annuals colonising mud and sand [1310] and embryonic shifting dunes [2110]. Given Dublin Bay's proximity to a major population centre, recreational activities and Ballymun/Finglas to City Centre Core Bus Corridor Scheme 39 Natura Impact Statement disturbance on land and at sea is an existing pressure on habitats within the European site. Additional pressures and threats include reclamation of land, industrial or commercial areas (e.g. Dublin Port), bait digging, marine water pollution, discharges and disposal of wastes, and accumulation of organic materials.

7.1.5 Ecological Baseline Description for Baldoyle Bay SAC

Baldoyle Bay is a relatively small, narrow estuary separated from the open sea by a large sand dune system. Two small rivers, the Sluice River and Mayne River, flow into the inner estuary. Portmarnock village sits at the estuary head while the mouth is marked by two points, Portmarnock Point on the northern side, and Cush Point on the southern side, with Baldoyle village located adjacent. The SPA extends eastwards approximately 500m past Cush Point. At low tide, large areas of intertidal flats are exposed. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both Narrow-leaved Eelgrass (*Zostera angustifolia*) and Dwarf Eelgrass (*Z. noltii*) occurred previously at the site but were not recorded in recent sampling programmes. Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips found along other parts of the estuary.

7.1.6 Qualifying Interests and Conservation Objectives of Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC

The QIs of Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC, and their overall conservation objectives, are listed in Table 7-1.

Table 7-1 Qualifying Interests and Conservation Objectives of Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC

Qualifying Interest(s)	Conservation Objective(s)
<p>Malahide Estuary SAC</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p>	<p>To maintain or restore the favourable conservation condition of the Annex I habitats for which the SAC has been selected</p>

Qualifying Interest(s)	Conservation Objective(s)
<p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p>S.I. No. 91/2019 - European Union Habitats (Malahide Estuary Special Area Of Conservation 000205) Regulations 2019</p> <p>NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p>Rogerstown Estuary SAC</p> <p>[1130] Estuaries</p> <p>[1140] Mudflats and sandflats not covered by seawater at low tide</p> <p>[1310] <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>[1330] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>[1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>[2120] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>[2130] Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p>S.I. No. 286/2018 - European Union Habitats (Rogerstown Estuary Special Area of Conservation 000208) Regulations 2018</p> <p>NPWS (2013) Conservation Objectives: Rogerstown Estuary SAC 000208. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain or restore the favourable conservation condition of the Annex I habitats for which the SAC has been selected</p>
<p>North Dublin Bay SAC [000206]</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>1395 Petalwort <i>Petalophyllum ralfsii</i></p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>2110 Embryonic shifting dunes</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p>2190 Humid dune slacks</p> <p>S.I. No. 524/2019 - European Union Habitats (North Dublin Bay Special Area of Conservation 000206) Regulations 2019</p> <p>NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and / or the Annex II species for which the SAC has been selected</p>

Qualifying Interest(s)	Conservation Objective(s)
<p>South Dublin Bay SAC [000210]</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>2110 Embryonic shifting dunes</p> <p>S.I. No. 525/2019 - European Union Habitats (South Dublin Bay Special Area of Conservation 000210) Regulations 2019</p> <p>NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and / or the Annex II species for which the SAC has been selected</p>
<p>Baldoyle Bay SAC [000199]</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 <i>Salicornia</i> and other annuals colonizing mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>S.I. No. 472/2021 – European Union Habitats (Baldoyle Bay Special Area of Conservation 000199) Regulations 2021</p> <p>NPWS (2012) Conservation Objectives: Baldoyle Bay SAC 000199. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and / or the Annex II species for which the SAC has been selected</p>

In conjunction with considering the generic conservation objective for these SACs “To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected”, the site specific conservation objectives documents for Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC also informed this assessment.

The site-specific conservation objectives document sets out the attributes, measures and targets that define the favourable conservation condition of the QIs within the European site. Affecting the conservation condition of the QIs is deemed to constitute an adverse effect on the integrity of a European site. The specific attributes and targets used to define the conservation objectives of the QIs of Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC are presented in Section 7.1.11, Table 7-2.

7.1.7 Examination and Analysis of Potential Direct and Indirect Impacts

The direct and/or indirect impacts by which the Proposed Development could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets supporting the conservation condition of the qualifying interests of Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC, are:

- Habitat degradation as a result of hydrological impacts;
- Habitat degradation as a result of air quality impacts; and
- Habitat degradation as a result of introducing/spreading non-native invasive species.

7.1.8 Habitat Degradation as a result of Hydrological Impacts

Surface water run-off and discharges from the Proposed Development will drain to the existing local surface water drainage network. In the case of works located in the Liffey and Dublin Bay Catchment, i.e. works south of Malahide Viaduct, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream to Malahide Estuary, ultimately entering the Irish Sea. In the case of works located in the Nanny-Delvin Catchment, i.e. works north of the Malahide Viaduct, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream, and ultimately discharge into the Irish Sea via the Rogerstown, Malahide or River Nanny Estuaries, ultimately discharging into the Irish Sea via the nearest surface water feature. The potential Zone of Influence of potential effects on water quality from the Proposed Development could extend downstream of the study area, via the local surface water network. There are no foul waters associated with the Proposed Development.

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during the Proposed Development, has the potential to affect water quality in the receiving aquatic environment. Due to the close proximity of surface water features to the Proposed Development, in the absence of mitigation, the associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the discharge point or location of the accidental pollution event. Such an occurrence, of a sufficient magnitude, either alone or in combination with other pressures on water quality, and in the absence of mitigation could undermine the conservation objectives of the European sites in Dublin Bay, Baldoyle Bay, Malahide Estuary, and Rogerstown Estuary transitional waterbodies and the Irish Sea.

As the Proposed Development has the potential to result in habitat degradation and effects on of the QIs/SCIs of European sites as the result of hydrological impacts, there is the potential for in combination effects to occur. All other European sites are not considered to be within the Zol of the Proposed Development, and therefore are not at risk of any hydrological impacts as a result of the Proposed Development.

7.1.9 Habitat degradation as a result of Air Quality Impacts during Construction

A reduction in air quality within the immediate vicinity of the construction works may occur as a consequence of dust deposition associated with construction activities. This includes reduction in photosynthesis due to smothering from dust on the plants and chemical changes such as acidity to soils. Whilst potential impacts on vegetation and habitats arising from air pollution associated with a project of this nature is generally greatest within c. 50-100m; impacts may also occur beyond this to a maximum distance of c. 200m from the road development and haul routes construction vehicles (NRA, 2011; Natural, 2016; Signal *et al.*, 2004).

The risk of dust impacts as a result of the Proposed Development are summarised in Chapter 12 Air Quality of the EIAR as part of this planning application. The magnitude of risk determined is used to prescribe the level of site-specific mitigation required for each activity to prevent significant impacts occurring. In accordance with the EPA Guidelines (EPA 2022) the likely effects associated with the Construction Phase dust emissions pre-mitigation are overall negative, moderate, and short-term.

Therefore, European sites within 200m of the Proposed Development have the potential to be impacted by dust during the construction phase of the development, i.e., Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC.

7.1.10 Habitat Degradation as a result of Introducing/Spreading Non-native Invasive Species

Five non-native invasive plant species, listed on the Third Schedule of the EU (Birds and Natural Habitats) Regulations 2011 (as amended) were present in 11 (eleven) locations within or in close proximity to the Proposed Development. In addition, records of invasive species in the vicinity of the Proposed Development were returned from the desk study.

Therefore, in the absence of mitigation there is potential for invasive species to spread or be introduced during construction to terrestrial habitat areas in European sites downstream of the Proposed Development, i.e. North Dublin Bay SAC, South Dublin Bay SAC, Baldoyle Bay SAC Malahide Estuary SAC, and Rogerstown Estuary SAC. These in turn may result in the degradation of the existing habitats and therefore undermine the conservation objectives of these European sites. As the Proposed Development has the potential to result in habitat degradation of the QIs of European sites as the result of the spread of invasive species, there is the potential for in combination effects to occur in association with other activities/plans/projects.

7.1.11 Summary

Table 7-2 presents a summary of the potential impacts of the Proposed Development on the QIs of Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC, and how these impacts relate to affecting the site's conservation objectives.

Table 7-2 Potential Impacts/Effects on the Conservation Objectives of Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Malahide Estuary SAC			
Mudflats and sandflats not covered by seawater at low tide [1140]			
To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	<p>Yes</p> <p>Works are not taking place within this habitat therefore there will be no impact on its area, distribution or physical structure.</p> <p>An accidental pollution event during the construction works could affect surface water quality in the Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary SAC is protected during construction and the Proposed Development.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Malahide Estuary.</p>	No
Community extent / Hectares / Maintain the extent of the <i>Zostera</i> dominated community, and the <i>Mytilus edulis</i> dominated community subject to natural processes			
Community structure: <i>Zostera</i> density / Shoots/m ² / Conserve the high quality of the <i>Zostera</i> dominated community, subject to natural processes			
Community structure: <i>Mytilus edulis</i> density / Individuals/m ² / Conserve the high quality of the <i>Mytilus edulis</i> dominated community, subject to natural processes			
Community distribution / Hectares / Conserve the following community type in a natural condition: Fine sand with oligochaetes, amphipods, bivalves and polychaetes community complex; Estuarine sandy mud with Chironomidae and <i>Hediste diversicolor</i> community complex; and Sand to muddy sand with <i>Peringia ulvae</i> , <i>Tubificoides benedii</i> and <i>Cerastoderma edule</i> community complex.			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Malahide Estuary.		
Community extent / Hectares / Maintain the extent of the <i>Zostera</i> dominated community, and the <i>Mytilus edulis</i> dominated community subject to natural processes			
Community structure: <i>Zostera</i> density / Shoots/m ² / Conserve the high quality of the <i>Zostera</i> dominated community, subject to natural processes			
<i>Salicornia</i> and other annuals colonising mud and sand [1310] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within this habitat therefore there will be no impact on its area, distribution or physical structure.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary SAC is protected during construction and the Proposed Development.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes	An accidental pollution event during the construction works could affect surface water in the Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.	The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	
Physical structure: sediment supply / Presence/ absence of physical barriers Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats	The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the	

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated	not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Malahide Estuary.	spread of dust to sensitive habitats in Malahide Estuary.	
Vegetation composition: typical species and subcommunities / Percentage cover / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species – <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), No new sites for this species and an annual spread of less than 1% where it is already known to occur			
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event or additional sediment load during the construction works could affect surface water in the Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary SAC is protected during construction and the Proposed Development. The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.1.12, the CEMP, and the Air	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply /Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Allow creek and pan structure to develop, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Malahide Estuary.	Quality chapter will prevent the spread of dust to sensitive habitats in Malahide Estuary.	
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur			
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event or additional sediment load during the construction works could affect surface water in the Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary SAC is protected during construction and the Proposed Development. The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction	No
Habitat distribution / Occurrence / No decline, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: zonation / Occurrence / Maintain the range of saltmarsh habitats including transitional zones, subject to natural processes including erosion and succession	with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Malahide Estuary.	and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Malahide Estuary.	
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is already known to occur			
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Malahide Estuary. The introduction and/or spread of invasive species to downstream European sites could potentially result	Yes The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	<p>in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.</p> <p>Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Malahide Estuary.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Malahide Estuary.</p>	
Vegetation composition: plant health of dune grasses / Percentage cover / 95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities dominated by marram grass (<i>Ammophila arenaria</i>) and/or lymegrass (<i>Leymus arenarius</i>)			
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession			
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: plant health of dune grasses / Percentage cover / 95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]* To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Malahide Estuary. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Malahide Estuary.	Yes The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Malahide Estuary.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground / Percentage cover / Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes			
Vegetation structure: sward height / Centimetres / Maintain structural variation in the sward			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain range of sub-communities with typical species listed in Ryle <i>et al.</i> (2009)			
Vegetation composition: negative indicator species (including <i>Hippophae rhamnoides</i>) / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Vegetation composition: scrub/trees / Percentage cover / No more than 5% cover or under control			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Rogerstown Estuary SAC			
Estuaries [1130] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	<p>Yes</p> <p>Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.</p> <p>An accidental pollution event during the construction works could affect surface water in the Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.</p>	<p>Yes</p> <p>The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary SAC is protected during construction and the Proposed Development.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Rogerstown Estuary.</p>	No
Community extent / Hectares / Maintain the extent of the <i>Zostera</i> - dominated community, and the <i>Mytilus edulis</i> -dominated community, subject to natural processes			
Community structure: <i>Zostera</i> density / Shoots/m ² / Conserve the high quality of the <i>Zostera</i> - dominated community, subject to natural processes			
Community extent / Hectares / Maintain the extent of the <i>Zostera</i> - dominated community, and the <i>Mytilus edulis</i> -dominated community, subject to natural processes			
Community structure: <i>Zostera</i> density / Shoots/m ² / Conserve the high quality of the <i>Zostera</i> - dominated community, subject to natural processes			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Rogerstown Estuary.		
Mudflats and sandflats not covered by seawater at low tide [1140] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	Yes	Yes	No
Community extent / Hectares / Maintain the extent of the <i>Zostera</i> dominated community, and the <i>Mytilus edulis</i> dominated community subject to natural processes	Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.	The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary SAC is protected during construction and the Proposed Development.	
Community structure: <i>Zostera</i> density / Shoots/m ² / Conserve the high quality of the <i>Zostera</i> dominated community, subject to natural processes	An accidental pollution event during the construction works could affect surface water in the Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.	The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	
Community structure: <i>Mytilus edulis</i> density / Individuals/m ² / Conserve the high quality of the <i>Mytilus edulis</i> dominated community, subject to natural processes	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the	The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Rogerstown Estuary.	
Community distribution / Hectares / Conserve the following community type in a natural condition: Sand to coarse sediment with <i>Nephtys cirrosa</i> and <i>Scolecopsis squamata</i> community complex; Estuarine sandy mud to mixed sediment with <i>Tubificoides benedii</i> , <i>Hediste diversicolor</i> and <i>Peringia ulvae</i> community complex.			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Rogerstown Estuary.		
<p><i>Salicornia</i> and other annuals colonising mud and sand [1310]</p> <p>To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:</p>			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	<p>Yes</p> <p>Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.</p> <p>An accidental pollution event during the construction works could affect surface water in the Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result</p>	<p>Yes</p> <p>The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary SAC is protected during construction and the Proposed Development.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the</p>	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated	<p>in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.</p> <p>Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Rogerstown Estuary.</p>	spread of dust to sensitive habitats in Rogerstown Estuary.	
Vegetation composition: typical species and subcommunities / Percentage cover / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), No new sites for this species and an annual spread of less than 1% where it is already known to occur			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession			
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event during the construction works could affect surface water in the Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary SAC is protected during construction and the Proposed Development. The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Rogerstown Estuary.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Allow creek and pan structure to develop, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)	outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Rogerstown Estuary.		
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession			
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply /Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Allow creek and pan structure to develop, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes	Yes	No
Habitat distribution / Occurrence / No decline, subject to natural processes	Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.	The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in	
Physical structure: sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession	<p>An accidental pollution event during the construction works could affect surface water in the Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.</p> <p>Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Rogerstown Estuary.</p>	<p>the Rogerstown Estuary SAC is protected during construction and the Proposed Development.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Rogerstown Estuary.</p>	
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of saltmarsh habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is already known to occur			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Rogerstown Estuary. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Rogerstown Estuary.	Yes The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Rogerstown Estuary.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: plant health of dune grasses / Percentage cover / 95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities dominated by marram grass (<i>Ammophila arenaria</i>) and/or lymegrass (<i>Leymus arenarius</i>)			
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession			
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]* To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Rogerstown Estuary. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Rogerstown Estuary.	Yes The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Rogerstown Estuary.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground / Percentage cover / Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes			
Vegetation structure: sward height / Centimetres / Maintain structural variation in the sward			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain range of sub-communities with typical species listed in Ryle <i>et al.</i> (2009)			
Vegetation composition: negative indicator species (including <i>Hippophae rhamnoides</i>) / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Vegetation composition: scrub/trees / Percentage cover / No more than 5% cover or under control			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground / Percentage cover / Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes			
North Dublin Bay SAC			
Mudflats and sandflats not covered by seawater at low tide [1140]			
To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	Yes	Yes	No
Community extent / Hectares / Maintain the extent of the <i>Zostera</i> dominated community, and the <i>Mytilus edulis</i> dominated community subject to natural processes	Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.	The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the North Dublin Bay is protected during construction and the Proposed Development.	
Community structure: <i>Mytilus edulis</i> density / Individuals/m ² / Conserve the high quality of the <i>Mytilus edulis</i> dominated community, subject to natural processes	An accidental pollution event during the construction works could affect surface water in North Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.	The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	
Community distribution / Hectares / Conserve the following community types in a natural condition: Fine sand to sandy mud with <i>Pygospio elegans</i> and <i>Crangon crangon</i> community complex; Fine sand with <i>Spio martinensis</i> community complex			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.		
Annual Vegetation of drift lines [1210] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event during the construction works could affect surface water in North Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the North Dublin Bay is protected during construction and the Proposed Development. The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply / Presence/ absence of physical barriers / Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities with typical species: sea rocket (<i>Cakile maritima</i>), sea sandwort (<i>Honckenya peploides</i>), prickly saltwort (<i>Salsola kali</i>) and oraches (<i>Atriplex</i> spp.)			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-natives) to represent less than 5% cover	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.		
<p><i>Salicornia</i> and other annuals colonising mud and sand [1310]</p> <p>To restore the favourable conservation condition of the habitat in the SAC, which is defined as follow</p>			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes	Yes	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes	Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.	The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the North Dublin Bay is protected during construction and the Proposed Development.	
Physical structure: sediment supply / Presence/ absence of physical barriers Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions	An accidental pollution event during the construction works could affect surface water in North Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal	The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to	
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	habitats and the fauna communities they support. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.	downstream European sites during construction and decommissioning.	
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and subcommunities / Percentage cover / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species – <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), No new sites for this species and an annual spread of less than 1% where it is already known to occur			
Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event during the construction works could affect surface water in North Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the North Dublin Bay is protected during construction and the Proposed Development. The mitigation measures described in Section 7.1.12, the CEMP, and the	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply /Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Allow creek and pan structure to develop, subject to natural processes, including erosion and succession			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime	with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.	ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur			
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Dublin Bay is protected during	No
Habitat distribution / Occurrence / No decline, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession	An accidental pollution event during the construction works could affect surface water in the Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.	construction and the Proposed Development. The mitigation measures described in section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of saltmarsh habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is already known to occur			
Embryonic shifting dunes [2110] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession.	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Dublin Bay.	Yes The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes.			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions	The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance.	invasive species to downstream European sites during construction and operation of the Proposed Development.	
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: plant health of foredune grasses / Percentage cover / More than 95% of sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>)			
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes	Yes	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes	Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Dublin Bay.	The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of invasive species to downstream European sites during construction	
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions	The introduction and / or spread of invasive species to downstream European sites could potentially result		

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance.	and operation of the Proposed Development.	
Vegetation composition: plant health of dune grasses / Percentage cover / 95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities dominated by marram grass (<i>Ammophila arenaria</i>) and/or lymegrass (<i>Leymus arenarius</i>)			
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]* To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Dublin Bay. The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the	Yes The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of invasive species to downstream European sites during construction and operation of the Proposed Development.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground / Percentage cover / Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: sward height / Centimetres / Maintain structural variation in the sward	species composition, diversity and abundance.		
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain range of sub-communities with typical species listed in Ryle <i>et al.</i> (2009)			
Vegetation composition: negative indicator species (including <i>Hippophae rhamnoides</i>) / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Vegetation composition: scrub/trees / Percentage cover / No more than 5% cover or under control			
Humid dune slacks [2190] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area increasing, subject to natural processes, including erosion and succession	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Dublin Bay. The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the	Yes The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of invasive species to downstream European sites during construction and operation of the Proposed Development.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: hydrological and flooding regime / Water table levels; groundwater fluctuations (metres) / Maintain natural hydrological regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: bare ground / Percentage cover / Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground	species composition, diversity and abundance.		
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within the sward			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain range of sub-communities with typical species listed in Delaney <i>et al.</i> (2013)			
Vegetation composition: cover of <i>Salix repens</i> / Percentage cover; centimetres / Maintain less than 40% cover of creeping willow (<i>Salix repens</i>)			
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Vegetation composition: scrub/trees / Percentage cover / No more than 5% cover or under control			
Petalwort <i>Petalophyllum ralfsii</i> [1395] To maintain the favourable conservation condition of the species in the SAC, which is defined as follows			
Distribution of populations / Number and geographical spread of populations / No decline	Yes As a terrestrial flora species of damp calcareous dune slacks, found above the high tide line, it is not at risk of effects from water pollution in Dublin Bay. The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated	Yes The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of invasive species to downstream European sites during construction and operation of the Proposed Development.	No
Population size / Number of individuals / No decline			
Area of suitable habitat / Hectares / No decline			
Hydrological conditions: soil moisture / Occurrence / Maintain hydrological conditions so that substrate is kept moist and damp throughout the year, but not subject to prolonged inundation by flooding in winter			
Vegetation structure: height and cover / Centimetres and percentage / Maintain open, low vegetation with a high percentage of bryophytes (small acrocarps and liverwort turf) and bare ground			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance.		
South Dublin Bay SAC			
Mudflats and sandflats not covered by water at low tide [1140]			
To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	<p>Yes</p> <p>Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.</p> <p>An accidental pollution event during the construction works could affect surface water in the Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species</p>	<p>Yes</p> <p>The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Dublin Bay is protected during construction and the Proposed Development.</p> <p>The mitigation measures described in section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning</p>	No
Community extent / Hectares / Maintain the extent of the <i>Zostera</i> dominated community, and the <i>Mytilus edulis</i> dominated community subject to natural processes			
Community structure: <i>Mytilus edulis</i> density / Individuals/m ² / Conserve the high quality of the <i>Mytilus edulis</i> dominated community, subject to natural processes			
Community distribution / Hectares / Conserve the following community types in a natural condition: Fine sand to sandy mud with <i>Pygospio elegans</i> and <i>Crangon crangon</i> community complex; Fine sand with <i>Spio martinensis</i> community complex			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.		
Annual Vegetation of drift lines [1210] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event during the construction works could affect surface water in the Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater.	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Dublin Bay is protected during construction and the Proposed Development. The mitigation measures described in section 7.1.12 the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply / Presence/ absence of physical barriers / Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities with typical species: sea rocket (<i>Cakile maritima</i>), sea sandwort (<i>Honckenya peploides</i>), prickly saltwort (<i>Salsola kali</i>) and oraches (<i>Atriplex</i> spp.)			
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-natives) to represent less than 5% cover			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.		
<i>Salicornia</i> and other annuals colonising mud and sand [1310] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follow			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event during the construction works could affect surface water in the Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Dublin Bay is protected during construction and the Proposed Development. The mitigation measures described in section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: typical species and subcommunities / Percentage cover / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)	species composition, diversity and abundance and the physical structural integrity of the habitat.		
Vegetation structure: negative indicator species – <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), No new sites for this species and an annual spread of less than 1% where it is already known to occur			
Embryonic shifting dunes [2110] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession.	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in Dublin Bay. The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.	Yes The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of invasive species to downstream European sites during construction and operation of the Proposed Development.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes.			
Physical structure: functionality sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: plant health of foredune grasses / Percentage cover / More than 95% of sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>)			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-native species) to represent less than 5% cover			
Baldoye Bay SAC			
Mudflats and sandflats not covered by water at low tide [1140] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	<p>Yes</p> <p>Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.</p> <p>An accidental pollution event during the construction works could affect surface water in the Baldoye. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and</p>	<p>Yes</p> <p>The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Baldoye Bay is protected during construction and the Proposed Development.</p> <p>The mitigation measures described in section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and operation.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Baldoye Bay.</p>	No
Community extent / Hectares / Maintain the extent of the <i>Zostera</i> dominated community, and the <i>Mytilus edulis</i> dominated community subject to natural processes			
Community structure: <i>Mytilus edulis</i> density / Individuals/m ² / Conserve the high quality of the <i>Mytilus edulis</i> dominated community, subject to natural processes			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Baldoyle Bay.		
<p><i>Salicornia</i> and other annuals colonising mud and sand [1310]</p> <p>To restore the favourable conservation condition of the habitat in the SAC, which is defined as follow</p>			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	<p>Yes</p> <p>Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.</p> <p>An accidental pollution event during the construction works could affect surface water in the Baldoyle. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species</p>	<p>Yes</p> <p>The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Baldoyle Bay is protected during construction and the Proposed Development.</p> <p>The mitigation measures described in section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and operation.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Baldoyle Bay.</p>	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: typical species and subcommunities / Percentage cover / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)	present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.		
Vegetation structure: negative indicator species – <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), No new sites for this species and an annual spread of less than 1% where it is already known to occur	Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Baldoyle Bay.		
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Baldoyle Bay is protected during construction and the Proposed Development.	No
Habitat distribution / Occurrence / No decline, or change in habitat distribution, subject to natural processes	An accidental pollution event during the construction works could affect surface water in the Baldoyle. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.	The mitigation measures described in section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and operation.	
Physical structure: sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats	The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the	
Physical structure: creeks and pans / Occurrence / Allow creek and pan structure to develop, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated	present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Baldoyle Bay.	spread of dust to sensitive habitats in Baldoyle Bay.	
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur			
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event during the construction works could affect surface water in the Baldoyle. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Baldoyle Bay is protected during construction and the Proposed Development. The mitigation measures described in section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and operation.	No No
Habitat distribution / Occurrence / No decline, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of saltmarsh habitats including transitional zones, subject to natural processes including erosion and succession			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward	<p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.</p> <p>Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within Baldoyle Bay.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in Baldoyle Bay.</p>	
Vegetation structure: vegetation cover / Percentage cover at a representative number of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)			
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is already known to occur			

7.1.12 Mitigation Measures

This section presents the mitigation measures that will be implemented during the Construction Phase to avoid or reduce the potential impacts of the Proposed Development on Malahide Estuary SAC, Rogerstown Estuary SAC, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC. All of the mitigation measures will be implemented in full are best practice, and are tried and tested, effective control measures to protect the receiving environment.

7.1.12.1 Measures to Protect Surface Water Quality during Construction

Surface water protections are included within the Construction Environmental Management Plan (CEMP) which outlines appropriate mitigation measures for the Construction Phase (See Appendix 1.7). This includes measures relating to:

- A requirement for a Pollution Incident Response Plan;
- Construction Compound management including the storage of any fuels and materials;
- Control of Sediments;
- Use of concrete; and
- Management of vehicles and plant including refuelling and wheel wash facilities, etc.

As well as these generic mitigation measures, other specific mitigation and/or monitoring measures may be required, which will include, but will not be limited to:

- Works in Flood Zones A and B are avoided where possible. In these areas, the Contractor will be required to provide a method statement for the removal of materials and personnel to minimise sediment discharge into the river and risk to personnel during flood events;
- Construction works in areas prone to flooding are to take place during dry seasons. The Contractor must follow the weather forecast prior to commencing instream works and concrete pouring. It is noted that track levels for the entirety of the development are well above flood levels;
- Works areas to be kept dry at all times through the use of bunds of non-erodible material adjacent to watercourses to avoid contaminated water entering the watercourse;
- Settlement tanks, silt traps/bags and bunds will be used where required to remove silt from surface water runoff. Sizing of the tanks will be based on best available guidelines, CIRIA (2006). Any construction work within a 10m buffer zone must be provided with these measures to minimise sediment discharge to a watercourse;
- Refuelling of all plant, machinery, and vehicles will be undertaken only in designated areas where leaks and spills are can be contained relatively easily. Spill kits will be made available on all temporary and permanent construction sites. Refuelling areas must be kept at least 50m away from any watercourse;
- Construction materials to be managed in such a way as to effectively minimise the risk posed to the aquatic environment;
- Construction Compounds and haul roads will avoid high flood risk zones as much as possible and maintain a minimum buffer of 50m from surface watercourses, and
- Excavated material to be placed in such a way as to avoid any disturbance of areas near to the banks of watercourses and any spillage into the watercourses.

All of the above measures implemented on site will be monitored throughout the duration of construction/ to ensure that they are working effectively, to implement maintenance measures if required/applicable and to address any potential issues that may arise.

7.1.12.2 Measures to Protect Surface Water Quality during the Operational Phase

Measures to control the risk of flooding and contamination to local waterbodies and the hydrological environment have been included within the design of the Proposed Development. Maintenance of the railway and substations will be on-going to ensure the risks are minimised during the Operational Phase. Maintenance activities will be in accordance with Iarnród Éireann best practice procedures to ensure that no additional risks to waterbodies are encountered.

Iarnród Éireann will also follow and implement its flood risk management operational procedures which assist in managing flood risk for rolling stock during inclement weather and flooding events, these include:

- CCE-TMS-311 - Irish Rail Weather Management Procedures (2017);
- CCE-TEB-2014-05 - Guidance On Alerts And Service Restrictions During Adverse Weather Events; and
- CME-TMS-001-008 - Operation Of IÉ RU Rolling Stock On Flooded Track (2016).

These procedures specify how Iarnród Éireann:

- Monitors and disseminates applicable weather warnings from Met Éireann;
- Prepares and implements local weather management plans for predicted adverse weather events;
- Sets out recommended flood level limits for their rolling stock passing over flooded tracks; and
- Sets out actions to be undertaken by duty managers, drivers, signallers etc when high water alerts are issued.

Operational limits have been specified for the different rolling stock (i.e., types of trains) within their fleet, as shown in Chapter 10 (Water) in Volume 2 of the EIAR and in Figure 7-1 of this NIS. The limits have been set to avoid damage to critical onboard equipment and to mitigate against the risk of a train becoming disabled in a flooded area. The limits are also subject to change depending on the track and weather conditions. It is important to note that no trains may operate over flooded track until permitted to do so by Iarnród Éireann's Infrastructure Department. Electric Multiple Units (EMUs) are the type of rolling stock of primary concern for this study, however diesel units will continue to use the railway line. The maximum limit identified within the procedure for the EMU is the top of the railway track. A typical railway track is approximately 170mm deep from ground level.

		22000	29000	2600 2800	LOCO	EMU
	Top of rail+170mm	STOP	STOP			
	Top of rail+100mm	5mph (8kph)	5mph (8kph)	STOP	STOP	
	Top of rail	5mph (8kph)	5mph (8kph)	5mph (8kph)	5mph (8kph)	STOP
	Bottom of rail head	5mph (8kph)	5mph (8kph)	5mph (8kph)	5mph (8kph)	5mph (8kph)
	Half rail height	Line Speed	Line Speed	Line Speed	Line Speed	5mph (8kph)
		Line Speed	Line Speed	Line Speed	Line Speed	Line Speed

Approx. 170mm

Figure 7-1 Iarnród Éireann RU Rolling Stock Operating Procedure on Flooded Track Condition

7.1.12.3 Measures to Prevent introduction/spreading of non-native Invasive Species during Construction

Five species listed on the Third Schedule were recorded within 11 (eleven) different locations within the Proposed Development site. During the Construction Phase and and/or routine maintenance/management work, these species could potentially spread or be introduced to terrestrial habitats located within downstream European sites via surface water features.

The appointed contractor will ensure that a confirmatory pre-construction invasive species survey will be undertaken by a suitably qualified specialist to confirm the absence and/or extent of all Third Schedule invasive species within the footprint of the Proposed Development. Where an infestation is confirmed / identified within the footprint of the Proposed Development, this will require the implementation of the measures detailed in the Non-Native Invasive Species Management Plan (See Appendix 1.5 of this NIS).

7.1.12.3.1 Non-native Invasive Species Management Plan (ISMP)

Where a pre-construction invasive species survey identifies newly established non-native invasive species within the footprint of the Proposed Development, the ISMP, as shown in Appendix 1.5, will be updated to provide a detailed description of the new infestations (e.g. approximate area of the respective colonies (m²), where feasible; approximate total number of stems, pattern of growth and information on other vegetation present), and where necessary, include calculations of volumes of infested soils to be excavated.

The ISMP for the Proposed Development will be implemented, including confirmation following the preconstruction survey the appropriate treatment methodology including the detailed control measures contained within it, as advised by a suitably qualified specialist, in accordance with the Transport Infrastructure Ireland's (TII 2020) The Management of Invasive Alien Plant Species on National Roads - Technical Guidance) (2020a) and The Management of Invasive Alien Plant Species on National Roads – Standard (TII 2020b) and other species-specific guidance documents including those listed in the non-native ISMP, in so far as they can be applied to the Proposed Development, and as necessary.

The appointed contractor will ensure that all control measures that may be specified in the non-native ISMP shall be implemented by a suitably qualified and licenced specialist prior to the construction of the Proposed Development to control the spread of newly established non-native invasive species within the footprint of the Proposed Development. Furthermore, the appointed contractor will adhere to control measures specified within the Non-Native ISMP throughout the construction phase of the Proposed Development.

The site will be monitored by the appointed contractor in consultation with the suitably qualified and licensed specialist after the control measures have been implemented. Any re-growth will be subsequently treated as detailed in the Proposed Development ISMP. The ISMP is contained within Appendix 1.5 of this report.

7.1.12.4 Measures to Prevent introduction /spreading of Non-native Invasive Species during Operation

Once the Proposed Development is in operation, and in the absence of any required management during the Construction Phase, which might extend into the Operational Phase depending on the method of eradication used, Iarnród Éireann will implement a maintenance and management regime subject to their current management procedures for trackway maintenance, where any introduction of non-native invasive plant species are managed, across their assets or the ongoing control and management of invasive species on their network. This includes the following documents, which can be found in Appendix 1.6:

- Control and Management of Vegetation;
- Identification and Control of Japanese Knotweed; and
- Identification and Control of Giant Hogweed.

No additional mitigation is required.

7.1.12.5 Measures to prevent Habitat Degradation as a Result of Air Quality Impacts

Details on construction methods can be found in Chapter 5 (Construction Strategy), in Volume 2 of the EIAR, which contains an overview of the typical activities and methods that are anticipated to be used during Construction Phase and Operational Phase of the Proposed Development. In addition, the mitigation measures documented in this section, which are also included in the Construction Environmental Management Plan (CEMP) (Appendix 1.7 will be fully implemented. Before commencing relevant works, an air quality management plan shall be prepared by the contractor and submitted for approval to the relevant planning authorities.

The plan must include all appropriate dust and emissions mitigation measures, applicable to the circumstances of the relevant site, based on the local authority requirements and industry best practices. Dublin City Council (DCC) guidance document titled *Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition* (DCC 2018) has been taken into consideration with respect to mitigation dust measures.

The plan will be developed by the contractor and for each worksite shall include:

- An inventory and timetable of activities which may give rise to emissions or dust;
- Alert levels;
- Alert system to be used (including notification process);
- Details of control measures; and
- Details of dust monitoring arrangements, including the location of sensitive receptors, monitoring locations, and monitoring equipment to be used.

In summary, the measures which will be implemented shall include:

- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods;
- Liaison with local authorities and community groups;
- Hoarding will be provided around the Construction Compounds; and
- It is anticipated that methods of collecting rainwater and recycling for general site use, will be adopted where practical. Strict dust prevention will always be in place, to minimise any potential emissions and these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

7.1.12.5.1 Construction Phase Traffic Mitigation Measures

The modelling of road traffic for impacts on human and ecological receptors has found no significant impacts that require mitigation measures with respect to the modelling of emissions (reference the assessment). However, some mitigation measures can be put in place to minimise fugitive emissions:

- Implement a policy which prevents idling of vehicles both on and off-site including HGV holding sites;
- Construction Phase traffic should be monitored to ensure construction vehicles are using the designated haul routes;
- The contractor must adhere to defined traffic routes as noted in the Construction Traffic Management Plan;
- Efficient scheduling of deliveries to minimise number of truck movements; and
- Construction vehicles will conform to the current EU emissions standards and where reasonably practicable, their emissions should meet upcoming standards prior to the legal requirement date for the new standard. This will ensure emissions on haul routes are minimised. Mitigation measures are required for the control of dust with respect to HGV movements onsite with the site and deliveries to/from the site:

- HGV traffic leaving site will pass through a wheel wash.;
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary. If public roads are deemed to require additional cleaning where possible a suction device for road cleaning will be utilised to access spaces around cars and other street furniture more effectively; and
- During movement of loose material both on and off-site, trucks will be stringently covered with tarpaulin. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

7.1.13 Residual Impacts

With the effective implementation of appropriate mitigation measures identified in this NIS, the Proposed Development poses no risk of adversely affecting on the conservation objectives, or the favourable conservation condition, of the Qualifying Interest habitats of the Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC, and there are therefore, no residual direct or indirect impacts associated with the Proposed Development that could adversely affect the integrity of Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC .

7.1.14 Conclusion of Assessment for Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC

Following an examination, analysis and evaluation in light of best scientific knowledge, of all relevant information in respect of the QIs of the Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC, the potential impacts, and mitigation measures and whether or not the predicted impacts would affect the conservation objectives that support the conservation condition of the QIs, it has been concluded that the Proposed Development does not pose a risk of adversely affecting (either directly or indirectly) the integrity of the Malahide Estuary SAC, Rogerstown Estuary, North Dublin Bay SAC, South Dublin Bay SAC and Baldoyle Bay SAC.

7.2 River Boyne and River Blackwater SAC [001957]

7.2.1 Ecological Baseline Description for River Boyne and River Blackwater SAC

The Natura 2000 Standard Data Form (NPWS, 2019) lists the site as the main channel of the Boyne containing a good example of alluvial woodland of the *Salicetum albo-fragilis* type which has developed on three alluvium islands. Alkaline fen vegetation is well represented at Lough Shesk, where there is a very fine example of habitat succession from open water to raised bog. The Boyne and its tributaries is one of Ireland's premier game fisheries and offers a wide range of angling, from fishing for spring salmon and grilse to sea trout fishing and extensive brown trout fishing. The site is one of the most important in eastern Ireland for Atlantic salmon *Salmo salar* and has very extensive spawning grounds. The site also has an important population of river lamprey *Lampetra fluviatilis*, though the distribution or abundance of this species is not well known. Otter *Lutra lutra* is widespread throughout the site. Some of the grassland areas along the Boyne and Blackwater are used by a nationally important winter flock of whooper swan *Cygnus cygnus*. Several Red Data Book plants occur within the site, with round-leaved wintergreen *Pyrola rotundifolia*, fowl bluegrass *Poa palustris* and round fruited rush *Juncus compressus*.

Also occurring are a number of Red Data Book animals, notably badger *Meles meles*, pine marten *Martes martes* and common frog *Rana temporaria*. The River Boyne is a designated Salmonid Water under the EU Freshwater Fish Directive.

7.2.2 Qualifying Interests and Conservation Objectives of River Boyne and River Blackwater SAC

The QIs of River Boyne and River Blackwater SAC, and the overall conservation objective, are listed below in Table 7-3.

Table 7-3 Qualifying Interests and Conservation Objectives of River Boyne and River Blackwater SAC

Qualifying Interest(s)	Conservation Objective(s)
<p>7230 Alkaline fens</p> <p>91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)*</p> <p>1099 River Lamprey <i>Lampetra fluviatilis</i></p> <p>1106 Salmon <i>Salmo salar</i></p> <p>1355 Otter <i>Lutra lutra</i></p> <p>NPWS (2021) Conservation objectives for River Boyne and River Blackwater SAC [002299]. Version 1. Department of Housing, Local Government and Heritage.²⁶</p>	<p>To maintain or restore the favourable conservation condition of the Annex I habitats and the Annex II species for which the SAC has been selected</p>

In conjunction with considering the generic conservation objective for this SAC “To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected”, the site-specific conservation objectives document for the River Boyne and River Blackwater SAC also informed this assessment.

The site-specific conservation objectives document sets out the attributes, measures and targets that define the favourable conservation condition of the QIs within the European site. Affecting the conservation condition of the QIs is deemed to constitute an adverse effect on the integrity of a European site. The specific attributes and targets used to define the conservation objectives of the QIs of River Boyne and River Blackwater SAC are presented in Section 7.2.3 below.

7.2.3 Examination and Analysis of Potential Direct and Indirect Impacts

The direct and/or indirect impacts by which the Proposed Development could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets supporting the conservation condition of the qualifying interests of River Boyne and River Blackwater SAC, are:

- Habitat degradation as a result of hydrological impacts;
- Habitat degradation as a result of introducing/spreading non-native invasive species;

²⁶ The versions of the conservation objectives documents referenced in this table are the most recent published versions at the time of writing.

- Habitat degradation as a result of air quality impacts; and
- Disturbance and Displacement.

7.2.1 Habitat degradation as a result of Hydrological Impacts

Surface water run-off and discharges from the Proposed Development will drain to the existing local surface water drainage network. In the case of works located in the Boyne Catchment i.e. works around Drogheda and surrounds, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream, and ultimately discharge into the Irish Sea via the Boyne Estuary. The potential Zone of Influence of potential effects on water quality from the Proposed Development could extend downstream of the study area, via the local surface water network. There are no foul waters associated with the Proposed Development.

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during the Proposed Development, has the potential to affect water quality in the receiving aquatic environment. Due to the close proximity of surface water features to the Proposed Development, in the absence of mitigation, the associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the discharge point or location of the accidental pollution event. Such an occurrence, of a sufficient magnitude, either alone or in combination with other pressures on water quality, and in the absence of mitigation could undermine the conservation objectives of the River Boyne and the Irish Sea.

As the Proposed Development has the potential to result in habitat degradation and effects on of the QIs/SCIs of European sites as the result of hydrological impacts, there is the potential for in combination effects to occur.

7.2.2 Habitat Degradation as a result of Introducing/Spreading Non-native Invasive Species

Five non-native invasive plant species, listed on the Third Schedule of the EU (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) (as amended) were present in eleven locations within or in close proximity to the Proposed Development. In addition, records of invasive species in the vicinity of the Proposed Development were returned from the desk study.

Therefore, in the absence of mitigation there is potential for invasive species to spread or be introduced during construction to terrestrial habitat areas in European sites downstream of the Proposed Development, i.e. River Boyne and River Blackwater SAC. These in turn may result in the degradation of the existing habitats and therefore undermine the conservation objectives of this European site. As the Proposed Development has the potential to result in habitat degradation of the QIs / SCIs of European sites as the result of the spread of invasive species, there is the potential for in combination effects to occur in association with other activities/plans/projects.

7.2.3 Habitat Degradation as a result of Air Quality Impacts during Construction

A reduction in air quality within the immediate vicinity of the construction works may occur as a consequence of dust deposition associated with construction activities. This includes reduction in photosynthesis due to smothering from dust on the plants and chemical changes such as acidity to soils.

Whilst potential impacts on vegetation and habitats arising from air pollution associated with a project of this nature is generally greatest within c. 50-100m; impacts may also occur beyond this to a maximum distance of c. 200m from the road development and haul routes construction vehicles (NRA, 2011; Natural, 2016; Bignal *et al.*, 2004).

The risk of dust impacts as a result of the Proposed Development are summarised in Chapter 12 Air Quality of the EIAR being submitted with this planning application. The magnitude of risk determined is used to prescribe the level of site-specific mitigation required for each activity to prevent significant impacts occurring. In accordance with the EPA Guidelines (EPA 2022) the likely effects associated with the Construction Phase dust emissions pre-mitigation are overall negative, moderate, and short-term. Therefore, European sites within 200m of the Proposed Development have the potential to be impacted by dust during the construction phase of the development, i.e., River Boyne and River Blackwater SAC.

7.2.4 Disturbance and Displacement

Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the Proposed Development. For mammal species such as otter, disturbance effects would not be expected to extend beyond 150m²⁷. Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the Proposed Development. The River Boyne is c. 150m from the Proposed Development boundary and therefore just outside the potential disturbance Zol for otter.

The works will be confined to the deck of the Boyne Viaduct south of the River Boyne, and not over the River itself, with the vast amount of works in Drogheda occurring in the existing station area. However, the Stagrennan River, a tributary of the River Boyne, flows under the existing railway line and Proposed Development, and is within 150m of the River Boyne or its tributaries, and therefore within the potential disturbance Zol for otter, a QI species of the River Boyne and River Blackwater SAC. Noisy works associated with the Proposed Development could include piling works close to watercourses known to support otter. These potential impacts could occur to such a degree that the conservation objectives of the River Boyne and River Blackwater SAC are undermined. Whilst most of the works are planned during the day, due to the restrictions with working on an active railway line, some works will be required at night time due to constraints with working on a live railway during the day. An increase in noise levels and lighting in close proximity to watercourses used by otter could result in disturbance impacting otter movements. It is predicted that the disturbance could affect the local population over the short term, but that the local otter population could utilise other unaffected suitable habitat along the watercourse during this temporary period. This is not uncommon among otter who can maintain several resting sites within their territory²⁸.

²⁷ This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (NRA 2006) and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes)(NRA 2005) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual Zol of construction related disturbance likely to be much less in reality.

²⁸ Species Profiles: Otter. Vincent Wildlife Trust (VWT). Accessed here: <https://www.vincentwildlife.ie/species/otter>

However; otters could establish holts or resting places in the vicinity of the railway line, and therefore, there is potential for the Proposed Development to result in significant effects (albeit temporary) which could have implications for the conservation objectives of River Boyne and River Blackwater SAC as a result of disturbance/displacement impacts on otter.

As the Proposed Development has the potential to result in the disturbance/displacement of the QI / SCI species of any European site, there is the potential for in combination effects to occur in association with the following activities/plans/projects.

7.2.5 Summary

Table 7-4 below presents a summary of the potential impacts of the Proposed Development on the QIs of River Boyne and River Blackwater SAC, and how these impacts relate to affecting the site's conservation objective.

Table 7-4 Potential Impacts/Effects on the Conservation Objectives of River Boyne and River Blackwater SAC

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
River Boyne and River Blackwater SAC			
Alkaline fens [7230] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes	Yes	Yes	No
Habitat distribution / Occurrence / No decline, subject to natural processes	Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the River Boyne and Boyne Estuary is protected during construction and the Proposed Development.	
Ecosystem function: soil nutrients / Soil pH and appropriate nutrient levels at a representative number of monitoring stops / Maintain soil pH and nutrient status within natural ranges	An accidental pollution event or additional sediment load during the construction works could affect surface water in the River Boyne/Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of habitats.	The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and operation.	
Ecosystem function: peat formation / Percentage cover of peat-forming vegetation and water table levels / Maintain active peat formation, where appropriate			
Ecosystem function: hydrology - groundwater levels / Water levels (centimetres); duration of levels; hydraulic gradients; water supply / Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat			
Ecosystem function: hydrology - surface water flow / Drain density and form / Maintain, or where necessary restore, as close as possible to natural or semi-natural, drainage conditions			
Ecosystem function: water quality / Various / Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species	The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the spread of dust to sensitive habitats in the River Boyne..	
Vegetation composition: community diversity / Abundance of variety of vegetation communities / Maintain variety of vegetation communities, subject to natural processes			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: typical brown mosses / Percentage cover at a representative number of monitoring stops / Maintain adequate cover of typical brown moss species	<p>present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.</p> <p>Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within the River Boyne.</p>		
Vegetation composition: typical vascular plants / Percentage cover at a representative number of monitoring stops / Maintain adequate cover of typical vascular plant species			
Vegetation composition: native negative indicator species / Percentage cover at a representative number of monitoring stops / Cover of native negative indicator species at insignificant levels			
Vegetation composition: non-native species / Percentage cover at a representative number of monitoring stops / Cover of non-native species less than 1%			
Vegetation composition: native trees and shrubs / Percentage cover in local vicinity of a representative number of monitoring stops / Cover of scattered native trees and shrubs less than 10%			
Vegetation composition: algal cover / Percentage cover at, and in local vicinity of, a representative number of monitoring stops / Cover of algae less than 2%			
Vegetation structure: vegetation height / Percentage cover at a representative number of monitoring stops / At least 50% of the live leaves/flowering shoots are more than either 5cm or 15cm above ground surface depending			
Physical structure: disturbed bare ground / Percentage cover at, and in local vicinity of, a representative number of monitoring stops / Cover of disturbed bare ground not more than 10%			
Physical structure: tufa formations / Percentage cover in local vicinity of a representative number of monitoring stops / Disturbed proportion of vegetation cover where tufa is present is less than 1%			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Indicators of local distinctiveness / Occurrence and population size / No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes			
Transitional areas between fen and adjacent habitats / Hectares; distribution / Maintain adequate transitional areas to support/protect the alkaline fen ecosystem and the services it provides.			
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)* [91E0] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes	Yes	Yes	No
Habitat distribution / Occurrence / No decline, subject to natural processes	Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event or additional sediment load during the construction works could affect surface water in the River Boyne/Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of habitats. The introduction and/or spread of invasive species to downstream	The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the River Boyne and Boyne Estuary is protected during construction and the Proposed Development. The mitigation measures described in Section 7.1.12 the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and operation. The mitigation measures described in Section 7.1.12, the CEMP, and the Air Quality chapter will prevent the	
Woodland size / Hectares / Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size			
Woodland structure: cover and height / Percentage; metres; centimetres / Total canopy cover at least 30%; median canopy height at least 7m; native shrub layer cover 10-75%; native herb/dwarf shrub layer cover at least 20% and height at least 20cm; bryophyte cover at least 4%			
Woodland structure: community diversity and extent / Hectares / Maintain diversity and extent of community types			
Woodland structure: natural regeneration / Seedling: sapling: pole ratio / Seedlings, saplings and pole age-classes of target species for 91E0* woodlands and other native tree species occur in adequate proportions to ensure survival of woodland canopy			
Hydrological regime: flooding depth/height of water table / Metres / Appropriate hydrological regime necessary for maintenance of alluvial vegetation			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Woodland structure: dead wood / Number per hectare / At least 19 stems/ha of dead wood of at least 20cm diameter	European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Habitat degradation as a result of dust deposition has the potential to impact the habitats and species within the River Boyne.	spread of dust to sensitive habitats in the River Boyne.	
Woodland structure: veteran trees / Number per hectare / No decline			
Woodland structure: indicators of local distinctiveness / Occurrence; population size / No decline in distribution and, in the case of red listed and other rare or localised species, population size			
Woodland structure: indicators of overgrazing / Occurrence / All five indicators of overgrazing absent			
Vegetation composition: native tree cover / Percentage / No decline. Native tree cover at least 90% of canopy; target species cover at least 50% of canopy			
Vegetation composition: typical species / Occurrence / At least 1 target species for 91E0* woodlands present; at least 6 positive indicator species for 91E0* woodlands present			
Vegetation composition: negative indicator species / Occurrence / Negative indicator species cover not greater than 10%; regeneration of negative indicator species absent			
Vegetation composition: problematic native species / Percentage / Cover of common nettle (<i>Urtica dioica</i>) less than 75%			
River Lamprey <i>Lampetra fluviatilis</i> [1099] To restore the favourable conservation condition of the species in the SAC, which is defined as follows:			
Distribution / Percentage of river accessible / Restore access to all water courses down to first order streams	Yes An accidental pollution event or additional sediment load during the construction works could affect surface water in the River Boyne/Boyne	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in	No
Distribution of larvae / Number of positive sites in 2 nd order channels (and greater), downstream of spawning areas / Not less than 50% of sample sites with suitable habitat positive for larval brook/river lamprey			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Population structure of larvae / Number of age/size classes / At least three age/size classes of larval brook/river lamprey present	Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of habitats that this species relies on.	the River Boyne and Boyne Estuary is protected during construction and the Proposed Development.	
Larval lamprey density in fine sediment / Larval lamprey/m² / Mean density of brook/river larval lamprey in sites with suitable habitat more than 5/m²			
Extent and distribution of spawning nursery habitat / m² and occurrence / No decline in extent and distribution of spawning and nursery beds			
Salmon <i>Salmo salar</i> [1106] To retore the favourable conservation condition of the species in the SAC, which is defined as follows:			
Distribution: extent of anadromy / Percentage of river accessible / 100% of river channels down to second order accessible from estuary	Yes An accidental pollution event or additional sediment load during the construction works could affect surface water in the River Boyne/Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of habitats that this species relies on.	Yes The itigateion measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the River Boyne and Boyne Estuary is protected during construction and the Proposed Development.	No
Adult spawning fish / Number / Conservation limit (CL) for each system consistently exceeded			
Salmon fry abundance / Number of fry/5 minutes electrofishing / Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling			
Out-migrating smolt abundance / Number / No significant decline			
Number and distribution of redds / Number and occurrence / No decline in number and distribution of spawning redds due to anthropogenic causes			
Water quality / EPA Q value / At least Q4 at all sites sampled by EPA			
Otter <i>Lutra lutra</i> [1355] To maintain the favourable conservation condition of the species in the SAC, which is defined as follows:			
Distribution / Percentage positive survey sites / No significant decline	Yes An accidental pollution event during construction or operation could affect	Yes The mitigation measures described in Section 7.1.12 and the CEMP, to	No
Extent of terrestrial habitat / Hectares / No significant decline. Area mapped and calculated as 447.6ha along river banks/ lake shoreline/around ponds			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Extent of freshwater (river) habitat / Kilometres / No significant decline. Length mapped and calculated as 263.3km	<p>surface water downstream. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the otter population through direct contact with pollutants or a decline in fish prey.</p> <p>Noise, vibration and increased works, with the proposed construction, particularly if required at night-time (around existing bridges crossing watercourses) which otter utilise could potentially result in negative impacts to QI otter populations.</p>	<p>protect water quality in the receiving environment will ensure that surface water quality in the River Boyne and Boyne Estuary is protected during construction of the Proposed Development.</p> <p>The mitigation measures described in Section 7.2.5 to manage a range of potential disturbance risk will minimise the potential impacts to QI otter population.</p>	
Extent of freshwater (lake) habitat / Hectares / No significant decline. Area mapped and calculated as 31.6ha			
Couching sites and holts / Number / No significant decline			
Fish biomass available / Kilograms / No significant decline			
Barriers to connectivity / Number / No significant increase			

7.2.6 Mitigation Measures

This section presents the mitigation measures that will be implemented during construction and operation to avoid or reduce the potential impacts of the Proposed Development on River Boyne and River Blackwater SAC. All of the mitigation measures will be implemented in full and are best practice, and are tried and tested, effective control measures to protect the receiving environment.

7.2.7 Measures to Protect Surface Water Quality during Construction and Operation

The measures presented above in Section 7.1.12.1 and 7.1.12.2 will protect surface water quality during construction and operation of the Proposed Development.

7.2.8 Measures to Prevent Introduction/Spreading of Non-native Invasive Species during Construction and Operation

The measures presented above in Section 7.1.12.3 and 7.1.12.4 will prevent the spread of non-native invasive species to downstream European sites during construction and operation of the Proposed Development.

7.2.9 Measures to Protect Otter from Disturbance/Displacement Impacts during Construction

This section presents the mitigation measures that will be implemented during construction to avoid the potential impacts of the Proposed Development on QI otter populations associated with the River Boyne and River Blackwater SAC. Although no holts were identified in the vicinity of the Proposed Development, otter may establish new breeding or resting places near the Proposed Development in advance of construction works commencing, along any watercourses associated with the River Boyne (i.e. Stagrennan River) or any watercourses where the SAC populations overlap with (i.e., River Nanny, Betaghstown River, Mosney River). All of the mitigation measures will be implemented in full. They are in accordance with best practice, and tried and tested, effective control measures to protect otter.

7.2.9.1.1 Pre-Construction Survey

- Prior to construction works commencing, the appointed contractor will engage the services of a suitably experienced ecologist to conduct a pre-construction otter survey of the Proposed Development. The survey will be undertaken within 10 months in advance of construction and supplemented by a further inspection of the Proposed Development immediately prior to site clearance to ensure that no new holts have been established in the intervening period. These surveys will be carried out in accordance with Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes (NRA 2006).
- Where any new active holts/couches are recorded within 150m of the Proposed Development the appointed ecologist will ensure that adequate mitigation is provided in accordance with Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes (NRA, 2006), and a derogation licence is sought from the NPWS where necessary.

7.2.9.1.2 *Precautionary Mitigation measures for new active holts/couches recorded within 150m of the Proposed Development*

Until such time as otters have been successfully evacuated from active holts, the following provisions will apply to all construction works:

- No works will be undertaken within 150m of any holts at which breeding females or cubs are present. Until consultation with NPWS, works closer to such breeding holts may take place – provided appropriate mitigation measures detailed below are in place;
- No wheeled or tracked vehicles (of any kind) will be used within 20m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15m of such holts, except under licence; and
- The prohibited working area associated with otter holts will where appropriate, be fenced with temporary fencing prior to any possibly invasive works. Fencing will be in accordance with Clause 303 of the TII's Specification for Roadworks (TII 2011). Appropriate awareness of the purpose of the enclosure will be conveyed through notification to site staff and sufficient signage should be placed on each exclusion fence. All contractors or operators on site will be made fully aware of the procedures pertaining to each affected holt.

7.2.9.1.3 *Ecological Clerk of Works/Retained Ecologist*

- Were a new holt to be encountered within 150 metres (up and downstream) of watercourse crossing, NPWS consultation will be sought, and the services of an Ecological Clerk of Works (EcOW) or retained Ecologist (both with experience with otter survey/mitigation) would be required;
- The appointed contractor shall employ the services of an EcOW with experience in implementing otter mitigation, to oversee and advise works at watercourse crossings for the Proposed Development (they may also undertake the preconstruction survey). The EcOW will have the authority to:
 - Review method statements;
 - Oversee works;
 - Provide instruction to the appointed contractor(s); and,
 - Require the temporary cessation of works, where necessary; and
- The EcOW will deliver a toolbox talk on biodiversity including otter to the appointed contractor(s) working in the proximity of watercourses. This talk will include instructions on identifying otter and details on the protections afforded to otter under Irish and EU legislation. The EcOW will outline the actions which will be taken by the contractor(s) if otter are noted on or near the Proposed Development during construction works.

7.2.9.1.4 *Measures to Prevent/Reduce Disturbance and Displacement of Otters*

- Night working within/directly adjacent to watercourses where otter are known to commute will be avoided, where possible, and will only be permitted with the prior approval of the planning authority; and
- Where night-working adjacent to watercourses known to support otter, is required, the advice of a suitably qualified ecologist/EcOW must be sought and a derogation licence, if necessary, will be sought from NPWS permitting such works.

7.2.9.1.5 Measures to Reduce Lighting Impacts to Otter

Security lighting in active works areas in close proximity to watercourses with known otter activity will be designed in conjunction with a suitably qualified ecologist to minimise light spill. Similarly, where any new or amended lighting design is required at a watercourse crossing, it should be cognisant of downward light-spill onto watercourses. Measures to reduce light spill may include the following:

- The use of sensor/timer triggered lighting;
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- Column heights should be considered to minimise light spill; and
- Accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only where needed.

7.2.10 Measures to prevent Habitat Degradation as a result of Air Quality Impacts during Construction

The measures presented above in Section 7.1.12.3 will prevent habitat degradation as a result of air quality impacts during construction of the Proposed Development.

7.2.11 Residual Impacts

With the effective implementation of appropriate mitigation measures identified in this NIS, the Proposed Development pose no risk of affecting on the conservation objectives, or the favourable conservation condition, of the Qis of the River Boyne and River Blackwater SAC, and there are therefore, no residual direct or indirect impacts associated with the Proposed Development that could adversely affect the integrity of River Boyne and River Blackwater SAC.

7.2.1 Conclusion of Assessment for River Boyne and River Blackwater SAC

Following an examination, analysis and evaluation in light of best scientific knowledge, of all relevant information in respect of the Qis of the River Boyne and River Blackwater SAC, the potential impacts, and mitigation measures and whether or not the predicted impacts would affect the conservation objectives that support the conservation condition of the Qis, it has been concluded that the Proposed Development does not pose a risk of adversely affecting (either directly or indirectly) the integrity of the River Boyne and River Blackwater SAC.

7.3 Boyne Coast and Estuary SAC [001957]

7.3.1 Ecological Baseline Description for Boyne Coast and Estuary SAC

The Natura 2000 Standard Data Form (NPWS, 2021) lists the site as having a good diversity of coastal habitats, including fixed dunes, however most have been modified in some way. The containment of the main tidal channel has altered the tidal pattern which affects the functioning of the various estuarine habitats. Both dune systems were formerly far more extensive but much of the stable areas have now been converted to golf courses. The site is important for wintering waterfowl, supporting nine species in nationally important numbers, including golden plover *Pluvialis apricaria*, an Annex I EU Birds Directive species. Little tern *Sterna albifrons* breeds or attempts to breed in most years.

7.3.2 Qualifying Interests and Conservation Objectives of Boyne Coast and Estuary SAC

The Qis of the Boyne Coast and Estuary SAC, and the overall conservation objectives, are listed below in **Table 7-5**.

Table 7-5 Qualifying Interests and Conservation Objectives of Boyne Coast and Estuary SAC

Qualifying Interest(s)	Conservation Objective(s)
<p>1130 Estuaries</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 Salicornia and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>2110 Embryonic shifting dunes</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p>S.I. No. 433/2021- European Union Habitats (Boyne coast and Estuary Special Area of Conservation 001957) Regulations 2021</p> <p>NPWS (2012) Conservation Objectives: Boyne Coast and Estuary SAC 001957. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain or restore the favourable conservation condition of the Annex I habitats for which the SAC has been selected</p>

In conjunction with considering the generic conservation objective for this SAC “*To maintain or restore the favourable conservation condition of the Annex I habitats for which the SAC has been selected*”, the site-specific conservation objectives document for the Boyne Estuary and Coast SAC also informed this assessment.

The site-specific conservation objectives document sets out the attributes, measures and targets that define the favourable conservation condition of the Qis within this European site.

Affecting the conservation condition of the QIs is deemed to constitute an adverse effect on the integrity of a European site. The specific attributes and targets used to define the conservation objectives of the QIs of the Boyne Coast and Estuary SAC are presented below.

7.3.3 Examination and Analysis of Potential Direct and Indirect Impacts

The direct and/or indirect impacts by which the Proposed Development could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets supporting the conservation condition of the QIs of the Boyne Coast and Estuary SAC, are:

- Habitat degradation as a result of hydrological impacts; and
- Habitat degradation as a result of introducing/spreading non-native invasive species.

7.3.4 Habitat degradation as a result of Hydrological Impacts

The potential release of contaminated surface water runoff and/or an accidental spillage or pollution event or additional silt and interstitial sediment into any surface water features during construction and decommissioning, has the potential to affect water quality in the receiving aquatic environment. In the absence of mitigation, the associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the discharge point or location of the accidental pollution event. Such an occurrence, of a sufficient magnitude, either alone or in combination with other pressures on water quality, and in the absence of mitigation could undermine the conservation objectives of the European sites in the Boyne Estuary transitional waterbody (Boyne Coast and Estuary SAC) and the Irish Sea.

7.3.5 Habitat Degradation as a result of Introducing/Spreading Non-native Invasive Species

Five non-native invasive species were recorded within c. 50m of the Proposed Development site, and during construction and/or routine maintenance/management work, non-native species could potentially be introduced to terrestrial habitats located within downstream European sites via surface water features. This could occur via various mechanisms of potential introduction, including; on works machinery / tyre treads/ personnel etc. where tiny fragments of rhizome (having a potential subterranean reach of up to 7m) could be transported to within the works site and beyond. In general, giant hogweed is typically found in damp places such as riverbanks and spreads via seed dispersal (NBDC, 2013a), while Himalayan balsam and Japanese knotweed are both found in a wider variety of habitats including river banks, roadsides, and urban areas such as waste ground and railways; the former species spreading by seed dispersal, the latter vegetatively (NBDC, 2013b; NBDC, 2013c). Giant hogweed, Himalayan balsam and Japanese knotweed are all classified as high impact invasive species. Common cord-grass is also relevant here in relation to impacts on this coastal site from non-native invasive species.

The introduction and/or spread of these invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. The key impacts from Japanese knotweed in a riparian context would be silt mobilisation due to bank instability cause by winter season dieback of Japanese knotweed as a perennial herb.

Monoculture stands of invasive species on riverbanks, leave the banks more susceptible to erosion during high flows/flooding during winter periods. This in turn could undermine the conservation objectives of these European sites.

As the Proposed Development has the potential to result in habitat degradation of the QIs of the Boyne Coast and Estuary SAC as the result of the spread of invasive species, there is the potential for in combination effects to occur in association with other activities/plans/projects.

Table 7-6 Potential Impacts/Effects on the Conservation Objectives of the Boyne Coast and Estuary SAC

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Boyne Coast and Estuary SAC			
Estuaries [1130] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	Yes An accidental pollution event or additional sediment load during the construction works could affect surface water in the River Boyne/Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of habitats.	Yes The mitigation measures described in section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Boyne Coast and Estuary SAC is protected during construction and decommissioning the Proposed Development.	No
Community distribution / Hectares / Conserve the following community types in a natural condition: Intertidal estuarine mud and fine sand with <i>Hediste diversicolor</i> and <i>Corophium volutator</i> community; and Subtidal fine sand dominated by polychaetes community	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.	The mitigation measures described in section 7.1.12, the ISMP and the CEMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Mudflats and sandflats not covered at low tide [1140]			
To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event during the construction works could affect surface water in the River Boyne/Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of habitats.	Yes The mitigation measures described in section 7.1.12, to protect water quality in the receiving environment will ensure that surface water quality in the Boyne Coast and Estuary SAC is protected during construction and decommissioning the Proposed Development. The mitigation measures described in section 7.1.12, the ISMP and the CEMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and operation	No
Community distribution / Hectares / Conserve the following community types in a natural condition: Intertidal estuarine mud and fine sand with <i>Hediste diversicolor</i> and <i>Corophium volutator</i> community; and Fine sand dominated by bivalves community complex	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.		

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
<p><i>Salicornia</i> and other annuals colonizing mud and sand [1310]</p> <p>To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:</p>			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Baltray- 2.91ha, Mornington- 1.14ha	<p>Yes</p> <p>Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure.</p> <p>An accidental pollution event during the construction works could affect surface water in the River Boyne/Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of habitats.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and</p>	<p>Yes</p> <p>The mitigation measures described in section 7.1.12, to protect water quality in the receiving environment will ensure that surface water quality in the Boyne Coast and Estuary SAC is protected during construction from the Proposed Development.</p> <p>The mitigation measures described in section 7.1.12, the ISMP and the CEMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and operation.</p>	No
Habitat distribution / Occurrence / No decline or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers / Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative sample of monitoring stops / Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and sub-communities / Percentage cover / Maintain the presence of species-poor communities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation structure: negative indicator species- <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1%	abundance and the physical structural integrity of the habitat.		
Atlantic salt meadow (<i>Glaucia-Puccinellietalia maritima</i>) [1330] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Baltray- 17.67ha, Mornington- 8.76ha	Yes Works are not taking place within or adjacent to this habitat therefore there will be no impact on its area, distribution or physical structure. An accidental pollution event during the construction works could affect surface water in the River Boyne/Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of habitats. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species	Yes The mitigation measures described in Section 7.1.12, to protect water quality in the receiving environment will ensure that surface water quality in the Boyne Coast and Estuary SAC is protected during construction of the Proposed Development. The mitigation measures described in section 7.1.12, the ISMP and the CEMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction or operation.	No
Habitat distribution / Occurrence / No decline or change in habitat distribution, subject to natural processes			
Physical structure: sediment supply / Presence/ absence of physical barriers / Maintain natural circulation of sediments and organic matter, without any physical obstruction			
Physical structure: creeks and pans / Occurrence / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime / Hectares flooded; frequency / Maintain natural tidal regime			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation structure: vegetation cover / Percentage cover at a representative sample of monitoring stops / Maintain more than 90% of area outside creeks vegetated			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: typical species and sub-communities / Percentage cover at a representative sample of monitoring stops / Maintain range of sub-communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.		
Vegetation structure: negative indicator species - <i>Spartina anglica</i> / Hectares / No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1%			
Mediterranean salt meadows (<i>Juncetalia maritima</i>) [1410] The status of Mediterranean salt meadows (<i>Juncetalia maritimi</i>) as a qualifying Annex I habitat for Boyne Coast and Estuary SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this habitat.			
Embryonic shifting dunes [2110] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Baltray- 2.52ha, Mornington- 0.67ha	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in the Boyne Estuary and Irish Sea. The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and	Yes The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of invasive species to downstream European sites during construction and operation of the Proposed Development.	No
Habitat distribution / Occurrence / No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply / Presence/ absence of physical barriers / Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: plant health of foredune grasses / Percentage cover / More than 95% of sand couch (<i>Elytrigia juncea</i>) and/or lyme- grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: typical species and sub-communities / Percentage cover / Maintain the presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>)	abundance and the physical structural integrity of the habitat.		
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-natives) to represent less than 5% cove			
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') [2120] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area stable or increasing, subject to natural processes including erosion and succession. For sub-sites mapped: Baltray- 2.97ha, Mornington- 1.99ha	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in the Boyne Estuary and Irish Sea. The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.	Yes The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of invasive species to downstream European sites during construction and operation of the Proposed Development.	No
Habitat distribution / Occurrence / No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply / Presence/ absence of physical barriers / Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: plant health of dune grasses / Percentage cover / More than 95% of marram (<i>Ammophila areanaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative number of monitoring stops / Maintain the presence of species-poor communities dominated by marram (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>)			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-natives) to represent less than 5% cover			
Fixed coastal dunes with herbaceous vegetation ('grey dunes')* [2130] To restore the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / Area increasing, subject to natural processes including erosion and succession. For sub-sites mapped: Baltray- 26.41ha; Mornington- 20.46ha	Yes Terrestrial habitats above the high tide line are not at risk of effects from water pollution in the Boyne Estuary and Irish Sea. The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.	Yes The mitigation measures described in Section 7.1.12 will prevent the introduction and / or spread of invasive species to downstream European sites during construction and operation of the Proposed Development.	No
Habitat distribution / Occurrence / No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply / Presence/ absence of physical barriers. / Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation / Occurrence / Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground / Percentage cover / Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes			
Vegetation composition: sward height / Centimetres / Maintain structural variation within sward			
Vegetation composition: typical species and sub-communities / Percentage cover at a representative sample of monitoring stops / Maintain range of sub-communities with typical species listed in Ryle <i>et al.</i> (2009)			
Vegetation composition: negative indicator species / Percentage cover / Negative indicator species (including non-natives) to represent less than 5% cover			
Vegetation composition: scrub/trees / Percentage cover / No more than 5% cover or under control			

7.3.6 Mitigation Measures

This section presents the mitigation measures that will be implemented during construction to avoid or reduce the potential impacts of the Proposed Development on the Boyne Coast and Estuary SAC. All of the mitigation measures will be implemented in full and are best practice, and tried and tested, effective control measures to protect the receiving environment.

7.3.7 Measures to Protect Surface Water Quality during Construction and Operation

The mitigation measures presented above in Section 7.1.12 and 7.1.12.2 will protect surface water quality during construction and operation of the Proposed Development.

7.3.7.1 Measures to Prevent the Spread of Invasive Species during Construction and Operation

The mitigation measures presented above in Section 7.1.12.3 and 7.1.12.2 will prevent the spread of invasive species to downstream European sites during the construction and operation of the Proposed Development.

7.3.8 Residual Impacts

With the effective implementation of appropriate mitigation measures identified in this NIS, the Proposed Development poses no risk of affecting on the conservation objectives, or the favourable conservation condition, of the QIs of the Boyne Coast and Estuary SAC, and there are therefore, no residual direct or indirect impacts associated with the Proposed Development that could adversely affect the integrity of the Boyne Coast and Estuary SAC.

7.3.9 Conclusion of Assessment for Boyne Coast and Estuary SAC

Following an examination, analysis and evaluation in light of best scientific knowledge, of all relevant information in respect of the QIs of the Boyne Coast and Estuary SAC, the potential impacts and mitigation measures, and whether or not the predicted impacts would affect the conservation objectives that support the conservation condition of the QIs, it has been concluded that the Proposed Development does not pose a risk of adversely affecting (either directly or indirectly) the integrity of the Boyne Coast and Estuary SAC.

7.4 Rockabill to Dalkey Island SAC [003000], Lambay Island SAC [000204] & Codling Fault Zone SAC [003015]

7.4.1 Ecological Baseline Description for Rockabill to Dalkey Island SAC

According to the Natura 2000 Standard Data Form (NPWS 2020d), this SAC is a marine site that is a rectangle shaped area extending from Rockabill, south to Dalkey Island in south Dublin. The SAC has been selected for the Annex I habitat: [1170] Reefs. The only species listed as a qualifying interest for the Rockabill to Dalkey Island SAC is the Harbour porpoise *Phocoena phocoena* [1351]. Surveys of the site estimated that there are 211 ±47 Harbour porpoises in the northern part of the site and 138 ±33 in the southern part (Berrow *et al.*, 2010). Calves and juveniles have been recorded across the SAC, which suggests the site has value in the reproductive cycle of the species.

7.4.2 Ecological Baseline Description for Lambay Island SAC

According to the Natura 2000 Standard Data Form (NPWS 2019), this SAC is an island located approximately 4km off the North Dublin coastline. The island is surrounded by steep cliffs on the north, east and south sides which hold Internationally Important populations of seabirds. Most of the western third of the island is intensively farmed, while the rest is a mixture of less intensively grazed land, rock outcrops, scrub and bracken. Lambay Island is surrounded by intertidal and subtidal reef habitat. This site provides year-round haul-out habitat for the Annex II seal species grey seal *Halichoerus grypus* and harbour seal *Phoca vitulina*, and includes regionally significant breeding and moulting sites. Harbour porpoise has recently been added as a QI species for this SAC (NPWS, 2024).

7.4.3 Ecological Baseline Description for Codling Fault Zone SAC

According to the Natura 2000 Standard Data Form (NPWS, 2024), Codling Fault Zone is a SAC located around 24 km east of Howth Head, Co. Dublin within the Irish Sea. The length of the site is approximately 7 km and 5 km wide at the greatest extent. The water depth at the site ranges from about 80 to 100 m. This site is of high conservation importance, due to the presence of the Habitats Directive Annex I habitat Submarine structures made by leaking gases and its associated fauna. The habitat recognised in the Irish Sea conforms to the definition of bubbling reefs. Drop-down camera surveys have noted the occurrence of a range of fauna. The hard structures associated with Submarine structures made by leaking gases tend to form solid substrates which allow the growth of species not usually found in the surrounding mud and sand. Dense beds of hydroids, including *Nemertesia sp.*, *Hydrallmania falcata* and *Tubularia indivisa*, are widely recorded, particularly along the edge of features. A wide variety of anemones occur; these include the cerianthid *Cerianthus lloydii* on soft overlying sediment, and among others, *Alcyonium digitatum*, *Sagartia elegans*, *Urticina felina*, and *Actinothoe sphyrodeta* on harder ground, principally on pavement areas. In the crevices, overhangs and between rocks the edible crab, *Cancer pagurus* is very abundant, while squat lobsters, *Munida sp.* and lobsters *Homarus gammarus* also occur. A variety of sponges, including the boring- sponge *Cliona celata* and the lace sponge *Clathrina coriacea* are present, as is the bryozoan *Flustra foliacea*. The feather star *Antedon bifida* is commonly seen in crevices and under overhangs. The fish species recorded included *Trisopterus luscus* (Bib) and *Chiroprolophis ascanii* (Yarrell's blenny). None of these species would typically occur in the surrounding habitat of mobile sand.

Harbour porpoise has also been recently added as a QI species for this SAC (NPWS, 2024).

7.4.4 Qualifying Interests and Conservation Objectives of Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC

The QIs of Rockabill to Dalkey Island SAC, Lambay Island SAC and Codling Fault Zone SAC and their overall conservation objectives are listed in Table 7-7.

Table 7-7 Qualifying Interests and Conservation Objectives of Rockabill to Dalkey Island SAC, Lambay Island SAC and Codling Fault Zone SAC

Qualifying Interest(s)	Conservation Objective(s)
<p>Rockabill to Dalkey Island SAC [003000]</p> <p>1170 Reefs</p> <p>1351 Harbour porpoise <i>Phocoena phocoena</i></p> <p>S.I. No. 94/2019 - European Union Habitats (Rockabill To Dalkey Island Special Area Of Conservation 003000) Regulations 2019</p> <p>NPWS (2013) Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain the favourable conservation condition of the Annex I habitats for which the SAC has been selected</p>
<p>Lambay Island SAC [000204]</p> <p>1170 Reefs</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>1364 Grey seal <i>Halichoerus grypus</i></p> <p>1365 Harbour seal <i>Phoca vitulina</i></p> <p>1351 Harbour porpoise <i>Phocoena phocaena</i>²⁹</p> <p>S.I. No. 294/2019 - European Union Habitats (Lambay Island Special Area Of Conservation 000204) Regulations 2019</p> <p>NPWS (2013) Conservation Objectives: Lambay Island SAC 000204. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected</p>
<p>Codling Fault Zone SAC [003015]</p> <p>1180 Submarine structures made by leaking gases</p> <p>1351 Harbour porpoise <i>Phocoena phocoena</i></p> <p>NPWS (2023) Conservation Objectives: Codling Fault Zone SAC 003015. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>	<p>To maintain the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected</p>

In conjunction with considering the generic conservation objective for these SACs, 'To maintain the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected', the site-specific conservation objectives documents for Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC also informed this assessment.

The site-specific conservation objectives documents set out the attributes, measures and targets that define the favourable conservation condition of the QIs within these European sites. Affecting the conservation condition of the QIs is deemed to constitute an adverse effect on the integrity of a European site.

²⁹ Whilst Harbour porpoise has recently been added as a QI to this SA, the CO document in respect of the SAC had not been updated that time of writing.

The specific attributes and targets used to define the conservation objectives of the QIs of Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC are presented in Section 7.4.6 below.

7.4.5 Examination and Analysis of Potential Direct and Indirect Impacts

The direct and/or indirect impacts by which the Proposed Development could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets supporting the conservation condition of the QIs of Rockabill to Dalkey Island SAC, Lambay Island SAC and Colding Fault Zone SAC, are:

- Habitat degradation as a result of hydrological impacts.

7.4.6 Habitat degradation as a result of Hydrological Impacts

Surface water run-off and discharges from the Proposed Development will drain to the existing local surface water drainage network. In the case of works located in the Liffey and Dublin Bay Catchment, i.e. works south of Malahide Viaduct, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream to Malahide Estuary, ultimately entering the Irish Sea. In the case of works located in the Nanny-Delvin Catchment, i.e. works north of the Malahide Viaduct, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream, and ultimately discharge into the Irish Sea via the Rogerstown, Malahide or River Nanny Estuaries, ultimately discharging into the Irish Sea via the nearest surface water feature. In the case of works located in the Boyne Catchment i.e. works around Drogheda and surrounds, works will drain overland or via groundwater to the closest surface water feature, from where waters will be conveyed downstream, and ultimately discharge into the Irish Sea³⁰ via the Boyne Estuary.

The potential Zone of Influence of potential effects on water quality from the Proposed Development could extend downstream of the study area, via the local surface water network.

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during the Proposed Development, has the potential to affect water quality in the receiving aquatic environment. Due to the close proximity of surface water features to the Proposed Development, in the absence of mitigation, the associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the discharge point or location of the accidental pollution event.

7.4.7 Summary

Table 7.8 below presents a summary of the potential impacts of the Proposed Development on the Qualifying Interests of Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC and how these impacts relate to affecting the sites' conservation objectives.

³⁰ Although a pollution event of a sufficient magnitude to have a measurable effect on water quality in the Irish Sea is extremely unlikely, either alone or in combination with any other plans or projects, mitigation measures are proposed on a precautionary basis

Table 7-8 Potential Impacts/Effects on the Conservation Objectives of Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Rockabill to Dalkey Island SAC			
Reefs [1170] To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	Yes An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay and the east coast. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area / distribution of reef habitat.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay and the east coast is protected during construction and operation of the Proposed Development.	No
Habitat distribution / Occurrence / Distribution is stable or increasing, subject to natural processes			
Community structure / Biological composition/ Conserve the following community types in a natural condition: Intertidal reef community complex; and Subtidal reef community complex			
Harbour porpoise <i>Phocoena phocoena</i> [1351] To maintain the favourable conservation condition of Harbour porpoise in Rockabill to Dalkey Island SAC, which is defined as follows:			
Access to suitable habitat / Number of artificial barriers / Species range within the site should not be restricted by artificial barriers to site use	Yes	Yes	No

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance / Level of impact / Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site	An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal / marine habitats which support harbour porpoise and fish prey species.	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay and the east coast is protected during construction and operation of the Proposed Development.	
Lambay Island SAC			
Reefs [1170]			
To maintain the favourable conservation condition of the habitat in the SAC, which is defined as follows:			
Habitat area / Hectares / The permanent habitat area is stable or increasing, subject to natural processes	Yes An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay and the east coast. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area / distribution of reef habitat.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay and the east coast is protected during construction and operation of the Proposed Development.	No
Habitat distribution / Occurrence / Distribution is stable or increasing, subject to natural processes			
Community structure / Biological composition/ Conserve the following community types in a natural condition: Intertidal reef community complex; and Subtidal reef community complex			
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]			
To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Lambay Island SAC, which is defined as follows:			
Habitat length / Kilometres / Area stable, subject to natural processes, including erosion	No	No	No

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Habitat distribution / Occurrence / No decline, subject to natural processes	There is no pathway for impacts to occur on any habitats associated with the Lambay Island SAC as it is located a significant distance from the Proposed Development, and on the far side of the Howth peninsula, separated by a large marine waterbody.		
Physical structure: functionality and hydrological regime / Occurrence of artificial barriers / No alteration to natural functioning of geomorphological and hydrological processes due to artificial structures			
Vegetation structure: zonation / Occurrence / Maintain range of sea cliff habitat zonation including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: vegetation height / Centimetres / Maintain structural variation within sward			
Vegetation composition: typical species and subcommunities / Percentage cover at a representative sample of monitoring stops / Maintain range of subcommunities with typical species listed in the Irish Sea Cliff Survey			
Vegetation composition: negative indicator species / Percentage / Negative indicator species (including non-natives) to represent less than 5% cover			
Vegetation composition: bracken and woody species / Percentage Cover of bracken (<i>Pteridium aquilinum</i>) on grassland and/or heath less than 10% / Cover of woody species on grassland and/or heath less than 20%			
Grey Seal <i>Halichoerus grypus</i> [1364] To maintain the favourable conservation condition of Grey Seal in Lambay Island SAC, which is defined as follows:			
Access to suitable habitat / Number of artificial barriers / Species range within the site should not be restricted by artificial barriers to site use	Yes An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay and the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay and the Irish Sea is protected during construction and	No
Breeding behaviour / Breeding sites / The breeding sites should be maintained in a natural condition			
Moulting behaviour / Moulting haul-out sites / The moulting haul-out sites should be maintained in a natural condition			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Resting behaviour / Resting haul-out sites / The resting haul-out sites should be maintained in a natural condition	with other pollution sources, could potentially affect the quality of the intertidal/marine habitats and prey which support grey seal.	operation of the Proposed Development.	
Disturbance / Level of impact / Human activities should occur at levels that do not adversely affect the grey seal population at the site			
Harbour Seal <i>Phoca vitulina</i> [1365] To maintain the favourable conservation condition of Harbour Seal in Lambay Island SAC, which is defined			
Access to suitable habitat / Number of artificial barriers / Species range within the site should not be restricted by artificial barriers to site use	Yes An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay and the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/marine habitats and prey which support harbour seal.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay and the Irish Sea is protected during construction and operation of the Proposed Development.	No
Breeding behaviour / Breeding sites / The breeding sites should be maintained in a natural condition			
Moulting behaviour / Moulting haul-out sites / The moulting haul-out sites should be maintained in a natural condition			
Resting behaviour / Resting haul-out sites / The resting haul-out sites should be maintained in a natural condition			
Disturbance / Level of impact / Human activities should occur at levels that do not adversely affect the harbour seal population at the site			
Harbour porpoise <i>Phocoena phocoena</i> [1351] Site specific conservation objectives have not been published for this species within Lambay Island SAC at the time of writing, therefore conservation objectives from a nearby site (Rockabill to Dalkey Island SAC) were utilised for this assessment. To maintain the favourable conservation condition of Harbour porpoise in Lambay Island SAC, which is defined as follows:			
Access to suitable habitat / Number of artificial barriers / Species range within the site should not be restricted by artificial barriers to site use	Yes	Yes	No

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance / Level of impact / Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site	An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay and the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal / marine habitats which support harbour porpoise and fish prey species.	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay and the Irish Sea is protected during construction and operation of the Proposed Development.	
Codling Fault Zone SAC			
Submarine structures made by leaking gases [1180] To maintain the favourable conservation condition of Submarine structures made by leaking gases in Codling Fault Zone SAC, which is defined by the following list of attributes and targets:			
Area of methane derived authigenic structures (MDAC) features / Hectares / The permanent area is stable or increasing, subject to natural processes.	No The Proposed Development will not involve any works within this SAC, which is located over 30km offshore, and therefore cannot affect the physicality or distribution of this SAC.	No	No
Distribution / Occurrence / Distribution stable or increasing, subject to natural processes.			
Physical structure / Presence and structure / Maintain the structural integrity of the MDAC features, subject to natural processes			
Community structure / Biological composition / Conserve the Codling Fault Zone MDACs community complex in a natural condition, subject to natural processes			
Harbour porpoise <i>Phocoena phocoena</i> [1351] Site specific conservation objectives have not been published for this species within Codling Fault Zone SAC at the time of writing, therefore conservation objectives from a nearby site (Rockabill to Dalkey Island SAC) were utilised for this assessment To maintain the favourable conservation condition of Harbour porpoise in Codling Fault Zone SAC, which is defined as follows			

Conservation Objectives Attribute/Measure/Target (*=priority Annex I habitat)	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Access to suitable habitat / Number of artificial barriers / Species range within the site should not be restricted by artificial barriers to site use	Yes An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay and the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal / marine habitats which support harbour porpoise and fish prey species.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay and the Irish Sea is protected during construction and operation of the Proposed Development.	No
Disturbance / Level of impact / Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site			

7.4.8 Mitigation Measures

This Section presents the mitigation measures that will be implemented during construction and operation to avoid or reduce the potential impacts of the Proposed Development on Rockabill to Dalkey Island SAC, Lambay Island SAC, and the Codling Fault Zone SAC. All of the mitigation measures will be implemented in full and are best practice, and tried and tested, effective control measures to protect the receiving environment.

7.4.8.1 Measures to Protect Surface Water Quality during Construction and Operation

The measures presented above in Section 7.1.12.1 and 7.1.12.2 will protect surface water quality during construction and operation of the Proposed Development.

7.4.9 Residual Impacts

With the effective implementation of appropriate mitigation measures identified in this NIS, the Proposed Development poses no risk of affecting the conservation objectives, or the favourable conservation condition, of the QIs of Rockabill to Dalkey Island SAC, Lambay Island SAC, and the Codling Fault Zone SAC and there are therefore, no residual direct or indirect impacts associated with the Proposed Development that could adversely affect the integrity of Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC.

7.4.10 Conclusion of Assessment for Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC

Following an examination, analysis and evaluation in light of best scientific knowledge, of all relevant information in respect of the QIs of the Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC, the potential impacts, and mitigation measures and whether or not the predicted impacts would affect the conservation objectives that support the conservation condition of the QIs, it has been concluded that the Proposed Development does not pose a risk of adversely affecting (either directly or indirectly) the integrity of the Rockabill to Dalkey Island SAC, Lambay Island SAC, and Codling Fault Zone SAC.

7.5 Rogerstown Estuary SPA [004015], Malahide Estuary SPA [004025], Lambay Island SPA [004069], Skerries Islands SPA [004122], Baldoyle Bay SPA [004016], North Bull Island SPA [004006], South Dublin and River Tolka Estuary SPA [004024], River Nanny Estuary and Shore SPA [004158], Boyne Estuary SPA [004080], River Boyne and River Blackwater SPA [004232], Howth Head Coast SPA [004113], Dalkey Island SPA [004172], Dundalk Bay SPA [004026], Ireland's Eye SPA [004117], Rockabill SPA [004014], The Murrough SPA [004186], and Stabannan-Braganstown SPA [004091], and the North-West Irish Sea SPA [004236]

7.5.1 Ecological Baseline Description for Rogerstown Estuary SPA

Rogerstown Estuary is a typical eastern estuary with fairly extensive intertidal sand and mud flats. It is of high importance for wintering waterfowl, with an internationally important population of light-bellied Brent goose *Branta bernicla hrota* that accounts for 5.9% of the national total. It supports nationally important populations of a further 15 species and notably *Calidris canutus* (8.6% of national total), *Tadorna* (5.3% of national total) and grey plover *Pluvialis squatarola* (4.5% of national total). It is an important and regular site for a range of autumn passage migrants, especially *Calidris minuta*, *Calidris ferruginea*, *Philomachus pugnax* and *Tringa ochropus*. *Sterna albifrons* has bred in the past but not recently. It includes populations of three Red Data Book plant species. Wintering birds are well monitored by BirdWatch Ireland during their I-WeBS (Irish Wetland Bird Surveys) counts.

7.5.2 Ecological Baseline Description for Malahide Estuary SPA

The site is of high importance for wintering waterfowl and supports a particularly good diversity of species. It has an internationally important population of *Branta bernicla hrota* (4.8% of national total), and nationally important populations of a further 12 species. Of particular note are the populations of *Tadorna tadorna* (3.0% of national total), *Anas acuta* (2.9% of national total), *Mergus serrator* (2.8% of national total), *Pluvialis squatarola* (2.7% of national total) and *Calidris canutus* (3.7% of national total). The site is one of the few in eastern Ireland where substantial numbers of *Bucephala clangula* occur. It has a regionally important population of *Limosa lapponica*. The site is an important and regular site for a range of autumn passage migrants, especially *Calidris ferruginea* and *Philomachus pugnax*. It supports a regular flock of non-breeding *Cygnus olor*. Wintering birds are well monitored by BirdWatch Ireland during their I-WeBS counts.

7.5.3 Ecological Baseline Description for Lambay Island SPA

Lambay is one of the most important seabird colonies in Ireland, with 12 species breeding regularly. It supports internationally important populations of *Phalacrocorax carbo*, *Phalacrocorax aristotelis*, *Uria aalge* and *Alca torda*, and nationally important populations of *Fulmarus glacialis*, *Larus argentatus*, *Larus fuscus*, *Larus marinus* and *Rissa tridactyla*. Cliff habitat for nesting seabirds is very extensive and of high quality.

Other notable breeding birds are *Haematopus ostralegus* (largest concentration in the region), *Tadorna tadorna* and *Falco peregrinus*. The island supports a nationally important wintering flock of *Anser anser* and a range of other wintering waterfowl, though in relatively low numbers. Lambay is an important breeding site for *Halichoerus grypus*. The island was the subject of an intensive natural history study in 1905/06. Breeding and wintering birds are now well-monitored. Wintering birds are monitored by BirdWatch Ireland during their I-WeBS counts.

7.5.4 Ecological Baseline Description for Baldoye Bay SPA

Baldoye Bay is a typical eastern estuarine system with fairly extensive intertidal sand and mud flats which have *Zostera* spp. It also has good salt marsh fringes where birds roost. The quality of habitats present is variable but generally good. The site supports a good diversity of wintering waterfowl and notably an internationally important population of *Branta bernicla hrota*. It has nationally important populations of *Tadorna tadorna*, *Anas acuta*, *Charadrius hiaticula*, *Pluvialis apricaria*, *Pluvialis squatarola* and *Limosa lapponica*. At high tide the shallow waters regularly attract species such as *Podiceps cristatus* and *Mergus serrator*. *Sterna albifrons* bred at the site in the past, but have not done so since the early 1990s. Wintering birds are monitored by BirdWatch Ireland during their I-WeBS counts.

7.5.5 Ecological Baseline Description for Skerries Islands SPA

The site has a nationally important breeding colony of *Phalacrocorax carbo* which became established in the early 1990s. When taken together with the breeding populations on nearby Lambay and Ireland's Eye, (also SPAs) this concentration is of international importance. The site also has nationally important breeding populations of *Phalacrocorax aristotelis*, *Larus argentatus* and *Larus marinus*. In winter the site is visited by a good diversity of waterfowl. It has an internationally important population of *Branta bernicla hrota* and nationally important populations of *Phalacrocorax carbo*, *Calidris maritima* and *Arenaria interpres*. *Pluvialis apricaria* occurs regularly but in relatively small numbers. *Asio flammeus* occurs regularly in winter. Bird populations have been well monitored in recent years and in particular during the wintering months by BirdWatch Ireland during their I-WeBS counts.

7.5.6 Ecological Baseline Description for North Bull Island SPA

The site is among the top ten sites for wintering waterfowl in the country. It supports internationally important populations of *Branta bernicla hrota* and *Limosa lapponica* and is the top site in the country for both of these species. A further 14 species have populations of national importance, with particular notable numbers of *Tadorna tadorna* (8.5% of national total), *Anas acuta* (11.6% of national total), *Pluvialis squatarola* (6.9% of national total), *Calidris canutus* (10.5% of national total). North Bull Island SPA is a regular site for passage waders such as *Philomachus pugnax*, *Calidris ferruginea* and *Tringa erythropus*. The site supports *Asio flammeus* in winter. Formerly, the site had an important colony of *Sterna albifrons*, but breeding has not occurred in recent years. The site provides both feeding and roosting areas for the waterfowl species. Habitat quality for most of the estuarine habitats is very good.

The site has a population of the rare *Petalophyllum ralfsii* which is the only known station away from the western seaboard as well as five Red Data Book vascular plant species and four bryophyte species. It is nationally important for three insect species. Wintering bird populations have been monitored more or less continuously since the late 1960s during BirdWatch Irelands I-WeBS counts, and the other scientific interests of the site have also been well documented. Future prospects are good owing to various designations assigned to site.

7.5.7 Ecological Baseline Description for South Dublin Bay and River Tolka Estuary SPA

The site possesses extensive intertidal flats which support wintering waterfowl which are part of the overall Dublin Bay population. It regularly has an internationally important population of *Branta bernicla hrota*, which feeds on dwarf eel grass *Zostera noltii* in the autumn. It has nationally important numbers of a further 6 species: *Haematopus ostralegus*, *Charadrius hiaticula*, *Calidris canutus*, *Calidris alba*, *Calidris alpina* and *Limosa lapponica*. It is an important site for wintering gulls, especially *Larus ridibundus* and *Larus canus*. South Dublin Bay is the premier site in Ireland for *Larus melanocephalus*, with up to 20 birds present at times. Is a regular autumn roosting ground for significant numbers of terns, including *Sterna dougallii*, *S. hirundo* and *S. paradisaea*. Wintering birds are monitored by BirdWatch Ireland during their I-WeBS counts.

7.5.8 Ecological Baseline Description for River Nanny Estuary and Shore SPA

This is an important east coast site, with nationally important populations of *Pluvialis apricaria*, *Haematopus ostralegus*, *Charadrius hiaticula*, *Calidris cantus*, *Calidris alba* and *Larus argentatus*. The population of *Calidris canutus* and *Calidris alba* are of particular note as they represent 4% and 3.8% of the respective all-Ireland totals. A range of other waterfowl species also occur, including *Branta bernicla hrota*, as well as *Larus* gulls. The site is of most importance as a roost area for the birds but also provides feeding habitat. Wintering birds are monitored by BirdWatch Ireland during their I-WeBS counts.

7.5.9 Ecological Baseline Description for Boyne Estuary SPA

This is the second most important estuary for wintering birds on the Louth-Meath coastline, with internationally important populations of *Limosa limosa* and nine other nationally important populations of *Tadorna tadorna*, *Haematopus ostralegus*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Vanellus vanellus*, *Calidris cantus*, *Calidris alba*, *Tringa totanus* and *Arenaria interpres*. A range of other waterfowl species also occur, including *Limosa lapponica*, *Phalacrocorax carbo*, *Branta bernicla hrota*, *Anas penelope*, *Anas crecca*, *Calidris alpina*, *Numeius arquata*, *Anas platyrhynchos*, *Mergus serrator*, *Tringa nebularia*, *Charadrius hiaticula*, *Cygnus olor* as well as *Larus* gulls. The site is of most importance as a roost area for the birds but also provides feeding habitat. Wintering birds are monitored by BirdWatch Ireland during their I-WeBS counts. *Sterna albifrons* have bred at the site and are a nationally important population since 1995 (14 pairs) and continue to do so beyond 2008 (35 pairs).

7.5.10 Ecological Baseline Description for River Boyne and River Blackwater SPA

The site is a river system with linear features of high importance for supporting a nationally important population of kingfisher *Alcedo atthis*. Surveys in 20210 record 19 pairs, while the 2008 surveys recorded 20-22 kingfisher territories. Other species during the 2010 surveys and peak counts included *Cygnus olor* (90), *Anas crecca* (166), *Anas platyrhynchos* (219), *Phalacrocorax carbo* (36), *Ardea cinerea* (44), *Gallinula chloropus* (84), *Gallinago gallinago* (32), *Riparia riparia* (553)

7.5.11 Ecological Baseline Description for Howth Head Coast SPA

The site has cliff habitat that supports a nationally important breeding population of *Rissa tridactyla* (2,269 pairs recorded in 1999). Other species that breed around the site include fulmar (33 pairs), shag (12 pairs), herring gull (17 pairs), great black (5 pairs), gull (663 pairs) and razor (279 pairs). The cliffs also support a breeding pair of peregrine. The seabird colony has been monitored at intervals since the Operation Seafarer project in 1969/70.

7.5.12 Ecological Baseline Description for Dalkey Island SPA

The site is of particular importance for breeding and staging purposes as a post-breeding/pre-migration autumn roost area for *Sterna dougallii*, *Sterna hirundo* and *Sterna paradisaea*. The nesting of *Sterna dougallii* is highly significant to the island. The origin of the tern birds (c. 2000) is likely to be the Dublin breeding sites (Rockbill and Dublin Docks). Other species also breeding on site include great black (7 pairs in 2001), shelduck (1-2 pairs) and oyster (1-2 pairs). Turnstone and purple sand frequent on the site during the winter period.

7.5.13 Ecological Baseline Description for Dundalk Bay SPA

The site is one of the most important wintering waterfowl sites in the country. Four species occur in numbers of international importance and a further 19 species in numbers of national importance. The species that qualify as internationally important based on five-year mean peaks from 1995-2000 include *Branta bernicla hrota* (370), *Calidris canutus* (9,710), *Limosa limosa* (1,100), and *Limosa lapponica* (1,950). The extensive sand flats and mud flats provide a food resource for the wintering birds that include a rich fauna of bivalves, molluscs, marine worms and crustaceans.

7.5.14 Ecological Baseline Description for Ireland's Eye SPA

The island site has national important seabird colonies, with five seabird species having populations of national importance, that includes *Phalacrocorax carbo*, *Larus argentatus*, *Rissa tridactyla*, *Uria aalge* and *Alca torda*. Other breeding species recorded in 1999 included *Fulmarus glacialis* (70 pairs), *Morus bassana* (147 pairs), *Phalacrocorax aristotelis* (32 pairs), *Larus fuscus* (1 pair), *Larus marinus* (90 pairs) and *Fratercula arctica* (4 pairs). The *Morus bassana* colony is one of six in the country and one of only two sites on the east coast.

Several pairs each of shelduck, oystercatcher ringed plover breed with note on regular presence of a breeding pair of Peregrine. In winter small numbers of greylag and brent graze on the island, and used for roosting purposes by gulls and some waders.

7.5.15 Ecological Baseline Description for Rockabill SPA

The site supports the most important *Sterna dougallii* colony in Europe, and nationally important breeding populations of *Sterna hirundo* and *Sterna paradisaea*, and a nationally important wintering population of *Calidris maritima*. Other breeding seabirds noted in 2010 on the site included *Cephus grylle* (82) and *Rissa tridactyla* (163). In winter other species recorded in 2010 on the site included *Phalacrocorax carbo* (18) *Haematopus ostralegus* (14) and *Arenaria interpres* (38).

7.5.16 Ecological Baseline Description for The Murrough SPA

The site supports a coastal wetland complex that stretches for 13km and includes various habitats such as a shingle shore with a stony ridge supporting perennial vegetation, brackish partly tidal lake with developing saltmarsh community, fen, wide range of freshwater and brackish marsh habitats, and wetland grassland. The site is an important site for wintering waterbirds, being internationally important for *Branta bernicla hrota* (859) and nationally important for *Gavia stellata* (32), *Anser anser* (300), *Anas penelope* (1,209), *Anas crecca* (644), *Chroicocephalus ridibundus* (997) and *Larus argentatus* (506). It is also probably the most important site in the country for breeding *Sterna albifrons* (106 pairs in 2006).

7.5.17 Ecological Baseline Description for Stabannan-Braganstown SPA

The site is a small alluvial plain adjacent to the River Glyde and supports an internationally important wintering population of *Anser anser* (1,391 based on a five-year mean peak from 1995-2000). The site also supports smaller populations of *Anser albifrons flavirostris* (24), *Cygnus cygnus* (60), *Pluvialis apricaria* (876) and *Vanellus vanellus* (300).

7.5.18 Ecological Baseline Description for North-West Irish Sea SPA

The recently published North-West SPA is an extensive coastal marine bird site extending offshore along the coasts of Louth, Meath and Dublin, and is approximately 2,333km² in area. This SPA is ecologically connected to several existing SPAs in this area and is considered an important resource for marine birds (NPWS 2023). The estuaries and bays that open into it along with connecting coastal stretches of intertidal and shallow subtidal habitats, provide safe feeding and roosting habitats for waterbirds throughout the winter and migration periods. These areas, along with more pelagic marine waters further offshore, provide additional supporting habitats (for foraging and other maintenance behaviour) for those seabirds that breed at colonies on the north-west Irish Sea's islands and coastal headlands. These marine areas are also important for seabirds outside the breeding period.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of Special Conservation Interest for the following species: Common Scoter, Red-throated Diver, Great Northern Diver, Fulmar, Manx Shearwater, Shag, Cormorant, Little Gull, Kittiwake, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull, Little Tern, Roseate Tern, Common Tern, Arctic Tern, Puffin, Razorbill and Guillemot.

7.5.19 Special Conservation Interests and Conservation Objectives of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Islands SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA, North-West Irish Sea SPA

The SCI's of Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA, and the North-West Irish Sea SPA and their overall conservation objectives, are listed below in Table 7-9

Table 7-9 Special Conservation Interests and Conservation Objectives of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA North-West Irish Sea SPA

SCIs	Conservation Objective(s)
<p>Rogerstown Estuary SPA</p> <p>A043 Greylag Goose <i>Anser anser</i></p> <p>A046 Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A056 Shoveler <i>Anas clypeata</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A149 Dunlin <i>Calidris alpina alpina</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A999 Wetlands</p> <p>S.I. No. 271/2010 - European Communities (Conservation of Wild Birds (Rogerstown Estuary Special Protection Area 004015)) Regulations 2010</p> <p>NPWS (2013) Conservation Objectives: Rogerstown Estuary SPA 004015. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>To maintain the favourable conservation condition of the wetland habitat at Rogerstown Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>
<p>Malahide Estuary SPA</p> <p>A005 Great Crested Grebe <i>Podiceps cristatus</i></p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A054 Pintail <i>Anas acuta</i></p> <p>A067 Goldeneye <i>Bucephala clangula</i></p> <p>A069 Red-breasted Merganser <i>Mergus serrator</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A162 Redshank <i>Tringa totanus</i></p>	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>To maintain the favourable conservation condition of the wetland habitat at Malahide Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>

SCIs	Conservation Objective(s)
<p>A999 Wetlands</p> <p>S.I. No. 285/2011 - European Communities (Conservation of Wild Birds (Malahide Estuary Special Protection Area 004025)) Regulations 2011</p> <p>NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p>Lambay Island SPA</p> <p>A009 Fulmar <i>Fulmarus glacialis</i></p> <p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A018 Shag <i>Phalacrocorax aristotelis</i></p> <p>A043 Greylag Goose <i>Anser anser</i></p> <p>A183 Lesser Black-backed Gull <i>Larus fuscus</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>A199 Guillemot <i>Uria aalge</i></p> <p>A200 Razorbill <i>Alca torda</i></p> <p>A204 Puffin <i>Fratercula arctica</i></p> <p>S.I. No. 242/2010 - European Communities (Conservation of Wild Birds (Lambay Island Special Protection Area 004069)) Regulations 2010</p> <p>NPWS (2022) Conservation objectives for Lambay Island SPA [004069]. First Order Site-Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage</p>	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p>
<p>Skerries Islands SPA</p> <p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A018 Shag <i>Phalacrocorax aristotelis</i></p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A148 Purple Sandpiper <i>Calidris maritima</i></p> <p>A169 Turnstone <i>Arenaria interpres</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>S.I. No. 245/2010 - European Communities (Conservation of Wild Birds (Skerries Islands Special Protection Area 004122)) Regulations 2010</p> <p>NPWS (2022) Conservation objectives for Skerries Islands SPA [004122]. First Order Site-Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage</p>	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p>
<p>Baldoyle Bay SPA</p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p>	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p>

SCIs	Conservation Objective(s)
<p>A048 Shelduck <i>Tadorna tadorna</i> A137 Ringed Plover <i>Charadrius hiaticula</i> A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A999 Wetlands</p> <p>S.I. No. 275/2010 - European Communities (Conservation of Wild Birds (Baldoye Bay Special Protection Area 004016)) Regulations 2010</p> <p>NPWS (2013) Conservation Objectives: Baldoye Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht</p>	<p>To maintain the favourable conservation condition of the wetland habitat at Baldoye Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>
<p>North Bull Island SPA A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A052 Teal <i>Anas crecca</i> A054 Pintail <i>Anas acuta</i> A056 Shoveler <i>Anas clypeata</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A160 Curlew <i>Numenius arquata</i> A162 Redshank <i>Tringa totanus</i> A169 Turnstone <i>Arenaria interpres</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A999 Wetlands</p> <p>S.I. No. 211/2010 - European Communities (Conservation of Wild Birds (North Bull Island Special Protection Area 004006)) Regulations 2010.</p> <p>NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>To maintain the favourable conservation condition of the wetland habitat at North Bull Island SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>
<p>South Dublin Bay and River Tolka Estuary SPA A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A137 Ringed Plover <i>Charadrius hiaticula</i></p>	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>To maintain the favourable conservation condition of the wetland habitat at South</p>

SCIs	Conservation Objective(s)
<p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>A999 Wetlands</p> <p>S.I. No. 212/2010 - European Communities (Conservation of Wild Birds (South Dublin Bay and River Tolka Estuary Special Protection Area 004024)) Regulations 2010.</p> <p>NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Dublin Bay and River Tolka Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>
<p>River Nanny Estuary and Shore SPA</p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A999 Wetlands</p> <p>S.I. No. 140/2012 - European Communities (Conservation of Wild Birds (River Nanny Estuary and Shore Special Protection Area 004158)) Regulations 2010.</p> <p>NPWS (2012) Conservation Objectives: River Nanny Estuary and Shore SPA 004158. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>To maintain the favourable conservation condition of the wetland habitat at River Nanny and Shore SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>
<p>Boyne Estuary SPA</p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A142 Lapwing <i>Vanellus vanellus</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p>	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>To maintain the favourable conservation condition of the wetland habitat at Boyne Estuary SPA a resource for the regularly-occurring migratory waterbirds that utilise it.</p>

SCIs	Conservation Objective(s)
<p>A162 Redshank <i>Tringa totanus</i> A169 Turnstone <i>Arenaria interpres</i> A195 Little Tern <i>Sterna albifrons</i> A999 Wetlands</p> <p>S.I. No. 626/2011 - European Communities (Conservation of Wild Birds (Boyne Estuary Special Protection Area 004080)) Regulations 2011. NPWS (2013) Conservation Objectives: Boyne Estuary SPA 004080. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p>River Boyne and River Blackwater SPA A229 Kingfisher <i>Alcedo atthis</i></p> <p>S.I. No. 462/2012 - European Communities (Conservation of Wild Birds (River Boyne and River Blackwater Special Protection Area 004232)) Regulations 2012. NPWS (2022) Conservation objectives for River Boyne and River Blackwater SPA [004232]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage</p>	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.
<p>Howth Head Coast SPA A188 Kittiwake <i>Rissa tridactyla</i></p> <p>S.I. No. 185/2012 - European Communities (Conservation of Wild Birds (Howth Head Coast Special Protection Area 004113)) Regulations 2012. NPWS (2022) Conservation objectives for Howth Head Coast SPA [004113]. First Order Site specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage</p>	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.
<p>Dalkey Islands SPA A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>S.I. No. 238/2010 - European Communities (Conservation of Wild Birds (Dalkey Islands Special Protection Area 004172)) Regulations 2010. NPWS (2022) Conservation objectives for Dalkey Islands SPA [004172]. First Order Site specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.</p>	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

SCIs	Conservation Objective(s)
<p>Dundalk Bay SPA</p> <p>A005 Great Crested Grebe <i>Podiceps cristatus</i></p> <p>A043 Greylag Goose <i>Anser anser</i></p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A052 Teal <i>Anas crecca</i></p> <p>A053 Mallard <i>Anas platyrhynchos</i></p> <p>A054 Pintail <i>Anas acuta</i></p> <p>A065 Common Scoter <i>Melanitta nigra</i></p> <p>A069 Red-breasted Merganser <i>Mergus serrator</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A142 Lapwing <i>Vanellus vanellus</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A160 Curlew <i>Numenius arquata</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A182 Common Gull <i>Larus canus</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A999 Wetlands</p> <p>S.I. No. 310/2012 - European Communities (Conservation of Wild Birds (Dundalk Bay Special Protection Area 004026)) Regulations 2012.</p> <p>NPWS (2011) Conservation Objectives: Dundalk Bay SAC 000455 and Dundalk Bay SPA 004026. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>To maintain the favourable conservation condition of the wetland habitat in Dundalk Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>
<p>Ireland's Eye SPA</p> <p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>A199 Guillemot <i>Uria aalge</i></p> <p>A200 Razorbill <i>Alca torda</i></p> <p>S.I. No. 240/2010 - European Communities (Conservation of Wild Birds (Ireland's Eye Special Protection Area 004117)) Regulations 2010.</p>	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA</p>

SCIs	Conservation Objective(s)
NPWS (2022) Conservation objectives for Ireland's Eye SPA [004117]. First Order Sites specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.	
<p>Rockabill SPA</p> <p>A148 Purple Sandpiper <i>Calidris maritima</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>S.I. No. 94/2012 - European Communities (Conservation of Wild Birds (Rockabill Special Protection Area 004014)) Regulations 2012.</p> <p>NPWS (2013) Conservation Objectives: Rockabill SPA 004014. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.
<p>The Murrough SPA</p> <p>A001 Red-throated Diver <i>Gavia stellata</i></p> <p>A043 Greylag Goose <i>Anser anser</i></p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A050 Wigeon <i>Anas Penelope</i></p> <p>A052 Teal <i>Anas crecca</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A195 Little Tern <i>Sterna albifrons</i></p> <p>A999 Wetlands</p> <p>S.I. No. 298/2011 - European Communities (Conservation of Wild Birds (The Murrough Special Protection Area 004186)) Regulations 2011.</p> <p>NPWS (2022) Conservation objectives for The Murrough SPA [004186]. First Order Sites specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.</p>	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>To maintain the favourable conservation condition of the wetland habitat at The Murrough SPA a resource for the regularly-occurring migratory waterbirds that utilise it.</p>
<p>Stabannan-Braganstown SPA</p> <p>A043 Greylag Goose <i>Anser anser</i></p> <p>S.I. No. 546/2011 - European Communities (Conservation of Wild Birds (Stabannan-Braganstown Special Protection Area 004091)) Regulations 2011.</p> <p>NPWS (2022) Conservation Objectives: Stabannan-Braganstown SPA 004091. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>	To restore the favourable conservation condition of greylag goose at Stabannan-Braganstown SPA site code 004091

SCIs	Conservation Objective(s)
<p>North-West Irish Sea SPA</p> <p>[A065] Common Scoter <i>Melanitta nigra</i></p> <p>[A001] Red-throated Diver <i>Gavia stellata</i></p> <p>[A003] Great Northern Diver <i>Gavia immer</i></p> <p>[A009] Fulmar <i>Fulmarus glacialis</i></p> <p>[A013] Manx Shearwater <i>Puffinus puffinus</i></p> <p>[A018] Shag <i>Phalacrocorax aristotelis</i></p> <p>[A017] Cormorant <i>Phalacrocorax carbo</i></p> <p>[A177] Little Gull <i>Larus minutus</i></p> <p>[A188] Kittiwake <i>Rissa tridactyla</i></p> <p>[A179] Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>[A182] Common Gull <i>Larus canus</i></p> <p>[A183] Lesser Black-backed Gull <i>Larus fuscus</i></p> <p>[A184] Herring Gull <i>Larus argentatus</i></p> <p>[A187] Great Black-backed Gull <i>Larus marinus</i></p> <p>[A195] Little Tern <i>Sterna albifrons</i></p> <p>[A192] Roseate Tern <i>Sterna dougallii</i></p> <p>[A193] Common Tern <i>Sterna hirundo</i></p> <p>[A194] Arctic Tern <i>Sterna paradisaea</i></p> <p>[A204] Puffin <i>Fratercula arctica</i></p> <p>[A200] Razorbill <i>Alca torda</i></p> <p>[A199] Guillemot <i>Uria aalge</i></p> <p>NPWS (2023) Conservation Objectives: North-west Irish Sea SPA 004236. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA</p>

In conjunction with considering the generic conservation objective for these SPAs “*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*”, the site specific conservation objectives document for Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland’s Eye SPA, Rockabill SPA, The Murrough SPA, and Stabannan-Braganstown SPA, North-West Irish Sea SPA also informed this assessment.

The site-specific conservation objectives document sets out the attributes, measures and targets that define the favourable conservation condition of the SCIs within the European site. Affecting the conservation condition of the Special Conservation Interests is deemed to constitute an adverse effect on the integrity of a European site. The specific attributes and targets used to define the conservation objectives of the SCIs of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North

Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA, and North-West Irish Sea SPA are presented in Section 7.5.20

7.5.20 Examination and Analysis of Potential Direct and Indirect Impacts

The direct and/or indirect impacts by which the Proposed Development could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets supporting the conservation condition of the SCIs of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA are:

- Habitat degradation/effects on SCI species as a result of hydrological impacts;
- Habitat degradation as a result of the spread of non-native invasives;
- Disturbance and displacement; and
- Direct injury/Mortality.

7.5.20.1 Habitat Degradation/Effects on SCI species as a result of Hydrological Impacts

Surface water from the Proposed Development will drain to the existing local surface water drainage network, via the Malahide Estuary the Rogerstown Estuary, the Nanny Estuary, Dublin Bay, Baldoyle Bay or the Boyne Estuary (depending on work locations), ultimately discharging to the Irish Sea. The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction has the potential to affect water quality in the receiving aquatic environment. Such a pollution event may include: the release of sediment into receiving waters and the subsequent increase in mobilised suspended solids; and the accidental spillage and/or leaks of contaminants (e.g. fuel, oils, lubricants, paints, bituminous coatings, preservatives, weed killer, lime and concrete) into receiving waters. The associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the location of the accidental pollution event or the discharge. The Proposed Development are hydrologically connected via the surface water drainage which discharges into the Irish Sea via Malahide, Rogerstown Estuary, Nanny Estuary, Dublin Bay, Baldoyle Bay and Boyne Estuary.

While there is no direct hydrological link between the Proposed Development site and any European sites outside of Rogerstown, Malahide, Nanny, and Boyne Estuaries, wintering bird species are known to travel up to 20km between roosts and foraging sites. On this basis, SCI species for which European sites within 20km have been designated are theoretically at risk of habitat degradation arising from hydrological impacts should they occasionally forage within Rogerstown, Malahide, Nanny, and Boyne Estuaries, Dublin Bay, and Baldoyle Bay.

Therefore, (albeit unlikely) this reduction in water quality (either alone or in combination with other pressures on water quality) could result in the degradation of sensitive habitats present within Rogerstown Estuary SPA, which in turn could negatively affect the SCI bird species that rely upon these habitats for foraging and/or roosting. It could also negatively affect the quantity and quality of prey available to SCI bird species. These potential impacts (in the absence of mitigation) could occur to such a degree that they result in significant effects which could have implications for the conservation objectives of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA., and North-West Irish Sea SPA.

7.5.20.2 Habitat degradation as a result of Non-native Invasives

The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could undermine the conservation objectives of these European sites.

Therefore, in the absence of mitigation there is potential for invasive species to spread or be introduced during construction and operation to terrestrial habitat areas in European sites downstream in Dublin Bay (i.e. North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA), Baldoyle Bay (i.e. Baldoyle Bay SPA), Malahide Estuary (i.e. Estuary SPA), Rogerstown Estuary (i.e. Rogerstown Estuary SPA), Nanny Estuary (i.e. River Nanny Estuary and Shore SPA), and the River Boyne (i.e. Boyne Coast and Estuary SAC, Boyne Estuary SPA). These in turn may result in the degradation of the existing habitats and therefore undermine the conservation objectives of these European sites. As wintering bird species can travel up to 20km from their winter roosting sites, the following European sites are also included; Lambay Island SPA, Skerries Islands SPA, Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA, and North-West Irish Sea SPA.

7.5.20.3 Disturbance and Displacement

A temporary increase in noise, vibration, lighting and/or human activity levels during the construction of the Proposed Development could result in the disturbance to and/or displacement of fauna species present within the vicinity of the Proposed Development.

For birds, disturbance effects would not be expected to extend beyond a distance of c.300m, as noise levels associated with general construction activities would attenuate to close to

background levels at that distance³¹. There are four European sites within the Zol of the Proposed Development in relation to disturbance to bird species, including; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, and the South Dublin Bay and River Tolka Estuary SPA, all of which are designated for overwintering bird species.

There are a number of SPAs located in relatively close proximity to the Proposed Development which are designated for SCI species that are known to forage and/or roost at inland *ex-situ* sites (as described in Section 6.1), such as amenity grassland playing pitches and other short sward grassland, i.e. Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, South Dublin Bay and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, North-West Irish Sea SPA. These species include light-bellied Brent goose, curlew, grey plover, black-tailed godwit, bar-tailed godwit, oystercatcher, lapwing, golden plover, ringed plover, grey plover, greylag geese, black-headed gull, herring gull and lesser black-backed gull. Suitable inland foraging/ roosting sites, which these bird species utilise, are located within the potential Zol of the Proposed Development. Therefore, there is potential for the construction stage of the Proposed Development to result in disturbance/displacement impacts on SCI populations associated with European sites.

7.5.20.4 Direct Injury/Mortality

A potential increase in the mortality and/or direct injury risk to SCI species associated with increased collisions arising from the introduction of proposed new OHLE on the railway line in the Malahide, Rogerstown, and River Nanny Estuaries has been considered. As the current railway line has currently no overhead lines, areas that are exposed (i.e., are not screened by vegetation and/or the railway is in line with or above the surrounding landscape and therefore exposed) and have suitable wintering bird habitat and *ex-situ* habitat (as discussed above in Section 6.1 and Section 6.6) have also been considered in terms of potential collision risks to SCI species. This is namely at Gormanston, Balbriggan, and Laytown.

The OHLE is formed by primarily two aerial electrical live wires (catenary and contact wire) located above the tracks which power the trains through the contact between the train pantograph and the OHLE contact wire. To support the OHLE wires, masts and other infrastructure will be erected along the line and through stations, from north of Malahide to Drogheda (including Drogheda depot). Typical spacing between OHLE support structures will

³¹ The disturbance zone of influence for waterbirds is based on the relationship between the noise levels generated by general construction traffic/works (BS 5228:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1 Noise) and the proximity of those noise levels to birds – as assessed in Cutts, N. Phelps, A. & Burdon, D. (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*, and Wright, M., Goodman, P & Cameron, T. (2010) Exploring Behavioural Responses of Shorebirds to Impulsive Noise. *Wildfowl* (2010) 60: 150–167. At 300m, noise levels are below 60dB or, in most cases, are approaching the 50dB threshold below which no disturbance or displacement effects would arise.

be between 40 m and 50 m, with a maximum spacing of 65 m. The OHLE support heights vary between 6.5 m and 8.5 m (i.e. maximum height is 8.5m from the line).

Wintering bird surveys at Malahide, Rogerstown, Laytown, Gormanston, and Balbriggan, recorded flight lines and the approximate heights birds were flying at over the existing railway line and Viaducts (for Malahide, Rogerstown and Laytown). The number of flights over the railway of each bird species was compared between each height band (i.e., as described in Section 4.5.1.4) and converted into a percentage across all sites surveyed (see Appendix 1.3). The majority of birds were flying over the line in the 0-10m height band for surveys in 2021 – 2022, with the 10-20m height band being the second highest number of flights. Whilst in 2022 – 2023, more birds were flying at the 10-20m height band, with the 0-10m height band having the second highest number of flights. Therefore, there is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, North-West Irish Sea SPA and the Murrough SPA. Other SPAs not listed that are within the Zol of the Proposed Development, i.e. Howth Head Coast SPA, Dalkey Islands SPA, Rockabill SPA, and River Boyne and River Blackwater SPA, are not considered as the designated SCI species within these sites were not identified flying over the Proposed Development during wintering bird surveys carried out in 2021 – 2023.

7.5.21 Summary

Table 7-10 below presents a summary of the potential impacts of the Proposed Development on the SCIs of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA, the North-West Irish Sea SPA and how these impacts relate to affecting these sites' conservation objectives.

Table 7-10 Potential Impacts/Effects on the Conservation Objectives of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, and River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA, and the North-West Irish Sea SPA

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Rogerstown Estuary SPA			
Greylag Goose (<i>Anser anser</i>) [A043], Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Shoveler (<i>Anas clypeata</i>) [A056], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Ringed Plover (<i>Charadrius hiaticula</i>) [A137], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Knot (<i>Calidris canutus</i>) [A143], Dunlin (<i>Calidris alpina</i>) [A149], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Redshank (<i>Tringa totanus</i>) [A162], Wetland and Waterbirds [A999]			
Greylag Goose (<i>Anser anser</i>) [A043]			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP,	No
Distribution / Number and range of areas used by waterbirds / No significant decrease in the range, timing and intensity of use of areas by greylag goose, other than that occurring from natural patterns of variation			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number and range of areas used by waterbirds / No significant decrease in the range, timing and intensity of use of areas by light-bellied brent goose, other than that occurring from natural patterns of variation	An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
<p>Shelduck (<i>Tadorna tadorna</i>) [A048]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
<p>Population trend / Percentage change / Long term population trend stable or increasing</p>	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigate for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	<p>No</p>
<p>Distribution / Number, range, timing and intensity of areas used by waterbirds / No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation</p>			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>		
<p>Shoveler (<i>Ana clypeata</i>) [A056]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number and range of areas used by waterbirds / No significant decrease in the range, timing or intensity of use of areas by shoveler, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Oystercatcher (<i>Haematopus ostralegus</i>) [A130]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of areas used by waterbirds / No significant decrease in the range, timing and intensity of use of areas by oystercatcher, other than that occurring from natural patterns of variation	An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary.	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>	<p>protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.		
<p>Ringed plover (<i>Charadrius hiaticula</i>) [A137]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	No
Distribution / Number and range of areas used by waterbirds / No significant decrease in the range, timing or intensity of use of areas by ringed plover, other than that occurring from natural patterns of variation			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.	
<p>Grey plover (<i>Pluvialis squatarola</i>) [A141]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by grey plover, other than that occurring from natural patterns of variation	An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA.	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
<p>Knot (<i>Calidris canutus</i>) [A143]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
<p>Population trend / Percentage change / Long term population trend stable or increasing</p>	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	<p>No</p>
<p>Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation</p>			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>		
<p>Dunlin (<i>Calidris alpina alpina</i>) [A149]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by dunlin, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP,</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Black-tailed godwit (<i>Limosa limosa</i>) [A156]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by black-tailed godwit, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Redshank (<i>Tringa totanus</i>) [A162] To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	No
Distribution / Number, range, timing and intensity of use of area / No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.	The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species. The mitigation measures described in Section 7.5.22, will mitigate for direct injury/mortality of SCI species during the operation of the Proposed Development.	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>		
<p>Wetlands [A999]</p> <p>To maintain the favourable conservation condition of wetland habitat in Rogerstown Estuary SPA as a resource for the regularly occurring migratory waterbirds that utilise it, which is defined as follows:</p>			
<p>Habitat area / Hectares / The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 646 hectares, other than that occurring from natural patterns of variation</p>	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in Rogerstown Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Rogerstown Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p>	<p>No</p>

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.		
Malahide Estuary SPA			
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Pintail (<i>Anas acuta</i>) [A054], Goldeneye (<i>Bucephala clangula</i>) [A067], Red-breasted Merganser (<i>Mergus serrator</i>) [A069], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Knot (<i>Calidris canutus</i>) [A143], Dunlin (<i>Calidris alpina</i>) [A149], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Redshank (<i>Tringa totanus</i>) [A162], Wetland and Waterbirds [A999]			
To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:			
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]			
To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by great crested grebe, other than that occurring from natural patterns of variation			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
<p>Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
<p>Population trend / Percentage change / Long term population trend stable or increasing</p> <p>Distribution / Number and range of areas used by waterbirds / No significant decrease in the range, timing and intensity of use of areas by light-bellied brent goose, other than that occurring from natural patterns of variation</p>	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	<p>No</p>

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>		
<p>Shelduck (<i>Tadorna tadorna</i>) [A048]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of areas used by waterbirds / No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP,</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Pintail (<i>Anas acuta</i>) [A054]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by pintail, other than that occurring from natural patterns of variation	An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
<p>Goldeneye (<i>Bucephala clangula</i>) [A067]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
<p>Population trend / Percentage change / Long term population trend stable or increasing</p>	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	<p>No</p>
<p>Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by goldeneye, other than that occurring from natural patterns of variation</p>			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>		
<p>Red-breasted merganser (<i>Mergus serrator</i>) [A069]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by red-breasted merganser, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP,</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Oystercatcher (<i>Haematopus ostralegus</i>) [A130]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of areas used by waterbirds / No significant decrease in the range, timing and intensity of use of areas by oystercatcher, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Golden plover (<i>Pluvialis apricaria</i>) [140] To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	No
Distribution / Number, range, timing and intensity of areas used by waterbirds / No significant decrease in the range, timing and intensity of use of areas by golden plover, other than that occurring from natural patterns of variation	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively	The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species. The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>		
<p>Grey plover (<i>Pluvialis squatarola</i>) [A141]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by grey plover, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP,</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Knot (<i>Calidris canutus</i>) [A143]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
<p>Dunlin (<i>Calidris alpina alpina</i>) [A149]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
<p>Population trend / Percentage change / Long term population trend stable or increasing</p>	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	<p>No</p>
<p>Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by dunlin, other than that occurring from natural patterns of variation</p>			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>		
<p>Black-tailed godwit (<i>Limosa limosa</i>) [A156]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by black-tailed godwit, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP,</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Bar-tailed godwit (<i>Limosa lapponica</i>) [A157]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number, range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by bar-tailed godwit, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
<p>Redshank (<i>Tringa tetanus</i>) [A162]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
<p>Population trend / Percentage change / Long term population trend stable or increasing</p>	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Malahide Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	<p>No</p>
<p>Distribution / Number, range, timing and intensity of use of area / No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation</p>			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>		
<p>Wetlands [A999]</p> <p>To maintain the favourable conservation condition of wetland habitat in Malahide Estuary SPA as a resource for the regularly occurring migratory waterbirds that utilise it, which is defined as follows:</p>			
<p>Habitat area / Hectares / The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 646 hectares, other than that occurring from natural patterns of variation</p>	<p>Yes</p> <p>An accidental pollution event during construction or operation could affect surface water downstream in Malahide Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal / coastal habitats that support the SCI bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations.</p> <p>The introduction and / or spread of invasive species to downstream European sites could potentially result in</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Malahide Estuary is protected during construction and operation of the Proposed Development.</p> <p>The mitigation measures prescribed in Section 7.1.12 will prevent the introduction and/or spread of non-native invasive species to downstream European sites during construction and operation of the Proposed Development.</p>	<p>No</p>

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. This in turn could affect the use of habitat areas by birds and have long-term effects on the SPA populations		
Lambay Island Estuary SPA			
[A017] Cormorant <i>Phalacrocorax carbo</i> ; [A018] Shag <i>Phalacrocorax aristotelis</i> ; [A183] Lesser Black-backed Gull <i>Larus fuscus</i> ; [A184] Herring Gull <i>Larus argentatus</i> ; and; [A188] Kittiwake <i>Rissa tridactyla</i>			
To maintain/ restore the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:			
Breeding population abundance: apparently occupied nests (AONs)/ Number/ No significant decline	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	No
Productivity rate/ Mean number/ No significant decline			
Distribution: breeding colonies/ Number; location; area (hectares)/ No significant decline			
Prey biomass available/ Kilogrammes/ No significant decline			
Barriers to connectivity/ Number; location; shape; area (hectares)/ No significant increase	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats	The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance at the breeding site/ Level of impact/ No significant increase	<p>present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.	
<p>[A009] Fulmar <i>Fulmarus glacialis</i></p> <p>To maintain/ restore the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:</p>			
Breeding population abundance: apparently occupied nests (AONs)/ Number/ No significant decline	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and</p>	No
Productivity rate/ Mean number/ No significant decline			
Distribution: breeding colonies/ Number; location; area (Hectares)/ No significant decline			
Prey biomass available/ Kilogrammes/ No significant decline			
Barriers to connectivity/ Number; location; shape; area (hectares)/ No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance at the breeding site/ Level of impact/ No significant increase	of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats. Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction. There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.	the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species. The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.	
Disturbance at marine areas immediately adjacent to the colony/ Level of impact/ No significant increase			
[A199] Guillemot <i>Uria aalge</i> and [A200] Razorbill <i>Alca torda</i> To maintain/ restore the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:			
Breeding population abundance: Individual adult/ Number/ No significant decline	Yes.	Yes	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Productivity rate/ Mean number/ No significant decline	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively affect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
Distribution: breeding colonies/ Number; location; area (Hectares)/ No significant decline			
Prey biomass available/ Kilogrammes/ No significant decline			
Barriers to connectivity/ Number; location; shape; area (hectares)/ No significant increase			
Disturbance at the breeding site/ Level of impact/ No significant increase			
Disturbance at marine areas immediately adjacent to the colony/ Level of impact/ No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.		
<p>[A043] Greylag Goose <i>Anser anser</i></p> <p>To maintain/ restore the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Number and range of areas used by waterbirds / No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	during the operation of the Proposed Development.	
<p>[A204] Puffin <i>Fratercula arctica</i></p> <p>To maintain/ restore the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:</p>			
Breeding population abundance: apparently occupied nests (AONs)/ Number/ No significant decline	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds,</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream</p>	No
Productivity rate/ Mean number/ No significant decline			
Distribution: breeding colonies/ Number; location; area (Hectares)/ No significant decline			
Prey biomass available/ Kilogrammes/ No significant decline			
Barriers to connectivity/ Number; location; shape; area (hectares)/ No significant increase			
Disturbance at the breeding site/ Level of impact/ No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance at marine areas immediately adjacent to the colony/ Level of impact/ No significant increase	including foraging resources, and have long-term effects on the SPA populations.	European sites during construction and decommissioning.	
Occurrence of mammalian predators/ Level of impact/ Absent or under control	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats. Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.	The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Skerries Islands SPA			
Cormorant (<i>Phalacrocorax carbo</i>) [A017], Shag (<i>Phalacrocorax aristotelis</i>) [A018], Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Purple Sandpiper (<i>Calidris maritima</i>) [A148], Turnstone (<i>Arenaria interpres</i>) [A169], Herring Gull (<i>Larus argentatus</i>) [A184] There is no site-specific conservation objectives document available for this SPA. Therefore, the attributes, measures and targets below have been developed based on the specific conservation objectives available for Skerries Islands SPA			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing and intensity of use of areas by all of the above-named species, other than that occurring from natural patterns of variation	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.		
Baldoyle Bay SPA			
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Ringed Plover (<i>Charadrius hiaticula</i>) [A137], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] To restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species. The mitigation measures described in Section 7.5.22, will mitigation for	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing and intensity of use of areas by all of the above-named species, other than that occurring from natural patterns of variation			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	direct injury/mortality of SCI species during the operation of the Proposed Development.	
Wetlands [A999] To maintain the favourable conservation condition of wetland habitats within the SPA, which is defined as follows:			
Habitat area / Hectares / The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 263ha, other than that occurring from natural patterns of variation	<p>Yes</p> <p>An accidental pollution event during construction or operation could affect surface water downstream in Baldoyle Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal / coastal habitats that support</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Baldoyle Bay is protected during construction and operation of the Proposed Development.</p>	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>the SCI bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations.</p> <p>The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. This in turn could affect the use of habitat areas by birds and have long-term effects on the SPA populations</p>	<p>The mitigation measures prescribed in Section 7.1.12 will prevent the introduction and/or spread of non-native invasive species to downstream European sites during construction and operation of the Proposed Development.</p>	
River Nanny Estuary and Shore SPA			
<p>Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Ringed Plover (<i>Charadrius hiaticula</i>) [A137], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Knot (<i>Calidris canutus</i>) [A143], Sanderling (<i>Calidris alba</i>) [A144], Herring Gull (<i>Larus argentatus</i>) [A184]</p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Nanny Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Nanny Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of</p>	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing and intensity of use of areas by all of the above-named species, other than that occurring from natural patterns of variation			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Wetlands [A999] To maintain the favourable conservation condition of wetland habitats within the SPA, which is defined as follows:			
Habitat area / Hectares / The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 230ha, other than that occurring from natural patterns of variation	<p>Yes</p> <p>An accidental pollution event during construction or operation could affect surface water downstream in the Nanny Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal / coastal habitats that support the SCI bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations.</p> <p>The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. This in turn could affect the use of habitat areas by birds and have long-term effects on the SPA populations</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Nanny Estuary is protected during construction and operation of the Proposed Development.</p> <p>The mitigation measures prescribed in Section 7.1.12 will prevent the introduction and/or spread of non-native invasive species to downstream European sites during construction and operation of the Proposed Development.</p>	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
North Bull Island SPA			
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Teal (<i>Anas crecca</i>) [A052], Pintail (<i>Anas acuta</i>) [A054], Shoveler (<i>Anas clypeata</i>) [A056], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Knot (<i>Calidris canutus</i>) [A143], Sanderling (<i>Calidris alba</i>) [A144], Dunlin (<i>Calidris alpina alpina</i>) [A149], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Curlew (<i>Numenius arquata</i>) [A160], Redshank (<i>Tringa totanus</i>) [A162], Turnstone (<i>Arenaria interpres</i>) [A169], Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]			
To restore the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species. The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing and intensity of use of areas by all of the above-named species, other than that occurring from natural patterns of variation			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	during the operation of the Proposed Development.	
<p>Wetlands [A999]</p> <p>To maintain the favourable conservation condition of wetland habitats within the SPA, which is defined as follows:</p>			
Habitat area / Hectares / The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 1713ha, other than that occurring from natural patterns of variation	<p>Yes</p> <p>An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal / coastal habitats that support the SCI bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations.</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay is protected during construction and operation of the Proposed Development.</p> <p>The mitigation measures prescribed in Section 7.1.12 will prevent the introduction and/or spread of non-native invasive species to downstream European sites during construction and</p>	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	The introduction and / or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. This in turn could affect the use of habitat areas by birds and have long-term effects on the SPA populations	operation of the Proposed Development.	
South Dublin Bay and River Tolka Estuary SPA			
<p>Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Ringed Plover (<i>Charadrius hiaticula</i>) [A137], Knot (<i>Calidris canutus</i>) [A143], Sanderling (<i>Calidris alba</i>) [A144], Dunlin (<i>Calidris alpina alpina</i>) [A149], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Redshank (<i>Tringa totanus</i>) [A162], Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</p> <p>Note: Grey Plover (<i>Pluvialis squatarola</i>) [A141] is proposed for removal from the list of SCIs for the site so no site-specific conservation objective is included for the species</p> <p>To maintain the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	Yes.	Yes	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing and intensity of use of areas by all of the above-named species, other than that occurring from natural patterns of variation	An accidental pollution event during the Proposed Development could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds,	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Roseate Tern (<i>Sterna dougallii</i>) [A192]</p> <p>To maintain the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:</p>			
Passage population: individuals / Number / No significant decline	Yes.	Yes	No
Distribution: roosting areas / Number; location; area (hectares) / No significant decline	An accidental pollution event during construction or operation could affect	The mitigation measures described in Section 7.1.12 to protect water	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Prey biomass available / Kilogrammes / No significant decline	surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.	quality in the receiving environment will ensure that surface water quality in Dublin Bay is protected during the Proposed Development The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at roosting site / Level of impact / Human activities should occur at levels that do not adversely affect the numbers of roseate tern among the post-breeding aggregation of terns			
Common Tern (<i>Sterna hirundo</i>) [A193] To maintain the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	Yes. An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay is protected during the Proposed Development.	No
Productivity rate: fledged young per breeding pair / Mean number / No significant decline			
Passage population: individuals / Number / No significant decline			
Distribution: breeding colonies / Number; location; area (Hectares) / No significant decline			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Distribution: roosting areas / Number; location; area (Hectares) / No significant decline	through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.	The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at breeding site / Level of impact / Human activities should occur at levels that do not adversely affect the breeding common tern population			
Disturbance at roosting site / Level of impact / Human activities should occur at levels that do not adversely affect the numbers of common tern among the post-breeding aggregation of terns			
Arctic Tern (<i>Sterna paradisaea</i>) [A194] To maintain the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:			
Passage population / Number of individuals / No significant decline	Yes.	Yes	No
Distribution: roosting areas / Number; location; area (hectares) / No significant decline	An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay is protected during the Proposed Development The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at roosting site / Level of impact / Human activities should occur at levels that do not adversely affect the numbers of Arctic tern among the post-breeding aggregation of terns			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.		
Wetlands [A999] To maintain the favourable conservation condition of wetland habitats within the SPA, which is defined as follows:			
Habitat area / Hectares / The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2192ha, other than that occurring from natural patterns of variation	Yes An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the SCI bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. This in turn could affect the	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Dublin Bay is protected during construction and operation of the Proposed Development. The mitigation measures prescribed in Section 7.1.12 will prevent the introduction and/or spread of non-native invasive species to downstream European sites during construction and operation of the Proposed Development.	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	use of habitat areas by birds and have long-term effects on the SPA populations		
Boyne Estuary SPA			
Shelduck (<i>Tadorna tadorna</i>) [A048], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Knot (<i>Calidris canutus</i>) [A143], Sanderling (<i>Calidris alba</i>) [A144], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Redshank (<i>Tringa tetanus</i>) [A162], and Turnstone (<i>Arenaria interpres</i>) [A169]			
To maintain the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Boyne Estuary is protected during the Proposed Development	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing and intensity of use of areas by all of the above-named species, other than that occurring from natural patterns of variation	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may	The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species. The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	during the operation of the Proposed Development.	
<p>Little Tern (<i>Sterna albifrons</i>) [A915]</p> <p>To maintain the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:</p>			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	<p>Yes.</p> <p>An accidental pollution event during construction or operation could affect surface water downstream in the Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Boyne Estuary is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP,</p>	No
Productivity rate: fledged young per breeding pair / Mean number / No significant decline			
Distribution: breeding colonies / Number; location; area (Hectares) / No significant decline			
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance at the breeding site / Level of impact / Human activities should occur at levels that do not adversely affect the breeding little tern population	fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.	will mitigate for any disturbance related impacts on SCI species.	
Wetlands [A999] To maintain the favourable conservation condition of wetland habitats within the SPA, which is defined as follows:			
Habitat area / Hectares / The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 594ha, other than that occurring from natural patterns of variation	Yes An accidental pollution event during construction or operation could affect surface water downstream in Boyne Estuary. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the SCI bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in Boyne Estuary is protected during construction and operation of the Proposed Development. The mitigation measures prescribed in Section 7.1.12 will prevent the introduction and/or spread of non-native invasive species to downstream European sites during construction and operation of the Proposed Development.	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. This in turn could affect the use of habitat areas by birds and have long-term effects on the SPA populations		
River Boyne and River Blackwater SPA			
Kingfisher (<i>Alcedo atthis</i>) [A229] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows:			
No conservation conditions defined for this bird species within the Natura 2000 network in the Republic of Ireland	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the River Boyne. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the River Boyne is protected during the Proposed Development	No
Howth Head Coast SPA			
Kittiwake (<i>Rissa tridactyla</i>) [A188] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Saltee Islands SPA [004002]:			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	No
Productivity rate / Mean number / No significant decline			
Distribution: breeding colonies / Number; location; area (Hectares) / No significant decline			
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at the breeding site / Level of impact / No significant increase			
Dalkey Islands SPA			
Roseate Tern (<i>Sterna dougallii</i>) [A192] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of North Bull Island SPA [004006]			
Passage population: individuals / Number / No significant decline	Yes. An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality	No
Distribution: roosting areas / Number; location; area (hectares) / No significant decline			
Prey biomass available / Kilogramme / No significant decline			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase	sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.	in the Irish Sea is protected during the Proposed Development. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Disturbance at roosting site / Level of impact / Human activities should occur at levels that do not adversely affect the numbers of roseate tern among the post-breeding aggregation of terns			
Common Tern (<i>Sterna hirundo</i>) [A193] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Lough Corrib SPA [004042]			
Breeding population size / Number of Apparently Occupied Nests (AON) / Long-term population is stable or increasing	Yes. An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development	No
Productivity rate / Number of fledged young per AON / Sufficient to maintain population			
Distribution: extent of available nesting options within the SPA / Number and spatial distribution / Sufficient availability of suitable nesting sites throughout the SPA to maintain the population			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Prey biomass available / Kilogrammes / Sufficient extent of biomass of available prey items across the site to help support the population	through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.	The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Disturbance at the breeding site / Level of impact / Disturbance occurs at levels that do not significantly impact on Common tern at the breeding site			
Disturbance at areas ecologically connected to the colony / Level of impact / Disturbance occurs at levels that do not significantly impact on breeding common tern			
Barriers to connectivity / Number, location. shape, area (hectares)/ No significant increase			
Arctic Tern (<i>Sterna paradisaea</i>) [A194] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Lough Corrib SPA [004042]			
Breeding population size / Number of Apparently Occupied Nests (AON) / Long-term population is stable or increasing	Yes. An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	No
Productivity rate / Number of fledged young per AON / Sufficient to maintain population			
Distribution: extent of available nesting options within the SPA / Number and spatial distribution / Sufficient availability of suitable nesting sites throughout the SPA to maintain the population			
Prey biomass available / Kilogrammes / Sufficient extent of biomass of available prey items across the site to help support the population			
Disturbance at the breeding site / Level of impact / Disturbance occurs at levels that do not significantly impact on Arctic tern at the breeding site			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance at areas ecologically connected to the colony / Level of impact / Disturbance occurs at levels that do not significantly impact on Arctic tern at the breeding site	Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.		
Barriers to connectivity / Number, location. shape, area (hectares)/ No significant increase			
Dundalk Bay SPA			
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005], Greylag Goose (<i>Anser anser</i>) [A043], Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Teal (<i>Anas crecca</i>) [A052], Mallard (<i>Anas platyrhynchos</i>) [A053], Pintail (<i>Anas acuta</i>) [A054], Common Scoter (<i>Melanitta nigra</i>) [A065], Red-breasted Merganser (<i>Mergus serrator</i>) [A069], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Ringed Plover (<i>Charadrius hiaticula</i>) [A137], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Knot (<i>Calidris canutus</i>) [A143], Dunlin (<i>Calidris alpina</i>) [A149], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Curlew (<i>Numenius arquata</i>) [A160], Redshank (<i>Tringa totanus</i>) [A162], Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179], Common Gull (<i>Larus canus</i>) [A182], Herring Gull (<i>Larus argentatus</i>) [A184]			
To maintain the favourable conservation condition of the special conservation interests of the SPA, which is defined as follows:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds,	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of	No
Distribution / Number and range of areas used by waterbirds / No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
<p>Wetlands [A999]</p> <p>To maintain the favourable conservation condition of wetland habitats within the SPA, which is defined as follows:</p>			
Habitat area / Hectares / The permanent area occupied by the wetland habitat is stable and not significantly less than the areas of 8136, 4374 and 649 hectares	<p>No</p> <p>There is no potential for impacts to occur on any habitats associated with the</p>	No	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
respectively for subtidal, intertidal, and supratidal habitats, other than that occurring from natural patterns of variation	Malahide Estuary SPA as the Proposed Development is not hydrologically connected to Dundalk Bay.		
Ireland's Eye SPA			
Cormorant (<i>Phalacrocorax carbo</i>) [A017] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Connemara Bog Complex SPA [004181]:			
Breeding population size / Number of Apparently Occupied Nests (AON) / Long-term population is stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development. The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species. The mitigation measures described in Section 7.5.22, will mitigation for	No
Productivity rate / Number of fledged young per AON / Sufficient to maintain a stable or increasing population			
Distribution: extent of available nesting options within the SPA / Numbers and spatial distribution / Sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population			
Prey biomass available / Kilogrammes / Sufficient extent of biomass of available prey items across the site to help support the population			
Disturbance at the breeding site / Level of impact / Disturbance occurs at levels that do not significantly impact on cormorant at the breeding site			
Disturbance at freshwater and marine areas immediately adjacent to the colony / Level of impact / Disturbance occurs at levels that do not significantly impact on breeding cormorant			
Barriers to connectivity / Number, location, shape, area (hectares) / No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	direct injury/mortality of SCI species during the operation of the Proposed Development.	
<p>Herring Gull (<i>Larus argentatus</i>) [A184]</p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Lough Foyle SPA [004087]:</p>			
Population trend / Percentage change / Long term population trend stable or increasing	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p>	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by herring gull, other than that occurring from natural patterns of variation	<p>intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
Kittiwake (<i>Rissa tridactyla</i>) [A188]			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Saltee Islands SPA [004002]:			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p>	No
Productivity rate / Mean number / No significant decline			
Distribution: breeding colonies / Number; location; area (Hectares) / No significant decline			
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at the breeding site / Level of impact / No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.		
<p>Guillemot (<i>Uria aalge</i>) [A199], Razorbill (<i>Alca torda</i>) [A200]</p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Saltee Islands SPA [004002]:</p>			
Breeding population abundance: individual adult / Number / No significant decline	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present,</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p>	No
Productivity rate / Mean number/ No significant decline			
Distribution: breeding colonies / Number; location; area (hectares) / No significant decline			
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at the breeding site / Level of impact / No significant increase			
Disturbance at marine areas immediately adjacent to the colony / Level of impact / No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats. Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.		
Rockabill SPA			
Purple Sandpiper (<i>Calidris maritima</i>) [A148] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Lough Foyle SPA [004087]:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by herring gull, other than that occurring from natural patterns of variation	<p>cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>	<p>in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p>	
<p>Roseate Tern (<i>Sterna dougallii</i>) [A192]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA</p>			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	Yes.	Yes	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Productivity rate: fledged young per breeding pair / Mean number / No significant decline	An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Distribution: breeding colonies / Number; location; area (hectares) / No significant decline			
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at breeding site / Level of impact / Human activities should occur at levels that do not adversely affect the breeding roseate tern population			
Common Tern (<i>Sterna hirundo</i>) [A193] To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	Yes. An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources,	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality	No
Productivity rate: fledged young per breeding pair / Mean number / No significant decline			
Distribution: breeding colonies / Number; location; area (hectares) / No significant decline			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Prey biomass available / Kilogrammes / No significant decline	could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.	in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at breeding site / Level of impact / Human activities should occur at levels that do not adversely affect the breeding common tern population			
Arctic Tern (<i>Sterna hirundo</i>) [A193] To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	Yes. An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	No
Productivity rate: fledged young per breeding pair / Mean number / No significant decline			
Distribution: breeding colonies / Number; location; area (hectares) / No significant decline			
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance at breeding site / Level of impact / Human activities should occur at levels that do not adversely affect the breeding Arctic tern population	fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.		
The Murrrough SPA			
<p>Red-throated Diver (<i>Gavia stellata</i>) [A001]</p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Castlemarine Harbour SPA [004029]:</p> <p>Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Teal (<i>Anas crecca</i>) [A052]</p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of North Bull Island SPA [004006]:</p> <p>Herring Gull (<i>Larus argentatus</i>) [A184]</p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Lough Foyle SPA [004087]:</p>			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction. There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
<p>Greylag Goose (<i>Anser anser</i>) [A043]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Stabannan-Braganstown SPA [004091]:</p>			
Winter population trend / Percentage change in number of individuals / Long term winter population trend within the SPA is stable or increasing	Yes.	Yes	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Winter spatial distribution / Hectares, time and intensity of use / Sufficient area and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p>	
Disturbance at wintering site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution			
Barriers to connectivity and site use / Number, location, shape and area / The number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA			
Forage spatial distribution, extent and abundance / Location and area, and available forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Roost spatial distribution and extent / Location and hectares of roosting habitat / Sufficient number of locations, area and availability of suitable roosting habitat to support the population target			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Supporting habitat: area and quality / Area (hectares) and quality / Sufficient area of utilisable habitat available in ecologically important sites outside the SPA			
<p>Wigeon (<i>Anas penelope</i>) [A050]</p> <p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Rahasane Turlough SPA [004089]:</p>			
Winter population trend / Percentage change in number of individuals / Long term winter population trend is stable or increasing	<p>Yes.</p> <p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>	<p>Yes</p> <p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p>	No
Winter spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target			
Disturbance at wintering site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution			
Barriers to connectivity and site use / Number, location, shape and hectares / The number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA			
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Roost spatial distribution and extent / Location and hectares of roosting habitat / Sufficient number of locations, area and availability of suitable roosting habitat to support the population target			
Supporting habitat: area and quality / Hectares and quality / Sufficient area of utilisable habitat available in ecologically important sites outside the SPA			
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Lough Corrib SPA [004042]:			
Breeding population size / Number of Apparently Occupied Nests (AON) / Long-term population is stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the	No
Productivity rate / Number of fledged young per AON / Sufficient to maintain population			
Distribution: extent of available nesting options within the SPA / Numbers and spatial distribution / Sufficient availability of suitable nesting sites throughout the SPA to maintain the population			
Prey biomass available / Kilogrammes / Sufficient extent of biomass of available prey items across the site to help support the population			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance at the breeding site / Level of impact / Disturbance occurs at levels that do not significantly impact on black-headed gull at the breeding site	of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction. There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.	introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.	
Disturbance at areas ecologically connected to the colony / Level of impact / Disturbance occurs at levels that do not significantly impact on black-headed gull at the breeding site			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Little Tern (<i>Sterna albifrons</i>) [A915] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which is defined as follows adapted from the Conservation Objectives of Boyne Estuary SPA [004080]:			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	Yes. An accidental pollution event during construction or operation could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.5.22, and in the CEMP,	No
Productivity rate: fledged young per breeding pair / Mean number / No significant decline			
Distribution: breeding colonies / Number; location; area (Hectares) / No significant decline			
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Disturbance at the breeding site / Level of impact / Human activities should occur at levels that do not adversely affect the breeding little tern population	fish species and/or the quality and suitability of roosting sites within the SPA. Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.	will mitigate for any disturbance related impacts on SCI species.	
Wetlands [A999] To maintain or restore the favourable conservation condition of the wetland habitat at The Murrough SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. Which is defined as follows adapted from the Conservation Objectives of Rahasane Turlough SPA [004089]:			
Wetland habitat area / Hectares / No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation	No There is no potential for impacts to occur on any habitats associated with the Murrough SPA as the Proposed Development is not hydrologically connected to The Murrough	No	No
Wetland habitat quality and functioning / Quality and function of the wetland habitat / No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation			
Stabannan-Braganstown SPA			
Greylag Goose (<i>Anser anser</i>) [A043] To restore the favourable conservation condition of greylag goose at Stabannan-Braganstown SPA site code 004091 which is defined by the following list of attributes and targets:			
Winter population trend / Percentage change in number of individuals / Long term winter population trend within the SPA is stable or increasing	Yes.	Yes	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Winter spatial distribution / Hectares, time and intensity of use / Sufficient area and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Disturbance at wintering site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution			
Barriers to connectivity and site use / Number, location, shape and area / The number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA			
Forage spatial distribution, extent and abundance / Location and area, and available forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Roost spatial distribution and extent / Location and hectares of roosting habitat / Sufficient number of locations, area and availability of suitable roosting habitat to support the population target			
Supporting habitat: area and quality / Area (hectares) and quality / Sufficient area of utilisable habitat available in ecologically important sites outside the SPA			
North-West Irish Sea SPA [004236]			
[A065] Common Scoter <i>Melanitta nigra</i> , [A179] Black-headed Gull <i>Chroicocephalus ridibundus</i> [A182] Common Gull <i>Larus canus</i> ; [A177] Little Gull <i>Larus minutus</i> ; and [A187] Great Black-backed Gull <i>Larus marinus</i> To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined as follows:			
Non-breeding population size / Number / No significant decline	Yes.	Yes	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively affect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p> <p>The mitigation measures described in Section 7.5.22, will mitigate for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.		
[A001] Red-throated Diver <i>Gavia stellata</i> To maintain the favourable conservation condition of the Special Conservation Interest of the SPA, which is defined as follows:			
Non-breeding population size / Number / No significant decline	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population			
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA	The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species	The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species. The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	during the operation of the Proposed Development.	
<p>[A003] Great Northern Diver <i>Gavia immer</i>; A065 Common Scoter <i>Melanitta nigra</i></p> <p>To maintain the favourable conservation condition of the Special Conservation Interest of the SPA, which is defined as follows:</p>			
Non-breeding population size / Number / No significant decline	Yes.	Yes	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population	An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds,	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development	
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target		The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream	
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA	including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats. Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.	European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
[A017] Cormorant <i>Phalacrocorax carbo</i> ; A018 Shag <i>Phalacrocorax aristotelis</i> ; A204 Puffin <i>Fratercula arctica</i> To maintain the favourable conservation condition of the Special Conservation Interest of the SPA, which is defined as follows:			
Breeding Population Size / Number / Long term population trend within the SPA is stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Forage spatial distribution, extent, abundance and availability / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	<p>sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p> <p>There is potential for direct injury/mortality related impacts of SCI species as a result of the Proposed Development.</p>	<p>in the Irish Sea is protected during the Proposed Development.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p>	
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution		<p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p>	
Barriers to connectivity / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA		<p>The mitigation measures described in Section 7.5.22, will mitigation for direct injury/mortality of SCI species during the operation of the Proposed Development.</p>	

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
<p>A192 Roseate Tern <i>Sterna dougallii</i>, [A193] Common Tern <i>Sterna hirundo</i>, A194 Arctic Tern <i>Sterna paradisaea</i>, A195 Little Tern <i>Sterna albifrons</i>, A199 Guillemot <i>Uria aalge</i>, A200 Razorbill <i>Alca torda</i>; A013 Manx Shearwater <i>Puffinus puffinus</i>; A183 Lesser Black-backed Gull <i>Larus fuscus</i></p> <p>To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined as follows:</p>			
Breeding population size / Number / No significant decline	Yes.	Yes	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population	An accidental pollution event during the Proposed Development could affect surface water downstream in Dublin Bay. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect this SCI species through direct contact with pollutants, a decline in the quantity and quality of prey fish species and/or the quality and suitability of roosting sites within the SPA.	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development.	
Forage spatial distribution, extent, abundance and availability / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution		The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	
Barriers to connectivity / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA	Significant construction related disturbance could result in the reduced breeding success of this SCI bird species and abandonment of nest sites. This has the potential to reduce the breeding population abundance (number of apparently occupies nests) or alter distribution of breeding colonies associated with this SPA.		
<p>[A009] Fulmar <i>Fulmarus glacialis</i>, [A188] Kittiwake <i>Rissa tridactyla</i>; A184 Herring Gull <i>Larus argentatus</i></p> <p>To maintain the favourable conservation condition of the Special Conservation Interest of the SPA, which is defined as follows:</p>			
Population Size / Number / Long term SPA population trend is stable or increasing	Yes.	Yes	No

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population	<p>An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality the of intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations.</p> <p>The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>	<p>The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development.</p> <p>The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning.</p> <p>The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.</p>	
Forage spatial distribution, extent, abundance and availability / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			
Barriers to connectivity / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
[A183] Lesser Black-backed Gull <i>Larus fuscus</i> To maintain the favourable conservation condition of the Special Conservation Interest of the SPA, which is defined as follows:			
Population trend / Percentage change / Long term population trend stable or increasing	Yes. An accidental pollution event during the Proposed Development could affect surface water downstream in the Irish Sea. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of this SPA. This could potentially affect the use of habitat areas by birds, including foraging resources, and have long-term effects on the SPA populations. The introduction and/or spread of invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could negatively	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Irish Sea is protected during the Proposed Development. The mitigation measures described in Section 7.1.12, the CEMP, and the ISMP will prevent the introduction and/or spread of invasive species to downstream European sites during construction and decommissioning. The mitigation measures described in Section 7.5.22, and in the CEMP, will mitigate for any disturbance related impacts on SCI species.	No
Distribution / Range, timing and intensity of use of areas / No significant decrease in the range, timing or intensity of use of areas by lesser black-backed gull, other than that occurring from natural patterns of variation			
Disturbance at the breeding site/ Level of impact/ No significant increase			

Conservation Objectives Attribute/Measure/Target	Potential Impacts Requiring Mitigation?	Are mitigation measures required?	Residual Impacts?
	<p>effect the species that rely on these habitats.</p> <p>Potential indirect impacts on SCI species may arise due to an increase in disturbance during construction.</p>		

7.5.22 Mitigation Measures

This Section presents the mitigation measures that will be implemented during Construction Phase and Operational Phase to avoid or reduce the potential impacts of the Proposed Development on Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, and Stabannan-Braganstown SPA, North-West Irish Sea SPA. All of the mitigation measures will be implemented in full and are best practice, and tried and tested, effective control measures to protect the receiving environment.

7.5.22.1 Measures to Protect Surface Water Quality during Construction and Operation

The measures presented above in Section 7.1.12.1 and 7.1.12.2 will protect surface water quality during construction and operation of the Proposed Development.

7.5.22.2 Measures to Prevent the Spread of Invasive Species during Construction and Operation

The mitigation measures presented above in Section 7.1.12.1 will prevent the spread of invasive species to European sites during construction and operation of the Proposed Development.

7.5.22.3 Measures to prevent Disturbance and Displacement of SCI Species

Where a site Construction Compound is required, its location relative to the Proposed Development is likely to be adjacent to the potential foraging areas. The appointed contractor will undertake the establishment of the following Construction Compounds outside of the wintering bird season (October to March, inclusive):

- CC-16100 Malahide (Caves Strand)
- CC-15900W Malahide (Bissetts Strand)
- CC-52050, CC-51800, CC-51900 Drogheda Substation/Compounds
- CC-44900 Laytown Construction Compound
- CC-32200 Skerries Substation/Compound
- CC 40200 Gormanston Construction Compound

In addition, the Construction Compound in Malahide (CC-16100 Caves Strand), and the utilities compound in Laytown (CC- 44390E) will only be in use outside of the wintering bird season (October to March, inclusive) to ensure there are no disturbance related impacts to wintering birds foraging and roosting in the surrounding habitats.

As a further precautionary measures, the design of the lighting will ensure that light-spill will not occur in the direction of any adjacent fields. Mitigation measures to reduce light spill will include the following:

- The use of sensor/timer triggered lighting;
- LED luminaires to be used where practicable;
- Column heights to be considered to minimise light spill; and
- Accessories such as baffles, hoods or louvres to be used to reduce light spill and direct it only where needed.

7.5.22.4 Measures to prevent Direct Injury/Mortality of SCI Bird Species during Operation

The following mitigation shall be implemented for the protection of SCI species. The feeder wire along both sides of the new Single-Track Cantilever OHLE masts will be fitted with a device to make lines more visible to commuting, foraging and migrating SCI species. Although the information surrounding the efficacy of bird diverters with a species-specific focus is limited, a wide range of wire marking devices can be used, generally falling into three basic designs; aerial marker spheres, spirals, and suspended devices (swinging, flapping, and fixed) (APLIC, 2012). The hanging device is proposed here (Figure 7-2) as it is universal, cost-effective, allows easy installation, remains in position in severe weather conditions and fits a range of conductors/wires. Like other diverters (because there are few comparative studies), there is extensive field studies (Prinsen et al., 2011) showing that when installed properly they can significantly decrease bird strike. Hanging devices (e.g. Raptor Clamp Diverter, Fire Fly) are suspended from the wire with fixed or swinging plates or flappers and are designed to increase the visibility of overhead lines and reduce the incidence of bird collisions with overhead cables.



Figure 7-2 Examples of hanging tabs (APLIC, 2012)

Specification requirements include (derived from SNH Guidance, 2016):

- Devices should vary in colour (e.g. black and white), be as reflective as possible with glowing surfaces and be capable of a swinging or flapping motion making them more visible and effective (ESKOM Transmission, 2009) (see Figure 7-2). Devices shall not be restricted in their movement;
- Devices should be placed 5m apart and staggered on parallel lines. Based on various studies as reported by APLIC (2012) in the United States, data recommends spacing between 4.6 m and 30 m. As this is largely dependent on the extent of the overhead lines which requires

mitigation through diversion devices, 10m is considered appropriate for the Viaducts (i.e. Malahide, Rogerstown, Balbriggan), and at areas where there is no tree/building cover leaving the proposed OHLE exposed (i.e. Gormanston Station – Monsey Accommodation centre), along the Proposed Development, as advised in APLIC (2012) report for these types of bird diverter, however they will be spaced so that the devices will be no more than 5m apart on separate lines;

- Devices should be as large as possible for maximum visibility (i.e. diameter of at least 20 cm and length of at least 10 to 20cm). A study completed by Jenkins *et al.*, (2010) concluded that by line marking with devices that increase visibility of the line, are likely to lower general collision rates of SCI bird species by 50% to 80%. Other studies have also shown a reduction of collision rates by 50% to 94% (Prinsen *et al.*, 2011); and
- Line markers shall require annual maintenance and replacement, ensuring that markers remain in position and functional throughout the lifetime of the Proposed Development.

7.5.23 Residual Impacts

With the effective implementation of appropriate mitigation measures identified in this NIS, the Proposed Development poses no risk of affecting the conservation objectives, or the favourable conservation condition, of the SCIs of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, and Stabannan-Braganstown SPA, and the North-West Irish Sea SPA, and there are therefore, no residual direct or indirect impacts associated with the Proposed Development that could adversely affect the integrity of these SPAs.

7.5.24 Conclusion of the Assessment

Following an examination, analysis and evaluation in light of best scientific knowledge, of all relevant information in respect of the SCIs of the Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, and Stabannan-Braganstown SPA, North-West Irish Sea SPA, the potential impacts, and mitigation measures and whether or not the predicted impacts would affect the conservation objectives that support the conservation condition of the SCIs, it has been concluded that the Proposed Development does not pose a risk of adversely affecting (either directly or indirectly) the integrity of the Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, and Stabannan-Braganstown SPA, and the North-West Irish Sea SPA.

7.6 Seas Off Wexford SPA [004237], Wicklow Head SPA [004127], and Saltee Islands SPA [004002]

In respect of the Seas of Wexford SPA and the Saltee Islands SPA, although in excess of 90km from the Proposed Development, the foraging range of some of its species is such that the potential for intermixing with similar SCI species in Dublin Bay SPAs cannot be ruled out. However, the introduction of the newly designated Seas Off Wexford SPA, by virtue of its proximity to other SPAs and its resource support provided to their SCI requires that a range of additional SPAs not previously consider in the NIS to be assessed. These have been subject to similar assessment as other European sites identified as being within the vicinity of the Proposed Development and are detailed below.

7.6.1 Ecological Baseline Description for Seas Off Wexford SPA

The Seas off Wexford SPA extends offshore along the majority of the County Wexford coastline and is approximately 3,054 km² in area. This SPA abuts, and is ecologically connected to, four breeding seabird SPAs namely Lady's Island Lake SPA, Wexford Harbour and Slobs SPA, Keeragh Islands SPA and Saltee Islands SPA. The site is a candidate Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Common Scoter, Red-throated Diver, Fulmar, Manx Shearwater, Gannet, Shag, Cormorant, Kittiwake, Black-headed Gull, Mediterranean Gull, Lesser Black-backed Gull, Herring Gull, Little Tern, Roseate Tern, Common Tern, Arctic Tern, Sandwich Tern, Puffin, Razorbill and Guillemot.

7.6.2 Ecological Baseline Description for Wicklow Head SPA

This site has a good diversity of breeding seabirds, with nationally important populations of Kittiwake *Rissa tridactyla* and Black guillemot *Cephus grylle*, and regionally important numbers of Fulmar *Fulmarus glacilis*, Common guillemot *Uria aalge* and Razorbill *Alca torda*. This seabird colony has developed mostly since the 1970s and has been monitored regularly since. The site also supports a pair of breeding *Falco peregrinus*, and has some typical heathland species, including Common whitethroat *Sylvia communis*.

7.6.3 Ecological Baseline for Saltee Islands SPA

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Fulmar, Gannet, Cormorant, Shag, Lesser Black-backed Gull, Herring Gull, Kittiwake, Guillemot, Razorbill and Puffin. The site is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds. The nationally important Gannet colony on Great Saltee has been well documented since its establishment in the 1920s and 2,446 pairs were present in 2004. The following species have populations of national importance (all counts in the 1998-2000 breeding seasons): Fulmar (520 pairs), Cormorant (273 pairs), Shag (268 pairs), Lesser Black-backed Gull (164 pairs), Herring Gull (73 pairs), Kittiwake (2,125 pairs), Guillemot (14,362 pairs), Razorbill (2,505 pairs) and Puffin (1,822 pairs). An estimated 250 pairs of Manx Shearwater occur on these islands.

Table 7-11 Special Conservation Interests of Wicklow Head SPA, Seas Off Wexford SPA, and Saltee Islands SPA

SCIs	Conservation Objective(s)
<p>Wicklow Head SPA [004127]</p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>NPWS (2022) Conservation objectives for Wicklow Head SPA [004127]. First Order Site Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.</p>	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p>
<p>Seas Off Wexford SPA [004237]</p> <p>A001 Red-throated Diver <i>Gavia stellata</i></p> <p>A009 Fulmar <i>Fulmarus glacialis</i></p> <p>A013 Manx Shearwater <i>Puffinus puffinus</i></p> <p>A016 Gannet <i>Morus bassanus</i></p> <p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A018 Shag <i>Phalacrocorax aristotelis</i></p> <p>A065 Common Scoter <i>Melanitta nigra</i></p> <p>A176 Mediterranean Gull <i>Larus melanocephalus</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A183 Lesser Black-backed Gull <i>Larus fuscus</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>A191 Sandwich Tern <i>Sterna sandvicensis</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>A195 Little Tern <i>Sterna albifrons</i></p> <p>A199 Guillemot <i>Uria aalge</i></p> <p>A200 Razorbill <i>Alca torda</i></p> <p>A204 Puffin <i>Fratercula arctica</i></p> <p>NPWS (2024) Conservation Objectives: Seas off Wexford SPA 004237. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p>
<p>Saltee Islands SPA [004002]</p> <p>A009 Fulmar <i>Fulmarus glacialis</i></p> <p>A016 Gannet <i>Morus bassanus</i></p> <p>A018 Shag <i>Phalacrocorax aristotelis</i></p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>A199 Guillemot <i>Uria aalge</i></p> <p>A200 Razorbill <i>Alca torda</i></p> <p>A204 Puffin <i>Fratercula arctica</i></p>	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p>

SCIs	Conservation Objective(s)
NPWS (2011) Conservation Objectives: Saltee Islands SAC 000707 and Saltee Islands SPA 004002. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	

In conjunction with considering the generic conservation objective for these SPAs “*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*”, the site specific conservation objectives document for Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA, also informed this assessment.

The site-specific conservation objectives document sets out the attributes, measures and targets that define the favourable conservation condition of the SCIs within the European site. Affecting the conservation condition of the special conservation interests is deemed to constitute an adverse effect on the integrity of a European site. The specific attributes and targets used to define the conservation objectives of the SCIs of, Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA, are presented in Table 7-13.

7.6.4 Examination and Analysis of Potential Direct and Indirect Impacts

The direct and/or indirect impacts by which the Proposed Development could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets supporting the conservation condition of the SCIs of, Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA are:

- Habitat degradation/effects on SCI species as a result of hydrological impacts

7.6.5 Habitat Degradation/Effects on SCI Species as a result of Hydrological Impacts

Surface water from the Proposed Development will drain to the existing local surface water drainage network, via the Malahide Estuary the Rogerstown Estuary, the Nanny Estuary, Dublin Bay, Baldoyle Bay or the Boyne Estuary (depending on work locations), ultimately discharging to the Irish Sea. The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction has the potential to affect water quality in the receiving aquatic environment. Such a pollution event may include: the release of sediment into receiving waters and the subsequent increase in mobilised suspended solids; and the accidental spillage and/or leaks of contaminants (e.g. fuel, oils, lubricants, paints, bituminous coatings, preservatives, weed killer, lime and concrete) into receiving waters. The associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the location of the accidental pollution event or the discharge.

The Seas off Wexford SPA lies c. 90km to the south of the Proposed Development, at its nearest point at Fairview. Despite the intervening distance, there is the potential for some of the Seas off Wexford SPA’s SCI bird species to utilise habitat areas within the Zol of the Proposed Development by virtue of their extensive foraging ranges. Despite the distance, the recent guidance on bird foraging ranges (Woodward *et al.*, 2019) suggest that some of the SCI species may be subject to likely significant effects from the Proposed Development. Some of the SCI species listed in Table 7-12, are also listed as SCIs for other SPAs within the Zol of the Proposed Development. Others are beyond their normal forage range and thus outside the zone of influence of the Proposed

Development (See Table 7-12). However, as the Proposed Development is within the foraging distance of some. While it is likely that most of these SCI species from the SPA would not be subject to direct impacts arising from the Proposed Development by virtue of location and dispersal potential within coastal waters, indirect impacts arising from Habitat degradation as a result of pollution / contamination of receiving waterbodies, on SCI birds that have mixed with SCI species in closer proximity to the Proposed Development remain.

Table 7-12 below lists each of the Seas off Wexford SPA's SCIs along with breeding foraging ranges, as published by Nature Scot in January 2023³². There are eight species that, due to their breeding foraging ranges, could theoretically utilise habitat areas within the ZOI of the Proposed Development and are at risk from impacts: fulmar, Manx shearwater, gannet, lesser black-backed gull, kittiwake, guillemot, razorbill and puffin. As wintering foraging ranges for common scoter are not published for any Irish SPA sites, the species is scoped in as being potentially at risk from impacts associated with the Proposed Development. No other SCIs species from the Seas off Wexford SPA are at risk from effects associated with the Proposed Development.

Table 7-12 Breeding Foraging Ranges of the Seas Off Wexford SPA's SCI Species

Special Conservation Interest	Forage Distance (and confidence level)
[A001] Red-throated Diver <i>Gavia stellata</i>	9km (low confidence)
[A009] Fulmar <i>Fulmarus glacialis</i>	1200km (good confidence)
[A013] Manx Shearwater <i>Puffinus puffinus</i>	2365.5km (moderate confidence)
[A016] Gannet <i>Morus bassanus</i>	509.4km (high confidence)
[A017] Cormorant <i>Phalacrocorax carbo</i>	33.9km (moderate confidence)
[A018] Shag <i>Phalacrocorax aristotelis</i>	23.7km (high confidence)
[A065] Common Scoter <i>Melanitta nigra</i>	Foraging distance not quoted in Nature Scott 2023 or any SPA for which species is listed as an SCI
[A176] Mediterranean Gull <i>Larus melanocephalus</i>	20km (Uncertain)
[A179] Black-headed Gull <i>Chroicocephalus ridibundus</i>	18.5km (Uncertain)
[A183] Lesser Black-backed Gull <i>Larus fuscus</i>	236km (High confidence)
[A184] Herring Gull <i>Larus argentatus</i>	85.6km (good confidence)
[A188] Kittiwake Rissa tridactyla	Foraging distance not quoted in Nature Scot 2023 guidance. However, Saltee Islands SPA Conservation Objectives Document notes: Maximum forage range 200km, mean maximum 65.81km and mean as 24.45km
[A191] Sandwich Tern <i>Sterna sandvicensis</i>	57.5km (moderate confidence)
[A192] Roseate Tern <i>Sterna dougallii</i>	23.2km (moderate confidence)
[A193] Common Tern <i>Sterna hirundo</i>	26.9km (good confidence)
[A194] Arctic Tern <i>Sterna paradisaea</i>	40.5km (good confidence)
[A195] Little Tern <i>Sterna albifrons</i>	5km (moderate confidence)

³² <https://www.nature.scot/doc/guidance-note-3-guidance-support-offshore-wind-applications-marine-birds-identifying-theoretical>

Special Conservation Interest	Forage Distance (and confidence level)
[A199] Guillemot <i>Uria aalge</i>	95.2km (highest confidence)
[A200] Razorbill <i>Alca torda</i>	122.2km (good confidence)
[A204] Puffin <i>Fratercula arctica</i>	265.4km (good confidence)

For those SCI species of the Seas off Wexford SPA that may utilise habitat areas within the Zol of the Proposed Development, there is the potential for the Proposed Development to result in likely significant effects on the Seas off Wexford SPA via the same impact pathways as identified in the AA Screening Report and this NIS: habitat degradation as a result of pollution/contamination of receiving waterbodies. This a very precautionary approach to take as it is extremely unlikely, given dilution and mixing in the marine environment, that the Proposed Development would give rise to a pollution event of a magnitude that would have any perceptible effect on water quality in the Irish Sea or have any population level effects on bird species or their habitats.

Arising from the recent publication of the Seas off Wexford SPA and its stated ecological connection with four SPA including Saltee Islands SPA (NPWS, 2024a) it has been considered in this NIS (the remainder Lady's Island Lake SPA, Wexford Harbour and Slobbs SPA and Keeragh Islands SPA having been scoped out at in Section 6.2). the Saltee Islands. It lies approximately 137km due south of the Proposed Development. Despite the distance, the recent guidance on bird foraging ranges (Woodward *et al.*, 2019) indicate that some of the breeding population SCI species e.g. Fulmar *Fulmarus glacialis*, Gannet *Morus bassanus*, Kittiwake *Rissa tridactyla*, Puffin *Fratercula arctica* and Lesser Black-backed gull *Larus fuscus* could be subject to likely significant effects from the Proposed Development. The remaining SCI listed for the SPA namely Shag *Phalacrocorax aristotelis*, Cormorant *Phalacrocorax carbo*, Guillemot *Uria aalge*, Herring gull *Larus argentatus* and Razorbill *Alca torda* are beyond their normal foraging range (See Table 7-12) and thus outside the zone of influence of the Proposed Development. While it is likely that most of the SCI species from this SPA would not be subject to direct impacts arising from the Proposed Development by virtue of location and dispersal potential within coastal waters, indirect impacts arising from Habitat degradation as a result of pollution / contamination of receiving waterbodies, on SCI birds that have mixed with SCI species in closer proximity to the Proposed Development remain.

Wicklow Head SPA is a small SPA located on a coastal headland near Wicklow town which is designated for Kittiwake *Rissa tridactyla*. The Proposed Development is located approximately 42 km north of the SPA. Table 7-13 notes that the 2019 guidance does not list a foraging range for Kittiwake, and as such the figures presented here are taken from the Saltee Island SPA targets published by NPWS. The maximum foraging range of Kittiwake is 200km with a mean maximum of 65.81 and average at 24.45km. For this reason, it has on a precautionary basis been included in the Zol of the Proposed Development.

7.6.6 Summary

Table 7-13 below presents a summary of the potential impacts of the Proposed Development on the SCIs of Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA, and how these impacts relate to affecting these sites' conservation objectives.

Table 7-13 Potential Impacts/Effects on the Conservation Objectives of Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
Seas Off Wexford SPA			
[A001] Red throated diver <i>Gavia Stellata</i> ; A065 Common Scoter <i>Melanitta nigra</i> To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Non-breeding population size / Number / Long term SPA population trend is stable or increasing	No. There is no potential for impacts to occur to these SCI species by virtue of their being beyond the foraging distance (see Table 7-12) of the Proposed Development.	No	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population			
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA			
[A009] Fulmar <i>Fulmarus glacialis</i> ; A013 Manx Shearwater <i>Puffinus puffinus</i> ; A016 Gannet <i>Morus bassanus</i> ; A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> ; A183 Lesser Black-backed Gull <i>Larus fuscus</i> ; [A188] Kittiwake <i>Rissa tridactyla</i> ; A191 Sandwich Tern <i>Sterna sandvicensis</i> ; A204 Puffin <i>Fratercula arctica</i> To restore the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding Population Size / Number / Long term SPA population trend is stable or increasing	Yes	Yes	No

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population	A pollution event during construction or operation could affect surface water. A pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations.	The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality is protected during construction and operation of the Proposed Development.	
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA			
[A192] Roseate Tern <i>Sterna dougallii</i> ; [A193] Common Tern <i>Sterna hirundo</i> ; [A194] Arctic Tern <i>Sterna paradisaea</i> ; [A195] Little Tern <i>Sterna albifrons</i> To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding population Size / Number / Long term SPA population trend is stable or increasing	No There is no potential for impacts to occur to these SCI species by virtue of their being beyond the foraging distance (see Table 7-12) of the Proposed Development.	No	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population			
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA			
[A013] Manx Shearwater <i>Puffinus puffinus</i> ; To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding population Size / Number / Long term SPA population trend is stable or increasing	Yes A pollution event during construction or operation could affect surface water. A pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality is protected during construction and operation of the Proposed Development.	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population			
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA			
[A017] Cormorant <i>Phalacrocorax carbo</i> ; [A018] Shag <i>Phalacrocorax aristotelis</i> ; A184 Herring Gull <i>Larus argentatus</i> ; A199 Guillemot <i>Uria aalge</i> ; A200 Razorbill <i>Alca torda</i> To restore the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding Population Size / Number / Long term population trend within the SPA is stable or increasing	No There is no potential for impacts to occur to these SCI species by virtue of their being beyond the foraging distance (see	No	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population			

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	Table 7-12) of the Proposed Development.		
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA			
[A176] Mediterranean gull <i>Larus melanocephalus</i>			
To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding population size / Number / Long term SPA population trend is stable or increasing	No There is no potential for impacts to occur to these SCI species by virtue of their being beyond the foraging distance (see Table 7-12) of the Proposed Development.	No	No
Spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population			
Forage spatial distribution, extent and abundance / Location and hectares, and forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution			
Barriers to connectivity and site use / Number; location; shape; area (hectares) / The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA			
[A191] Sandwich Tern <i>Sterna sandvicensis</i>			
To maintain the favourable conservation condition of Sandwich Tern in the SPA, which is defined by the following list of attributes and targets:			

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	No There is no potential for impacts to occur to these SCI species by virtue of their being beyond the foraging distance (see Table 7-12) of the Proposed Development.	No	No
Productivity rate: fledged young per breeding pair / Mean number / No significant decline			
Distribution: breeding colonies / Number; location; area (Hectares) / No significant decline			
Prey biomass available / Kilogrammes / No significant decline			
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase			
Disturbance at the breeding stage / Level of impact / Human activities should occur at levels that do not adversely affect the breeding sandwich tern population			
Wicklow Head SPA			
Kittiwake (<i>Rissa tridactyla</i>) [A188] The site-specific conservation objectives for this SPA do not list attributes and targets, therefore the attributes, measures, and targets below have been developed based on specific objectives for Kittiwake at Saltee Islands SPA [004002] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA defined as follows:			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	No Terrestrial nesting habitats above the high tide line are not at risk of effects from water pollution in the Irish Sea/Coastline.	No	No
Productivity rate / Mean number / No significant decline	Yes An accidental pollution event during construction or operation could affect surface water downstream in the Irish Sea and along the eastern coastline. An accidental pollution event of a sufficient	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality	No

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
	magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the marine, intertidal and coastal habitats and the fauna communities they support.	in the Wicklow River and the Irish Sea is protected during construction and operation of the proposed development.	
Distribution: breeding colonies / Number; location; area (hectares) / No significant decline	No Terrestrial nesting habitats above the high tide line are not at risk of effects from water pollution in the Irish Sea/Coastline.	No	No
Prey biomass available / Kilogrammes / No significant decline	Yes An accidental pollution event during construction or operation could affect surface water downstream in the Irish Sea and along the eastern coastline. An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the marine, intertidal and coastal habitats and the fauna communities they support.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality in the Wicklow River and the Irish Sea is protected during construction and operation of the proposed development.	No
Barriers to connectivity / Number; location; shape; area (hectares) / No significant increase	No Terrestrial nesting habitats above the high tide line are not at risk of effects from water pollution in the Irish Sea/Coastline.	No	No
Disturbance at the breeding site / Level of impact / No significant increase	No Terrestrial nesting habitats above the high tide line are not at risk of effects	No	No

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
	from water pollution in the Irish Sea/Coastline.		

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
Saltee Islands SPA			
[A009] Fulmar <i>Fulmarus glacialis</i> ; [A016] Gannet <i>Morus bassanus</i> ; To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding population abundance: apparently occupied sites (AOSs) / Number / No significant decline	Yes A pollution event during construction or operation could affect surface water. A pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality is protected during construction and operation of the Proposed Development.	No
Productivity rate / Mean number / No significant decline			
Distribution: breeding colonies Number; location; area (hectares) No significant decline			
Prey biomass available Kilogrammes No significant decline			
Barriers to connectivity Number; location; shape; area (hectares) No significant increase			
Disturbance at the breeding site / Level of impact / No significant increase	No	No	No
Disturbance at marine areas immediately adjacent to the colony/ Level of impact / No significant increase	Terrestrial nesting habitats above the high tide line are not at risk of effects from water pollution in the Irish Sea/Coastline.		
[A016] Gannet <i>Morus bassanus</i> ; [A017] Cormorant <i>Phalacrocorax carbo</i> , [A018] Shag <i>Phalacrocorax aristotelis</i> , [A184] Herring Gull <i>Larus argentatus</i> To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	No There is no potential for impacts to occur to these SCI species by virtue of their being beyond the foraging distance (see Table 7-12) of the Proposed Development.	No	No
Productivity rate / Mean number / No significant decline			
Distribution: breeding colonies Number; location; area (hectares) No significant decline			
Prey biomass available Kilogrammes No significant decline			
Barriers to connectivity Number; location; shape; area (hectares) No significant increase			
Disturbance at the breeding site / Level of impact / No significant increase			
[A183] Lesser Black-backed gull <i>Larus fuscus</i> ; [A188] Kittiwake <i>Rissa tridactyla</i> To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding population abundance: apparently occupied nests (AONs) / Number / No significant decline	Yes A pollution event during construction or operation could affect surface water. A pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of the SPA. This could potentially affect the use of habitat areas by birds and have long-term effects on the SPA populations.	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality is protected during construction and operation of the Proposed Development.	No
Productivity rate / Mean number / No significant decline			
Distribution: breeding colonies/ Number; location; area (hectares) No significant decline			
Prey biomass available/ Kilogrammes / No significant decline			
Barriers to connectivity Number; location; shape; area (hectares) / No significant increase			
Disturbance at the breeding site / Level of impact / No significant increase	No Terrestrial nesting habitats above the high tide line are not at risk of effects	No	No

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
	from water pollution in the Irish Sea/Coastline.		
[A199] Guillemot <i>Uria aalge</i> , [A200] Razorbill <i>Alca torda</i> To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding population abundance: individual adult / Number / No significant decline	No There is no potential for impacts to occur to these SCI species by virtue of their being beyond the foraging distance (see Table 7-12) of the Proposed Development.	No	No
Productivity rate / Mean number / No significant decline			
Distribution: breeding colonies/ Number; location; area (hectares) No significant decline			
Prey biomass available/ Kilogrammes / No significant decline			
Barriers to connectivity Number; location; shape; area (hectares) / No significant increase			
Disturbance at the breeding site / Level of impact / No significant increase			
Disturbance at marine areas immediately adjacent to the colony / Level of impact / No significant increase			
[A204] Puffin <i>Fratercula arctica</i> To maintain the favourable conservation condition of the Special Conservation Interests of the SPA, which is defined by the following attributes and targets:			
Breeding population abundance: apparently occupied burrow (AOB) / Number / No significant decline	Yes A pollution event during construction or operation could affect surface water. A pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of the intertidal/coastal habitats that support the special conservation interest bird species of the SPA. This could potentially affect the use	Yes The mitigation measures described in Section 7.1.12 to protect water quality in the receiving environment will ensure that surface water quality is protected during construction and operation of the Proposed Development.	No
Productivity rate / Mean number / No significant decline			
Distribution: breeding colonies/ Number; location; area (hectares) No significant decline			
Prey biomass available/ Kilogrammes / No significant decline			
Barriers to connectivity Number; location; shape; area (hectares) / No significant increase			

Conservation Objectives	Potential Impacts Requiring Mitigation	Are Mitigation Measures Required	Residual Impacts
	of habitat areas by birds and have long-term effects on the SPA populations.		
Disturbance at the breeding site / Level of impact / No significant increase	No	No	No
Disturbance at marine areas immediately adjacent to the colony / Level of impact / No significant increase	There is no potential for impacts to occur to this SCI species by virtue of the Proposed Development being distally located, located away from the marine area in which the SPA SCI breed or are subject to predation.		
Occurrence of mammalian predators / Level of impact / Absent or under control			

7.6.7 Mitigation Measures

This Section presents the mitigation measures that will be implemented during Construction Phase and Operational Phase to avoid or reduce the potential impacts of the Proposed Development on Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA. All of the mitigation measures will be implemented in full and are best practice, and tried and tested, effective control measures to protect the receiving environment.

7.6.7.1 Measures to Protect Surface Water Quality during Construction and Operation

The measures presented above in Section 7.1.12.1 and 7.1.12.2 will protect surface water quality during construction and operation of the Proposed Development.

7.6.8 Residual Impacts

With the effective implementation of appropriate mitigation measures identified in this NIS, the Proposed Development poses no risk of affecting the conservation objectives, or the favourable conservation condition, of the SCIs of Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA, and there are therefore, no residual direct or indirect impacts associated with the Proposed Development that could adversely affect the integrity of these SPAs.

7.6.9 Conclusion of the Assessment

Following an examination, analysis and evaluation in light of best scientific knowledge, of all relevant information in respect of the SCIs of the Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA, the potential impacts, and mitigation measures and whether or not the predicted impacts would affect the conservation objectives that support the conservation condition of the SCIs, it has been concluded that the Proposed Development does not pose a risk of adversely affecting (either directly or indirectly) the integrity of the Seas Off Wexford SPA, Wicklow Head SPA and Saltee Islands SPA.

8. IN COMBINATION ASSESSMENT

This section of the NIS presents the assessment carried out to examine whether any other plans or projects have the potential to act in combination with the Proposed Development to have a significant effect on any of the European sites including those within its Zone of Influence (Zoi). There are 31 European sites within the Zoi of the Proposed Development.

8.1 Analysis of Potential In Combination Effects

This section of the NIS presents the assessment carried out to examine whether any other plans or projects have the potential to act in combination with the Proposed Development to adversely affect the integrity of Malahide Estuary SAC, Rogerstown Estuary SAC, River Boyne and River Blackwater SAC, Baldoyle Bay SAC, Boyne Coast and Estuary SAC, Rockabill to Dalkey Island SAC, Lambay Island SAC, North Dublin Bay SAC, South Dublin Bay SAC, Codling Fault Zone SAC, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, South Dublin Bay and River Tolka Estuary SPA, Howth Head Coast SPA, North Bull Island SPA, Baldoyle Bay SPA, Dalkey Island SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Dundalk Bay SPA, Skerries Islands SPA, Ireland's Eye SPA, Lambay Island SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA, North-West Irish Sea SPA, River Boyne and River Blackwater SPA Seas off Wexford SPA, Saltee Islands SPA, Wicklow Head SPA. All other European sites fall beyond the zone of influence of the Proposed Development. Therefore, there is no potential for any other plans or projects to act in combination with the Proposed Development to adversely affect the integrity of any other European sites.

As assessed in Section 7, none of the potential impacts associated with the Proposed Development will result in any residual effect on the receiving environment or on the Qualifying Interests/Special Conservation Interests of Rogerstown Estuary SPA, Malahide Estuary SPA, Lambay Island SPA, Skerries Islands SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin and River Tolka Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, River Boyne and River Blackwater SPA, Howth Head Coast SPA, Dalkey Island SPA, Ireland's Eye SPA, Rockabill SPA, The Murrough SPA, Stabannan-Braganstown SPA, and the North-West Irish Sea SPA. Therefore, there will not be any residual impacts associated with the Proposed Development that will adversely affect the conservation objectives supporting the conservation condition of the QIs / SCIs of those European sites, and the Proposed Development in isolation will not adversely affect the integrity of those European sites.

There is the potential for other pollution sources within the Boyne, Nanny-Delvin, and Liffey-Dublin Bay WFD catchments and any other catchments that also drain to the Irish Sea to cumulatively affect water quality in the receiving estuarine and marine environments.

The potential for in combination effects to arise in Dublin Bay, Baldoyle Bay, Malahide, Rogerstown, Nanny and Boyne Estuaries, from any existing or proposed land use plans or developments is regulated and controlled by the environmental protective policies and objectives of the Louth County Development Plan 2021-2027, the Meath County Development Plan 2021 – 2027, Fingal County Development Plan 2023 – 2029, and the Dublin City Development Plan 2022 – 2028. Any existing/proposed plan or project that could potentially affect the European sites mentioned above or any other European site, in combination with the Proposed Development, must adhere to these overarching environmental protective policies and objectives.

These policies and objectives will ensure the protection of the European site within the zone of influence of the Proposed Development and include the requirement for any future plans or projects to undergo Screening for Appropriate Assessment and/or Appropriate Assessment to examine and assess their effects on European sites, alone and in combination with other plans and projects.

There are specific objectives and policies in the Louth County Development Plan 2021-2027 to protect biodiversity, and specifically European sites. Policies NGB3, NGB4, NGB5 and NGB6 relate to the protection of European sites, AA and commitments to not permitting projects giving rise to adverse effects on the integrity of European sites without demonstrating there are no alternatives, there are imperative reasons of overriding public interest, and undertaking all compensation measures necessary to ensure the overall coherence of the network of European sites. The Louth County Development Plan 2021-2027 also includes policies to protect (from risk of pollution), manage and enhance the counties' surface water and groundwater resources (ENV14, ENV15 and ENV17, ENV18 and ENV19).

There are specific objectives and policies in the Meath County Development Plan 2021-2027 to protect biodiversity, and specifically European sites. Policies HER POL 32, HER POL 33 and HER POL 34 relate to the protection of European sites, the statutory requirement to undertake AA and commitments to prohibiting projects giving rise to adverse effects on the integrity of any European sites without demonstrating there are no alternatives, there are imperative reasons of overriding public interest, and undertaking all compensation measures necessary to ensure the overall coherence of the network of European sites. The Meath County Development Plan 2021-2027 also includes policies to protect (from risk of pollution), manage and enhance the counties' surface water and groundwater resources (INF 8, INF 13, INF 15, INF 16, INF 17).

There are specific objectives and policies in the Fingal Development Plan 2023-2029 to protect biodiversity, and specifically European sites. Policies and objectives GINHO3, GINHP17, GINHO33 relate to the protection of European sites, AA and commitments to not permitting projects giving rise to adverse effects on the integrity of European sites without demonstrating there are no alternatives, there are imperative reasons of overriding public interest, and undertaking all compensation measures necessary to ensure the overall coherence of the network of European sites. The Fingal Development Plan 2023-2029 also includes policies to protect (from risk of pollution), manage and enhance the counties' surface water and groundwater resources (GINH015, IUP15, IUP17, IOU25).

Land use plans for the other local authorities (e.g. South Dublin Council) whose functional areas include surface water features which drain to the eastern coastline, were examined and analysed and those land use plans also include protective environmental policies to protect European sites and the receiving surface water environments.

The potential cumulative impacts on those European sites within the ZOI of the Proposed Development from the Proposed Development in combination with other plans and projects, as identified from Louth County Council, Meath County Council, Dublin City Council, and Fingal Council planning e-portal³³ and An Bord Pleanála mapviewer³⁴ are identified and assessed in Table 8-1. Appendix 1.8 includes the cumulative assessment of the long list of projects.

Therefore, the cumulative or in combination effects will not be impacted by the Proposed Development in any way in light of the proposed mitigation as described above in Section 7.

³³ <https://louthco.maps.arcgis.com/apps/webappviewer/index.html?id=3ca4a87364a84ff4b011006b3ac87779> – Accessed 23/05/2023.
Rechecked 27/05/2024 – no applications returned

³⁴ <https://www.pleanala.ie/en-ie/Map-search> - Accessed 23/05/2023 and rechecked 27/05/2024

Table 8-1 Land Use plans and Programmes/Projects Considered for the In Combination Assessment

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
<p>National Energy & Climate Plan 2021-2030</p> <p>This National Energy and Climate Plan builds on previous national strategies and sets out in detail objectives regarding the five energy dimensions together with planned policies and measures to ensure that these objectives are achieved. It aims as a fundamental national objective to pursue a trajectory of emissions reduction which is in line with reaching net zero in Ireland by 2050. In relation to transport the plan aims to:</p> <p>Make growth less transport intensive through better planning, remote and home-working and modal shift to public transport</p> <p>Increase the renewable biofuel content of motor fuels</p> <p>Set targets for the conversion of public transport fleets to zero carbon alternatives.</p>	<p>No potential impact pathways to European sites. There are no specific spatial references in this policy document and therefore, no specific link (in terms of potential impact pathways) between it and European sites within the Zol of the Proposed Development.</p>	<p>No in combination impact Key to considering the on-going evolution of national climate policy included are the obligations of the State under EU law (e.g., the EU Habitats Directive), and the promotion of sustainable development. Considering that, this policy position poses no identifiable risk of resulting in adverse effects on the integrity of any European sites.</p>
<p>Climate Action Plan 2024</p> <p>The Plan, which was subject to AA, provides the Government's third update to the Climate Action Plan 2019, outlines the actions required to 2035 and beyond and to guide the Governments' joint efforts over the coming years at reducing greenhouse gas emissions. The Plan implements the carbon budgets and sectoral emissions ceilings and sets a roadmap for taking decisive action to halve our emissions by 2030 and achieving a climate neutral economy no later than 2050. It is proposed</p>	<p><i>There is the potential that plan actions and/or developments implemented under the Climate Action Plan 2024 including individual sectoral plans could affect European sites within the Zol of the Dart+ North project, as it is a National plan, and has the potential to affect European sites across Ireland.</i></p>	<p>No in combination impact.</p> <p>Although lacking full implementation detail, the bulk of the actions require the development of guidance, standards and plans, to positively reduce the greenhouse gas emissions. Sectoral plans to be developed on foot of this will themselves be subject to Appropriate Assessment and Strategic Environmental Assessment.</p> <p>Any projects arising out of the Plan, or the Sectoral plans required to achieve the objectives of the Plan</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
<p>to be updated annually and will be improved and strengthened when required, allowing learnings from the experiences in a very significant and complex undertaking. In addition to the Plan, there is a supplementary Annex of Actions - which includes identification of some project deliverable including rail transport projects such as DART+ North Coastal project.</p>		<p>must comply with the requirements and obligations of EU and Irish planning and environmental law, including those of the relevant land use plans (Development Plans, Local Area Plans etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans are Fingal DP (2023-2029), Dublin City DP (2022-2028), Meath CDP (2021-2027), and Louth CDP (2021 – 2027).</p> <p>All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2. This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below). Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the Climate Action Plan poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.</p>
<p>National Development Plan Ireland 2021- 2030</p> <p>As part of Project Ireland 2040 the National Development Plan sets out the Government's over-arching investment strategy and budget for the period 2021- 2030. The plan</p>	<p>There is the potential that developments implemented under the National Development Plan could affect European sites within the Zol of the Proposed Development. The potential impact pathways cannot be</p>	<p>No in combination impact.</p> <p>Any projects required to achieve the objectives of the National Development Plan must comply with the requirements and obligations of EU and Irish planning</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
<p>that aims to balance demand for public investment across all sectors and regions of Ireland with a major focus on the delivery of infrastructure projects</p>	<p>defined based on the level of detail included in the plan. However, future developments implemented through the National Development Plan have the potential to lie either within those European sites, or be situated in a location where they may be within the Zol of those European sites.</p>	<p>and environmental law, including those of the relevant land use plans (Development Plans, Local Area Plans etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans are Fingal DP (2023-2029), Dublin City DP (2022-2028), Meath CDP (2021-2027), and Louth CDP (2021 – 2027).</p> <p>All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2. This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below). Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the National Development Plan poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.</p>
<p>Project Ireland 2040 – National Planning Framework (NPF)</p> <p>The National Planning Framework is a high level strategic plan to guide future growth and development in Ireland. The NPF makes reference to delivering projects in Dublin (here Dublin refers to the Greater Dublin Area (GDA). This</p>	<p>There is the potential that developments implemented under Project Ireland 2040 could affect European sites within the Zol of the Proposed Development. The potential impact pathways cannot be defined based on the level of detail included in the plan. However, future developments implemented through Project Ireland 2040</p>	<p>No in combination impact.</p> <p>Any projects required to achieve the objectives of Project Ireland 2040 Plan must comply with the requirements and obligations of EU and Irish planning and environmental law, including those of the relevant land use plans (Development Plans, Local Area Plans</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
<p>area includes Dublin City and the following surrounding lands and counties: Dún Laoghaire-Rathdown, Fingal, Kildare, Meath, South Dublin and Wicklow. Projects such as the DART expansion programme, BusConnects Scheme, and investment at Dublin Port, amongst others are referenced. Key objectives of the plan include:</p> <ul style="list-style-type: none"> Managing sustainable growth of cities, towns and villages; Providing accessibility between key urban centres; and Enhance public transport in a sustainable manner 	<p>have the potential to lie either within those European sites, or be situated in a location where they may be within the Zol of those European sites.</p>	<p>etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans are Fingal DP (2023-2029), Dublin City DP (2022-2028), Meath CDP (2021-2027), and Louth CDP (2021 – 2027).</p> <p>All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2. This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below). Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the National Development Plan poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.</p>
<p>National Transport Authority Integrated Implementation Plan 2019-2024</p> <p>An infrastructure investment programme forms the core of this plan. There are four key investment areas: bus, light rail, heavy rail, and integration measures and sustainable transport. The NTA Integrated Implementation Plan refers to the delivery of projects in Dublin, such as the DART</p>	<p>There is the potential that developments implemented under this plan could affect European sites within the Zol of the Proposed Development. The potential impact pathways cannot be defined based on the level of detail included in the plan. However, future developments implemented through this plan have the potential to lie either within those European sites, or be situated in a</p>	<p>No in combination impact.</p> <p>Any projects required to achieve the objectives of this Plan must comply with the requirements and obligations of EU and Irish planning and environmental law, including those of the relevant land use plans (Development Plans, Local Area Plans etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
expansion program and GDA Cycle Network Plan, amongst others.	location where they may be within the Zol of those European sites.	<p>are Fingal DP (2023-2029), Dublin City DP (2022-2028), Meath CDP (2021-2027), and Louth CDP (2021 – 2027).</p> <p>All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2.</p> <p>This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below). Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the National Development Plan poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.</p>
<p>Smarter Travel a Sustainable Transport Future 2009-2020</p> <p>Smarter Travel is a government policy document outlining a strategy related to sustainable transport. It sets out actions to reduce overall travel demand, to maximise the efficiency of the transport network, to reduce reliance on fossil fuels, to reduce transport emissions, and to improve accessibility to transport.</p>	<p>There is the potential that developments implemented under Smarter Travel could affect European sites within the Zol of the Proposed Development. Smarter Travel does not propose or support any specific development proposals in identified locations and the potential impact pathways cannot be defined. However, future developments implemented through Smarter Travel have the potential to lie either within those European sites, or be situated in a location where they may be within the Zol of those European sites</p>	<p>No in combination impact.</p> <p>Any projects required to achieve the objectives of Smarter Travel must comply with the requirements and obligations of EU and Irish planning and environmental law, including those of the relevant land use plans (Development Plans, Local Area Plans etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans are Fingal DP (2023-2029), Dublin City DP (2022-</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
		<p>2028), Meath CDP (2021-2027), and Louth CDP (2021 – 2027).</p> <p>All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2.</p> <p>This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below). Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the National Development Plan poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.</p>
<p>Regional Spatial & Economic Strategy for the Eastern and Midland Region 2019-2031</p> <p>A RSES is a strategic plan which identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives. One of its main aims is to provide a framework to better manage spatial planning and economic development throughout the Region.</p>	<p>There is the potential that developments implemented under the Regional Spatial & Economic Strategy for the Eastern and Midland Region could affect European sites within the Zol of the Proposed Development. The Regional Spatial & Economic Strategy for the Eastern and Midland Region does not propose or support any specific development proposals in identified locations and the potential impact pathways cannot be defined. However, future developments implemented through the Regional Spatial & Economic Strategy for the Eastern and Midland Region have the potential to lie either within those</p>	<p>No in combination impact.</p> <p>Any projects required to achieve the objectives of the Regional Spatial & Economic Strategy for the Eastern and Midland Region will be implemented locally by the relevant local authority and must comply with the requirements and obligations of EU and Irish planning and environmental law, including those of the relevant land use plans (Development Plans, Local Area Plans etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans are Louth CDP (2021-2027), Meath CDP (2021-</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	European sites, or be situated in a location where they may be within the Zol of those European sites.	<p>2027), Dublin City CDP (2022-2028) and Fingal CDP (2023-2029).</p> <p>All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.</p> <p>This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below).</p> <p>Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the Regional Spatial & Economic Strategy for the Eastern and Midland Region poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.</p>
<p>National Biodiversity Action Plan 2022 - 2030</p> <p>The 4th National Biodiversity Action Plan “strives for a <i>whole of government</i> , <i>whole of society</i> approach to governance and conservation of biodiversity” sets out targeted actions within the framework, underpinned by five strategic objectives aimed at ensuring that Irelands’ biodiversity and ecosystems are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of</p>	<p>The purpose of this action plan is to halt the loss of biodiversity and the degradation of ecosystems therefore, it will contribute towards maintaining or restoring the conservation condition of the European sites within their Zol. Consequently, there are no potential impact pathways by which it could adversely affect the integrity of any European sites.</p>	<p>No in combination impact</p> <p>As the National Biodiversity Action Plan aims to halt biodiversity loss, no likely significant in combination effects with the Proposed Development are predicted.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
biodiversity and the degradation of ecosystems in the EU and globally. The strategic objectives lay out a clear framework for Ireland's national approach to biodiversity		
River Basin Management Plan 2018-2021 The River Basin Management Plan outlines the measures the State and other sectors will take to improve water quality in Ireland's groundwater, rivers, lakes, estuarine and coastal waters.	The purpose of this plan is to improve water quality in Ireland's groundwater, rivers, lakes, estuarine and coastal waters therefore, it will contribute towards maintaining or restoring the conservation condition of the European sites within their Zol. Consequently, there are no potential impact pathways by which it could adversely affect the integrity of any European sites.	No in combination impact No potential for in combination impacts with the Proposed Development as such a plan is intended to improve the quality of the ecological environment within its Zol.
National Air Pollution Control Programme (NAPCP) 2021 The National Air Pollution Control Programme (Article 6 of Directive (EU) 2016/2284 – 'the NEC Directive') is the main governance instrument by which EU Member States must ensure that the emission reduction commitments for 2020-2029 and 2030 onwards are met.	The purpose of this programme is to reduce emissions and improve air quality in Ireland therefore, it will contribute towards maintaining or restoring the conservation condition of the European sites within its Zol. Consequently, there are no potential impact pathways by which it could adversely affect the integrity of any European sites.	No in combination impact No potential for in combination impacts with the Proposed Development as such a plan is intended to improve the quality of the ecological environment within its Zol.
National Marine Planning Framework Project Ireland 2040 This framework is the first formal step towards the preparation of a marine spatial plan for Ireland which will contribute to the effective management of marine activities e.g., fishing, shipping, leisure, aquaculture and renewable energy, and a more sustainable use of our marine resources.	There is the potential that any developments implemented under the National Marine Planning Framework could affect European sites within the Zol of the Proposed Development. The National Marine Planning Framework does not propose or support any specific development proposals in identified locations and the potential impact pathways cannot be defined. However, any future developments implemented through the National Marine Planning Framework have the potential to lie either within those European sites, or be situated in a location where they may be within the Zol of those European sites.	No in combination impact Any projects required to achieve the objectives of the National Marine Planning Framework will be implemented by the relevant local or other consenting authorities and statutory bodies and must comply with the statutory planning or other legislative requirements, including those of any relevant land use plans. All of these plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2. This assessment has

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
		identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below). Considering the environmental protection policies included within the National Marine Planning Framework 2018, and in the county and local level land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the National Marine Planning Framework 2018 poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.
<p>Greater Dublin Area Transport Strategy 2022- 2042</p> <p>The Strategy, which replaces the 2016-2035 strategy, sets out the framework for investment in transport infrastructure and services over the next two decades to 2042. It has been developed to be consistent with National Planning Framework and spatial planning policies and objectives.</p>	<p>The Proposed Development lies partly within the functional areas of the Dublin City DP 2022-2028, Fingal Development Plan 2023 – 2029, Meath CDP 2021 – 2027, and Louth CDP 2021 – 2027, and many of the objectives and policies of the Greater Dublin Area Transport Strategy 2022- 2042, have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites. As assessed in Section 7 of the NIS, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites including:</p>	<p>No in combination impact.</p> <p>The Greater Dublin Area Transport Strategy 2020-2042 has undergone AA which concluded, subject to the mitigation proposed in the NIS being incorporated, there would be no adverse effects on any European sites as a result of implementation of the plan.</p> <p>The Greater Dublin Area Transport Strategy 2020-2042 contains objectives and policies to ensure the protection of European sites, including surface water quality, from any projects proposed within the plan area. These are presented in Section 8.2.</p> <p>Considering the protective environmental policies contained within the Greater Dublin Area Transport Strategy 2020-2042, and that alone the Proposed Development will not adversely affect the integrity of any European sites, this land use plan will not act in</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments the Proposed Development drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoye Bay SAC, Baldoye Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoye Bay SAC and Baldoye Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River</p>	<p>combination with the Proposed Development to adversely affect the integrity of any European sites. Any projects required to achieve the objectives of the Greater Dublin Area Transport Strategy 20020-2042 will be implemented locally by the relevant local authority and must comply with the requirements and obligations of EU and Irish planning and environmental law, including those of the relevant land use plans (Development Plans, Local Area Plans etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans are Fingal DP (2023-2029), Dublin City DP (2022-2028), Meath (2021-2027), and Louth CDP (2021-2027). All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2.</p> <p>This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below).</p> <p>Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the Greater Dublin Area Transport Strategy 2020-2042 poses no identifiable risk of resulting in adverse effects on the integrity of any</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA.</p> <p>Disturbance and displacement impacts (for example ex situ inland feeding sites which are utilised by SCI wintering bird species and otter within the potential disturbance ZOI of the Proposed Development; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p> <p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC.</p>	<p>European sites in combination with the Proposed Development.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
<p>2022 Greater Dublin Area Cycle Network</p> <p>The Greater Dublin Area Cycle Network Plan sets out the goals to promote and provide cycling infrastructure across the Greater Dublin Area, and the actions to achieve these goals.</p>	<p>The Proposed Development lies partly within the functional areas of the Dublin City DP 2022-2028, Fingal Development Plan 2023 – 2029, Meath CDP 2021 – 2027, and Louth CDP 2021 – 2027, and many of the objectives and policies of the Greater Dublin Area Transport Strategy 2022- 2042, have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites. As assessed in Section 7 of the NIS, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites including:</p> <p>Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments the Proposed Development drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoyle Bay SAC, Baldoyle Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown</p>	<p>No in combination impact.</p> <p>The 2022 Greater Dublin Area Cycle Network has undergone AA and therefore, subject to the mitigation proposed in the NIR being incorporated, there would be no adverse effects on any European sites as a result of implementation of the plan. These are presented in Section 8.2. of the NIS.</p> <p>Considering the protective environmental policies contained within the Greater Dublin Area Transport Strategy 2020-2042, and that alone the Proposed Development will not adversely affect the integrity of any European sites, this land use plan will not act in combination with the Proposed Development to adversely affect the integrity of any European sites. Any projects required to achieve the objectives of the Greater Dublin Area Transport Strategy 20020-2042 will be implemented locally by the relevant local authority and must comply with the requirements and obligations of EU and Irish planning and environmental law, including those of the relevant land use plans (Development Plans, Local Area Plans etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans are Fingal DP (2023-2029), Dublin City DP (2022-2028), Meath (2021-2027), and Louth CDP (2021-2027). All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SAC and Baldoyle Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA.</p> <p>Disturbance and displacement impacts (for example ex situ inland feeding sites which are utilised by SCI wintering bird species and otter within the potential disturbance ZOI of the Proposed Development; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p>	<p>This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below).</p> <p>Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the Greater Dublin Area Transport Strategy 2020-2042 poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC</p>	
<p>Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study 2011-2016</p> <p>This study includes the following main elements within the Eastern catchment:</p> <ol style="list-style-type: none"> 1. Flood Risk Assessments 2. Flood Risk Mapping 3. Flood Risk Management Plans 	<p>The Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study will ultimately result in the development of catchment- based flood risk management plans. These may propose flood risk management measures which, through various potential impact pathways, could affect the conservation objectives supporting QI/SCI habitats and species of spatially relevant European sites. Potential impacts include hydrological impacts e.g., reduction in water quality or changes to water flow.</p>	<p>No in combination impact</p> <p>CFRAM Studies and their product Flood Risk Management Plans have undergone AA. The AA of the CFRAMs considered the potential for impacts from hard engineering solutions and how they might affect hydrological connectivity and hydromorphological supporting conditions for protected habitats and species. Any projects required to achieve the objectives of CFRAM must comply with the requirements and obligations of EU and Irish planning and environmental law, including those of any relevant land use plans (Development Plans, Local Area Plans etc.).</p> <p>All of these land use plans contain objectives and policies to ensure the protection of European sites from</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
		<p>any projects proposed within the plan area. These are presented in Section 8.2.</p> <p>Considering this, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the CFRAMS will not act in combination with the Proposed Development to adversely affect the integrity of any European sites</p>
<p>Louth County Development Plan (LCDP) 2021-2027</p> <p>The LCDP 2021-2027 makes reference to makes reference to development, zoning and infrastructure targets / obligations.</p>	<p>The Proposed Development lies within the functional area of the LCDP 2017-2023. However many of the objectives and policies of the LCDP 2017-2023, have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites.</p> <p>As assessed in Section 7 of this report, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites:</p> <p>Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments the Proposed Development drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoyle Bay SAC, Baldoyle Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA,</p>	<p>No in combination impact.</p> <p>The LCDP 2021-2027 was subject to AA screening, and AA, prior to its adoption and therefore, subject to any mitigation identified as being required, there will be no adverse effects on any European sites as a result of implementation of the plan.</p> <p>The LCDP 2021-2027 contains objectives and policies to ensure the protection of European sites, including surface water quality, from any projects proposed within the plan area. These are presented in Section 8.2 and Section 8.</p> <p>Considering the protective environmental policies contained within the LCDP2017-2023, and that alone the Proposed Development will not adversely affect the integrity of any European sites, this land use plan will not act in combination with the Proposed Development to adversely affect the integrity of any European sites.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SAC and Baldoyle Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA;</p> <p>Disturbance and displacement impacts (for example <i>ex situ</i> inland feeding sites which are utilised by SCI wintering bird species and otter within the potential disturbance ZOI of the Proposed Development; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka</p>	

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p> <p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC</p>	
<p>Local Biodiversity Action Plan for County Louth 2021-2026</p> <p>The purpose of this action plan is to halt the loss of biodiversity and the degradation of ecosystems.</p>	<p>No, there are no potential impact pathways to European sites.</p> <p>This plan will contribute towards maintaining or restoring the conservation condition of the European sites within their Zol. Consequently, there are no potential impact pathways by which it could adversely affect the integrity of any European sites.</p>	<p>No in combination impact</p> <p>No potential for in combination impacts with the Proposed Development as such a plan is intended to improve the quality of the ecological environment within its Zol.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
<p>Dunleer Local Area Plan 2017-2023</p> <p>The LAP makes reference to phased housing development targets / obligations.</p> <p>(Policy CS16 of the LCDP 2021-2027 calls for the preparation of a new LAP for Dunleer – it is uncertain if this process has commenced)</p>	<p>The Proposed Development lies outside the functional area of the Dunleer LAP 2017-2023. However some of the objectives and policies of the Dunleer 2017-2023, have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites, e.g. habitat loss.</p> <p>As assessed in Section 6, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites:</p> <p>Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments the Proposed Development drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoye Bay SAC, Baldoye Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River</p>	<p>No in combination impact.</p> <p>The Dunleer LAP 2017-2023 was subject to AA screening, and AA, prior to its adoption and therefore, subject to any mitigation identified as being required, there will be no adverse effects on any European sites as a result of implementation of the plan.</p> <p>Following on from the LCDP 2015-2021 (now superseded by LCDP2021-2027) the Dunleer LAP 2017-2023 contains objectives and policies to ensure the protection of European sites, including surface water quality, from any projects proposed within the plan area. These are presented in Section 8.2.</p> <p>Considering the protective environmental policies contained within the Dunleer LAP 2017-2023, and that alone the Proposed Development will not adversely affect the integrity of any European sites, this land use plan will not act in combination with the Proposed Development to adversely affect the integrity of any European sites.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SAC and Baldoyle Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA;</p> <p>Disturbance and displacement impacts (for example <i>ex situ</i> inland feeding sites which are utilised by SCI wintering bird species and otter within the potential disturbance ZOI of the Proposed Development; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p> <p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown</p>	

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC</p>	
<p>Fingal Development Plan 2023-2029</p> <p>The Fingal CDP makes reference to residential development, zoning and infrastructure targets / obligations.</p>	<p>The Proposed Development lies within the functional area of the Fingal Development Plan 2023-2029. Some of the objectives and policies have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites.</p> <p>As assessed in Section 7 of this report, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites:</p> <p>Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments the Proposed Development</p>	<p>No in combination impact.</p> <p>The Fingal Development Plan 2023-2029 was subject to AA screening, and AA, prior to its adoption and therefore, subject to any mitigation identified as being required, there will be no adverse effects on any European sites as a result of implementation of the plan.</p> <p>The Fingal Development Plan 2023-2029 contains objectives and policies to ensure the protection of European sites, including surface water quality, from any projects proposed within the plan area. These are presented in Section 8.2.</p> <p>Considering the protective environmental policies contained within the Fingal Development Plan 2023-2029, and that alone the Proposed Development will not adversely affect the integrity of any European sites,</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoyle Bay SAC, Baldoyle Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SAC and Baldoyle Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA;</p> <p>Disturbance and displacement impacts (for example <i>ex situ</i> inland feeding sites which are utilised by SCI</p>	<p>this land use plan will not act in combination with the Proposed Development to adversely affect the integrity of any European sites.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>wintering bird species and otter within the potential disturbance Zol of the Proposed Development; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p> <p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC</p>	
<p>Fingal Biodiversity Action Plan 2022 - 2030</p> <p>The purpose of this action plan is to halt the loss of biodiversity and the degradation of ecosystems.</p>	<p>No, there are no potential impact pathways to European sites.</p> <p>This plan will contribute towards maintaining or restoring the conservation condition of the European sites within</p>	<p>No in combination impact</p> <p>No potential for in combination impacts with the Proposed Development as such a plan is intended to</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	their Zol. Consequently, there are no potential impact pathways by which it could adversely affect the integrity of any European sites.	improve the quality of the ecological environment within its Zol.
Fingal County Council Climate Action Plan 2024-2029 The purpose of this action plan is to improve the council's energy efficiency, reduce their greenhouse emissions and create a climate resilient Dublin.	No, there are no potential impact pathways to European sites. This plan will contribute towards improving the climate change resilience of the European sites within their Zol. Consequently, there are no potential impact pathways by which it could adversely affect the integrity of any European sites.	No in combination impact No potential for in combination impacts with the Proposed Development as such a plan is intended to improve the quality of the environment within its Zol.
Donabate Local Area Plan 2026³⁵ The LAP makes reference to phased housing development targets / obligations.	The Proposed Development lies within the functional area of the Donabate Local Area Plan. Some of the objectives and policies have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites. As assessed in Section 7 of this report, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites: Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in	No in combination impact. The Donabate LAP was subject to AA, prior to its adoption and therefore, subject to any mitigation identified as being required, there will be no adverse effects on any European sites as a result of implementation of the plan. The Donabate Local Area Plan 2016 contains objectives and policies to ensure the protection of European sites, including surface water quality, from any projects proposed within the plan area. Considering this, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the land use plan will not act in combination with the Proposed Development to adversely affect the integrity of any European sites.

³⁵ The Donabate Local Area Plan 2016 was extended to 2026

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>water quality in catchments the Proposed Development drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoye Bay SAC, Baldoye Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoye Bay SAC and Baldoye Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA;</p>	

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Disturbance and displacement impacts (for example ex situ inland feeding sites which are utilised by SCI wintering bird species and otter within the potential disturbance Zol of the Proposed Development; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p> <p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC.</p>	
Dublin City Development Plan 2022-2028	The Proposed Development lies within the functional area of the Dublin city Administrative Area and many of the	No in combination impact.

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
<p>The Dublin City DP makes reference to improvement of the public transport network and facilities for pedestrians and cyclists and targets / obligations to create strategic development and regeneration areas.</p>	<p>objectives and policies have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites.</p> <p>As assessed in Section 7 of this report, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites:</p> <p>Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments the Proposed Development drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoye Bay SAC, Baldoye Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-</p>	<p>The Dublin City Development Plan 2022-2028 was subject to AA, prior to its adoption and therefore, subject to any mitigation identified as being required, there will be no adverse effects on any European sites as a result of implementation of the plan. The Dublin City Development Plan 2022-2028 contains objectives and policies to ensure the protection of European sites, including surface water quality, from any projects proposed within the plan area.</p> <p>Considering the protective environmental policies contained within the Dublin City Development Plan 2022-2028, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the land use plan will not act in combination with the Proposed Development to adversely affect the integrity of any European sites.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SAC and Baldoyle Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA;</p> <p>Disturbance and displacement impacts (for example ex situ inland feeding sites which are utilised by SCI wintering bird species and otter within the potential disturbance ZOI of the Proposed Development; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p> <p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA,</p>	

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC</p>	
<p>Dublin City Biodiversity Action Plan 2021- 2025</p> <p>The purpose of this action plan is to halt the loss of biodiversity and the degradation of ecosystems.</p>	<p>No, there are no potential impact pathways to European sites. This plan will contribute towards maintaining or restoring the conservation condition of the European sites within their Zol. Consequently, there are no potential impact pathways by which it could adversely affect the integrity of any European sites.</p>	<p>No in combination impact</p> <p>No potential for in combination impacts with the Proposed Development as such a plan is intended to improve the quality of the ecological environment within its Zol.</p>
<p>Dublin City Council Climate Change Action Plan 2024-2029-2024</p> <p>The purpose of this action plan is to improve the council's energy efficiency, reduce their greenhouse emissions and create a climate resilient Dublin.</p>	<p>This plan will contribute towards improving the climate change resilience of the European sites within their Zol. While by and large the majority of the measures proposed in the plan will have a positive or supportive function for European sites, some of the proposals, have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites.</p> <p>The Proposed Development lies within the functional area of the Dublin city Administrative Area and many of the objectives and policies have the potential to act in</p>	<p>No in combination impact</p> <p>The plan is intended to improve the quality of the environment within its Zol.</p> <p>Any projects required to achieve the objectives of plan will be implemented by the relevant local or other consenting authorities and must comply with the statutory planning or other legislative requirements, including those of any relevant land use plans (Development Plans, Local Area Plans etc.). In the context of European sites within the Zol of the Proposed Development, the overarching land use plans</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites.</p> <p>As assessed in Section 7 of this report, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites:</p> <p>Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments the Proposed Development drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoyle Bay SAC, Baldoyle Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-</p>	<p>are Fingal DP (2023-2029), Dublin City DP (2022-2028), Meath CDP (2021-2027), Louth CDP (2021-2027).</p> <p>All of these land use plans contain objectives and policies to ensure the protection of European sites from any projects proposed within the plan area. These are presented in Section 8.2.</p> <p>This assessment has identified those land use plans that have the potential to act in combination with the Proposed Development to affect European sites, given their spatial jurisdiction (see discussions on the relevant land use plans in the sections below). Considering the environmental protection policies included within those land use plans, and that alone the Proposed Development will not adversely affect the integrity of any European sites, CFRAM poses no identifiable risk of resulting in adverse effects on the integrity of any European sites in combination with the Proposed Development.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SAC and Baldoyle Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA;</p> <p>Disturbance and displacement impacts (for example ex situ inland feeding sites which are utilised by SCI wintering bird species and otter within the potential disturbance ZOI of the Proposed Development; River Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p> <p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA,</p>	

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC</p>	
Meath County Development Plan 2021 – 2027	<p>The Proposed Development lies within the functional area of the Meath Administrative Area and many of the objectives and policies have the potential to act in combination with the Proposed Development, through a variety of potential impact pathways, to affect European sites.</p> <p>As assessed in Section 6, the Proposed Development will not adversely affect the integrity of any European site in isolation. Therefore, the potential for in combination effects to arise are limited to those effects the Proposed Development will have on the receiving environment that are measurable in some way, but themselves will not affect the conservation objectives of European sites:</p> <p>Habitat degradation / effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments the Proposed Development drains to affecting the conservation objectives supporting aquatic habitats and species in Baldoyle Bay SAC,</p>	<p>No in combination impact.</p> <p>The Meath County Development Plan 2021-2027 was subject to AA, prior to its adoption and therefore, subject to any mitigation identified as being required, there will be no adverse effects on any European sites as a result of implementation of the plan.</p> <p>The Meath County Development Plan 2021-2027 contains objectives and policies to ensure the protection of European sites, including surface water quality, from any projects proposed within the plan area.</p> <p>Considering the protective environmental policies contained within the Meath County Development Plan 2021-2027, and that alone the Proposed Development will not adversely affect the integrity of any European sites, the land use plan will not act in combination with</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Baldoyle Bay SPA, Boyne Coast and Estuary SAC, Boyne Estuary SPA, Codling Fault Zone SAC, Dalkey Islands SPA, Dundalk Bay SPA, Howth Head Coast SPA, Ireland's Eye SPA, Lambay Island SAC, Lambay Island SPA, Malahide Estuary SAC, Malahide Estuary SPA, North Bull Island SPA, North Dublin Bay SAC, River Boyne and River Blackwater SPA, River Nanny Estuary and Shore SPA, Rockabill SPA, Rockabill to Dalkey Island SAC, Rogerstown Estuary SAC, Rogerstown Estuary SPA, Saltee Islands SPA, Seas Off Wexford SPA, Skerries Islands SPA, South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, Stabannan-Braganstown SPA, The Murrough SPA, the North-West Irish Sea SPA, Wicklow Head SPA.</p> <p>.</p> <p>Habitat degradation as a result of introducing / spreading nonnative invasive species (for example to downstream European sites North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SAC and Baldoyle Bay SPA, Malahide Estuary SAC and Malahide Estuary SPA, Rogerstown Estuary SAC and Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, River Boyne and River Blackwater SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA;</p> <p>Disturbance and displacement impacts (for example ex situ inland feeding sites which are utilised by SCI wintering bird species and otter within the potential disturbance ZOI of the Proposed Development; River</p>	<p>the Proposed Development to adversely affect the integrity of any European sites.</p>

Plan Description	Are there potential impact pathways by which the Plan /Programme could act in combination with the Proposed Development to adversely impact European sites	Will the Plan/Programme act in combination with the Proposed Development to adversely affect the integrity of European sites
	<p>Boyne and River Blackwater SAC, Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, the South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Boyne Estuary SPA, Dalkey Island SPA, Dundalk Bay SPA, Ireland's Eye SPA, The Murrough SPA, Baldoyle Bay SPA, North Bull Island SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA and the North-West Irish Sea SPA;</p> <p>Direct injury/mortality related impacts of SCI species as a result of the Proposed Development of the following European sites; Malahide Estuary SPA, Rogerstown Estuary SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, Dundalk Bay SPA, Stabannan-Braganstown SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, the North-West Irish Sea SPA and the Murrough SPA; and</p> <p>The following European sites are European sites are potentially at risk of air quality during construction phase of the Proposed Development: Malahide Estuary SAC, Rogerstown Estuary SAC, Baldoyle Bay SAC, River Boyne and River Blackwater SAC</p>	
<p>County Meath Biodiversity Action Plan 2015-2020 (Still valid as per Meath planning portal website)</p>	<p>No, there are no potential impact pathways to European sites. This plan will contribute towards maintaining or restoring the conservation condition of the European sites within their ZOI. Consequently, there are no potential impact pathways by which it could adversely affect the integrity of any European sites.</p>	<p>No in combination impact</p> <p>No potential for in combination impacts with the Proposed Development as such a plan is intended to improve the quality of the ecological environment within its ZOI.</p>

8.2 Plan Level Environmental Protection Policies and Objectives

This section lists the overarching plan level environmental protection policies from the following plans: Eastern and Midland Region Assembly, Regional Spatial and Economic Strategy 2019-2023, the Meath County Development Plan 2021 – 2027, Louth County Development Plan 2021 – 2027, Fingal County Development Plan 2023 – 2029, and the Dublin City Development Plan 2022 – 2028.

The Proposed Development is compliant with all of the plan level biodiversity protection policies and objectives described above. Furthermore, the Proposed Development will not prevent the achievement of any of these plan level biodiversity protection policies and objectives across the identified potential impact pathways.

Eastern and Midland Region Assembly, Regional Spatial and Economic Strategy 2019-2023

- **Regional Policy Objective 3.4** - Ensure that all plans, projects and activities requiring consent arising from the Regional Spatial and Economic Strategy are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate. In addition the future strategic development of settlements throughout the Region will have full cognisance of the legal requirements pertaining to sites of International Nature Conservation Interest;
- **Regional Policy Objective 7.2** -To achieve and maintain 'Good Environmental Status' for marine waters and to ensure the sustainable use of shared marine resources in the Region, and to promote the development of a cross-boundary and cross-border strategic management and stakeholder engagement framework to protect the marine environment;
- **Regional Policy Objective 7.10**- Support the implementation of the Water Framework Directive in achieving and maintaining at least good environmental status for all water bodies in the Region and to ensure alignment between the core objectives of the Water Framework Directive and other relevant Directives, River Basin Management plans and local authority land use plans;
- **Regional Policy Objective 7.11**- For water bodies with 'high ecological status' objectives in the Region, local authorities shall incorporate measures for both their continued protection and to restore those water bodies that have fallen below high ecological status and areas 'At Risk' into the development of local planning policy and decision making any measures for the continued protection of areas with high ecological status in the Region and for mitigation of threats to waterbodies identified as 'At Risk' as part of a catchment based approach in consultation with the relevant agencies. This shall include recognition of the need to deliver efficient wastewater facilities with sufficient capacity and thus contribute to improved water quality in the Region;
- **Regional Policy Objective 7.12**- Future statutory land use plans shall include Strategic Flood Risk Assessment (SFRA) and seek to avoid inappropriate land use zonings and development in areas at risk of flooding and to integrate sustainable water management solutions (such as SuDS, nonporous surfacing and green roofs) to create safe places in accordance with the Planning System and Flood Risk Assessment Guidelines for Local Authorities;
- **Regional Policy Objective 7.15**- Local authorities shall take opportunities to enhance biodiversity and amenities and to ensure the protection of environmentally sensitive sites and habitats, including where flood risk management measures are planned;

- **Regional Policy Objective 7.16-** Support the implementation of the Habitats Directives in achieving an improvement in the conservation status of protected species and habitats in the Region and to ensure alignment between the core objectives of the EU Birds and Habitats Directives and local authority development plans;
- **Regional Policy Objective 7.22-** Local authority development plan and local area plans, shall identify, protect, enhance, provide and manage Green Infrastructure in an integrated and coherent manner and should also have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks and protected species;
- **Regional Policy Objective 10.6 -**Delivery and phasing of services shall be subject to the required appraisal, planning and environmental assessment processes and shall avoid adverse impacts on the integrity of the Natura 2000 network;
- **Regional Policy Objective 10.7-** Local authority core strategies shall demonstrate compliance with DHPLG Water Services Guidelines for local authorities and demonstrate phased infrastructure – led growth that is commensurate with the carrying capacity of water services and prevent adverse impacts on the integrity of water dependent habitats and species within the Natura 2000 network;
- **Regional Policy Objective 10.10 -**Support Irish Water and the relevant local authorities in the Region to eliminate untreated discharges from settlements in the short term, while planning strategically for long term growth in tandem with Project Ireland 2040 and in increasing compliance with the requirements of the Urban Waste Water Treatment Directive from 39% today to 90% by the end of 2021, to 99% by 2027 and to 100% by 2040;
- **Regional Policy Objective 10.11-** EMRA supports the delivery of the waste water infrastructure set out in Table 10.2, subject to appropriate environmental assessment and the planning process;³⁶
- **Regional Policy Objective 10.12-** Development plans shall support strategic wastewater treatment infrastructure investment and provide for the separation of foul and surface water networks to accommodate the future growth of the Region;
- **Regional Policy Objective 10.15-** Support the relevant local authorities (and Irish Water where relevant) in the Region to improve storm water infrastructure to improve sustainable drainage and reduce the risk of flooding in the urban environment and in the development and provision at a local level of Sustainable Urban Drainage solutions;
- **Regional Policy Objective 10.16-** Implement policies contained in the Greater Dublin Strategic Drainage Study (GDSDS), including SuDS; and
- **Regional Policy Objective 10.18 -**Local authorities shall ensure adequate surface water drainage systems are in place which meet the requirements of the Water Framework Directive and the associated River Basin Management Plans.

Louth County Development Plan 2021-2027

- **TOU 10 -** To work in conjunction with adjoining authorities including Newry, Mourne and Down District Council and Meath County Council to extend and design new walking and cycling routes, including the Great Eastern Greenway and the Boyne Greenway. Ensure all

³⁶ The Greater Dublin Drainage Project, the Ringsend Wastewater Treatment Plant Project, the Athlone Main Drainage Project and the Upper Liffey Valley Sewerage Scheme

proposals include appraisal of environmental impacts and take full account of the potential for negative impacts on European Sites through the process of Appropriate Assessment.

The above policy TOU 10 shall all be subject to compliance with all relevant EU policies such as the Water Framework, Birds, Habitats SEA & EIA Directives.

- **TOU 35** - To consider the potential environmental effects of a likely increase in tourists/tourism-related traffic volumes in particular locations/along particular routes shall be considered and mitigated as appropriate. Such a consideration should include potential impacts on existing infrastructure (including drinking water, wastewater, waste and transport) resulting from tourism proposals;
- **NBG 3** - To protect and conserve Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated under the EU Habitats and Birds Directives.
- **NBG 4** - To ensure that all Proposed Developments comply with the requirements set out in the DECLG 'Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities 2010';
- **NBG 5** - To ensure that no plan, programme, or project giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan, either individually or in combination with other plans, programmes or projects;
- **NBG 6** - To ensure a screening for Appropriate Assessment (AA) on all plans and/or projects and/or Stage 2 Appropriate Assessment (Natura Impact Report/ Natura Impact Assessment) where appropriate, is undertaken to make a determination. European Sites located outside of the County but within 15km of the Proposed Development site shall be included in such screenings as should those to which there are pathways, for example, hydrological links for potential effects;
- **NBG 7** - To co-operate with the Regional Planning Assembly and adjoining local authorities, public agencies and community interests to protect regionally significant heritage assets, environmental quality, and to identify threats to existing environmental quality in a transboundary context throughout the region including Northern Ireland;
- **NBG 9** - To ensure that proposals for development, where appropriate, protect and conserve biodiversity sites outside designated sites and require an appropriate level of ecological assessment by suitably qualified professionals to accompany development proposals likely to impact on such sites;
- **NBG 10** - To ensure that development proposals, where relevant, improve the ecological coherence of the Natura 2000 Network of European Sites and encourage the retention and management of landscape features as per Article 10 of the Habitats Directive;
- **NBG 11** - Where feasible, ensure that no ecological networks, or parts thereof, which provide significant connectivity between areas of local biodiversity, are lost without remediation as a result of implementation of this Plan;
- **NBG 12** - Prevent and control the spread of invasive plant and animal species within the County;
- **NBG 13** - Development sites must be investigated for the presence of invasive species, which if present must be treated and/or eradicated in accordance with best practice. Where appropriate, Invasive Species Management Plans will be prepared for such sites;

- **NBG 19** - To ensure that an appropriate level of ecological assessment is carried out for proposals involving drainage, infill or reclamation of wetland habitats;
- **NBG 42** -To require the use of and develop the green infrastructure network, and support re-establishing connectivity to ensure the conservation and enhancement of biodiversity and as a supplementary guide for the protection and conservation of the European Sites in County Louth;
- **NBG 44-** To protect, maintain, and enhance the natural and organic character of the watercourses in the County, including opening up to daylight where safe and feasible. The creation and/or enhancement of riparian buffer zones will be required where possible. All proposed coastal walkways will be required to comply with the Habitats, EIA and SEA Directives;
- **IU 4** - To support the provision, extension and upgrade of high quality water and wastewater services infrastructure for both existing and future developments within County Louth, consistent with the principles of sustainability, prioritising those centres where serious deficiencies are in evidence or where further sustainable development can be reasonably anticipated;
- **IU 5** - To support the extension or upgrading of existing water services infrastructure within the County (including those listed in the IW Investment Programme) and the provision of water services infrastructure in unserved settlements to assist in the proper planning and sustainable development of the County;
- **IU 19** - To require the use of Sustainable Drainage Systems to minimise and limit the extent of hard surfacing and paving and require the use of SuDS measures be incorporated in all new development (including extensions to existing developments). All development proposals shall be accompanied by a comprehensive SuDS assessment including run-off quantity, run off quality and impacts on habitat and water quality;
- **IU 20** - To require all development proposals meet the design criteria, (adjusted to reflect local conditions), and material designs contained in the Greater Dublin Strategic Drainage Study (GDSDS) and demonstrate how runoff is captured as close to source as possible with subsequent slow release to the drainage system and watercourse;
- **IU 21** - To seek to avoid the discharge of additional surface water to combined sewers and promote Sustainable Urban Drainage Systems (SuDS) and solutions to maximise the capacity of towns with combined drainage systems;
- **IU 22** - To ensure all new development incorporates appropriate measures to protect existing water bodies, through appropriate treatment of runoff. In particular, discharges from car parks shall be appropriately treated so as to remove pollutant materials;
- **IU 25** - To ensure that no development including clearing or storage of materials takes place within a minimum distance of 10m measured from each bank of any river, stream or watercourse;
- **IU 57** - To facilitate the development of wind energy in an environmentally sustainable manner ensuring proposals are consistent with the landscape preservation objectives of the Plan, the protection of the natural and built environment and the visual and residential amenities of the area;
- **ENV 8** - To ensure that all external lighting whether free standing or attached to a building shall be designed and constructed so as not to cause excessive light spillage, glare, or dazzle motorists, and thereby limiting light pollution into the surrounding environment and protecting the amenities of nearby properties, traffic and wildlife;

- **ENV 15** - To implement the recommendations contained in the River Basin District Management Plans for Ireland 2018-2021 or any subsequent plan. Proposed plans, programmes and projects shall not have an unacceptable impact on the water environment, including surface waters, groundwater quality and quantity, river corridors and associated woodlands. Also, to have cognisance of, where relevant, the EU's Common Implementation Strategy Guidance Document No. 20 and 36 which provide guidance on exemptions to the environmental objectives of the Water Framework Directive;
- **ENV 16** - To increase awareness through educational and other means so as to inform the public of the need and importance of maintaining the highest possible water quality standards;
- **ENV 17** - To implement the recommendations contained in any Groundwater Protection Scheme prepared under EU Ground Water Directives and to protect ground water resources in County Louth, nutrient sensitive areas and the designated shellfish growing areas within Carlingford Lough and Dundalk Bay; and
- **ENV 18** - To protect fisheries in all rivers in the County, where appropriate, including relevant species as contained in Annex II of the Habitats Directive.

Meath County Development Plan 2021-2027

- **HER POL 28** -To integrate in the development management process the protection and enhancement of biodiversity and landscape features wherever possible, by minimising adverse impacts on existing habitats (whether designated or not) and by including mitigation and/or compensation measures, as appropriate;
- **HER POL 31-** To ensure that the ecological impact of all development proposals on habitats and species are appropriately assessed by suitably qualified professional(s) in accordance with best practice guidelines – e.g. the preparation of an Ecological Impact Assessment (EclA), Screening Statement for Appropriate Assessment, Environmental Impact Assessment, Natura Impact Statement (NIS), species surveys etc. (as appropriate);
- **HER POL 32-** To permit development on or adjacent to designated Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas, Statutory Nature Reserves or those proposed to be designated over the period of the Plan, only where the development has been subject to the outcome of the Appropriate Assessment process and has been carried out to the satisfaction of the Planning Authority, in consultation with National Parks and Wildlife;
- **HER POL 33** - To have regard to the views and guidance of the National Parks and Wildlife Service in respect of Proposed Development where there is a possibility that such development may have an impact on a designated European or National site or a site proposed for such designation;
- **HER POL 34-** To undertake appropriate surveys and collect data to provide an evidence-base to assist the Council in meeting its obligations under Article 6 of the Habitats Directives (92/43/EEC) as transposed into Irish Law, subject to available resources;
- **HER OBL 33-** To ensure an Appropriate Assessment in accordance with Article 6(3) and Article 6(4) of the Habitats Directives (92/43/EEC) and in accordance with the Department of Environment, Heritage and Local Government Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009 and relevant EPA and European Commission guidance documents, is carried out in respect of any plan or project not directly connected with or necessary for the management of the site but likely to have a significant

effect on a Natura 2000 site(s), either individually or in-combination with other plans or projects, in view of the site's conservation objectives;

- **HER OBL 34-** To protect and conserve the conservation value of candidate Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed Natural Heritage Areas as identified by the Minister for the Department of Culture, Heritage and the Gaeltacht and any other sites that may be proposed for designation during the lifetime of this Plan in accordance with the provisions of the Habitats and Birds Directives and to permit development in or affecting same only in accordance with the provisions of those Directives as transposed into Irish Law;
- **HER POL 35-** To ensure, where appropriate, the protection and conservation of areas, sites, species and ecological/networks of biodiversity value outside designated sites and to require an appropriate level of ecological assessment by suitably qualified professional(s) to accompany development proposals likely to impact on such areas or species;
- **HER POL 36-** To consult with the National Parks and Wildlife Service and take account of their views and any licensing requirements, when undertaking, approving or authorising development which is likely to affect plant, animal or bird species protected by law;
- **HER OBJ 35-** To ensure that development does not have a significant adverse impact, incapable of satisfactory avoidance or mitigation, on plant, animal or bird species protected by law;
- **HER OBJ 60-** To encourage, pursuant to Article 10 of the Habitats Directive (92/43/EEC), the management of features of the landscape, such as traditional field boundaries, important for the ecological coherence of the Natura 2000 network and essential for the migration, dispersal and genetic exchange of wild species;
- **INF POL 9-** To consider the potential for the provision of temporary water treatment facilities for new developments but only where a permanent solution has already been identified and committed to by Irish Water but has not yet been implemented. The provision of such temporary facilities shall only be considered where the solution is environmentally sustainable and would not affect the quality status of water sources. Adequate provision shall be made by the developer for the operation and maintenance of the proposed temporary facility for the duration of its required existence and thereafter for its decommissioning and removal from site;
- **INF OBJ 6-** To liaise and work in conjunction with Irish Water in their implementation of water conservation measures;
- **INF OBJ 7-** To promote the sustainable use of water and water conservation in existing and new development within the County and encourage demand management measures among all water users;
- **INF OBJ 8-** To protect both ground and surface water resources and work with Irish Water to develop and implement Water Safety Plans to protect sources of public water supply and their contributing catchment;
- **INF POL 11-** To liaise and work in conjunction with Irish Water during the lifetime of the Plan in the provision, upgrading or extension of wastewater collection and treatment systems in the County to serve existing and planned future populations and enterprise in accordance with the requirements of the Core and Settlement Strategies;
- **INF OBJ 12-** The Planning Authority shall consider the provision of temporary wastewater treatment facilities for new developments only in circumstances where a permanent solution is identified and committed to by Irish Water. The temporary solution shall only be considered where it is deemed to be environmentally sustainable and would not affect the water quality

status of receiving waters. Adequate provision shall be made by the developer for the operation and maintenance of the temporary facility for the duration of the operation of the required infrastructure;

- **INF POL 16-** To ensure that all planning applications for new development have regard to the surface water management policies provided for in the GDSDS;
- **INF OBJ 14-** To require the use of SuDS within Local Authority Developments and other infrastructural projects in accordance with the Greater Dublin Regional Code of Practice for Drainage Works;
- **INF OBJ 15-** To require the use of SuDS in accordance with the Greater Dublin Regional Code of Practice for Drainage Works for new developments (including extensions);
- **INF OBJ 19-** To ensure that developments permitted by the Council which involve discharge of wastewater to surface waters or groundwaters comply with the requirements of the EU Environmental Objectives (Surface Waters) Regulations and EU Environmental Objectives (Groundwater) Regulations;
- **INF POL 29-** To facilitate the provision of new, or the reinforcement of existing flood defences and protection measures where necessary and in particular to support the implementation of flood schemes being progressed through the planning process during the lifetime of the Plan. The provision of flood defences will be subject to the outcome of the Appropriate Assessment process;
- **INF OBJ 22-** To ensure flood relief measures are suitably designed to protect the conservation objectives of Natura 2000 sites, and to avoid direct or indirect impacts upon qualifying interests or Natura 2000 sites;
- **INF OBJ 25-** To require the use of Sustainable Urban Drainage Systems (SuDS) to minimise and limit the extent of hard surfacing and paving and require the use of sustainable drainage techniques where appropriate, for new development or for extensions to existing developments, in order to reduce the potential impact of existing and predicted flooding risks;
- **INF POL 33-** To protect recognised salmonid water courses (in conjunction with Inland Fisheries Ireland) such as the Boyne and Blackwater catchments, which are recognised to be exceptional in supporting salmonid fish species;
- **INF OBJ 30-** To ensure the County's natural coastal defences, such as beaches, sand dunes, salt marshes and estuary lands, are protected and are not compromised by inappropriate works or forms of development; and
- **INF OBJ 36-** To protect and develop, in a sustainable manner, the existing groundwater sources and aquifers in the County and manage development in a manner consistent with the sustainable management of these resources in conformity with the EU Environmental Objectives (Groundwater) Regulations 2010 and the second cycle National River Basin Management Plan 2018-2021, and any subsequent plan and the Groundwater Protection Scheme.

Dublin City Development Plan 2022 – 2028

- **SI2:** To support and facilitate Irish Water to ensure the upgrading of wastewater infrastructure, in particular the upgrading of the Ringsend Wastewater Treatment Plant, and to support the development of the Greater Dublin Regional Wastewater Treatment Plant, the North Docklands Sewage Scheme, the Marine Outfall and orbital sewer to be located in the northern part of the Greater Dublin Area to serve the Dublin region as part of the Greater Dublin Strategic Drainage Strategy;

- SI3: To ensure that development is permitted in tandem with available water supply and wastewater treatment and to manage development, so that new schemes are permitted only where adequate capacity or resources exists or will become available within the life of a planning permission;
- SI7: To promote the progressive reduction of pollution of groundwater and prevent its further pollution;
- SI17: To require an environmental assessment of all proposed flood protection or flood alleviation works;
- SI18: To require the use of Sustainable Urban Drainage Systems in all new developments, where appropriate, as set out in the Greater Dublin Regional Code of Practice for Drainage Works. The following measures will apply:
 - The infiltration into the ground through the development of porous pavement such as permeable paving, swales, and detention basins
 - The holding of water in storage areas through the construction of green roofs, rainwater harvesting, detention basins, ponds, and wetlands
 - The slow-down of the movement of water;
- GI2: That any plan/project, either individually or in combination with other plans or projects that has the potential to give rise to significant effect on the integrity of any European site(s), shall be subject to an appropriate assessment in accordance with Article 6(3) and 6(4) of the EU Habitats Directives;
- GI23: To protect flora, fauna and habitats, which have been identified by Articles 10 and 12 of Habitats Directive, Birds Directive, Wildlife Acts 1976–2012, the Flora (Protection) Order 2015 S.I No. 356 of 2015, European Communities (Birds and Natural Habitats) Regulations 2011 to 2015;
- GI23: To protect flora, fauna and habitats, which have been identified by Articles 10 and 12 of Habitats Directive, Birds Directive, Wildlife Acts 1976–2012, the Flora (Protection) Order 2015 S.I No. 356 of 2015, European Communities (Birds and Natural Habitats) Regulations 2011 to 2015; and
- GI26: To have regard to the conservation and enhancement of significant non-designated areas of ecological importance in accordance with development standards set out in this plan.

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- Objective GINHO3 – Biodiversity in Open Space: Make provision for biodiversity within public open space and include water sensitive design and management measures (including SuDS) as part of a sustainable approach to open space design and management;
- Policy GINHP12 – Protected Sites: Protect areas designated or proposed to be designated as Natura 2000 sites (i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, and Refuges for Fauna;
- Objective GINHO27 – National Parks and Wildlife Service: Support the National Parks and Wildlife Service, in the maintenance and achievement of favourable conservation status for the habitats and species in Fingal by taking full account of the requirements of the Habitats and Birds Directives, in the performance of its functions;
- Objective GINHO28 – Protection of Natural Heritage Areas: Ensure that development does not have a significant adverse impact on proposed Natural Heritage Areas (pNHAs), Natural

Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Habitat Directive Annex I sites and Annex II species contained therein, and on rare and threatened species including those protected by law and their habitats;

- Policy GINHP17 – Protection of European and National Sites: Strictly protect areas designated or proposed to be designated as Natura 2000 sites (i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); also known as European sites) including any areas that may be proposed for designation or designated during the lifetime of this Plan;
- Objective GINHO33 – Annex I and Annex II: Ensure that development does not have a significant adverse impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Habitat Directive Annex I sites and Annex II species contained therein, and on rare and threatened species including those protected by law and their habitats; and
- Objective GINHO35 – Appropriate Assessment In accordance with Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities 2010, any plans or projects that are likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects, are subject to a screening for Appropriate Assessment unless they are directly connected with or necessary to the management of a Natura 2000 site.

9. NIS CONCLUSION

This NIS has examined and analysed, in light of the best scientific knowledge, with respect to those European sites within the zone of influence of the Proposed Development, the potential impact sources and pathways, the manner in which these could potentially impact on the European sites' Qualifying Interest habitats, and species and Special Conservation Interest species and whether the predicted impacts would adversely affect the integrity of Malahide Estuary SAC [000205], Rogerstown Estuary SAC [000208], River Boyne and River Blackwater SAC [002299], Baldoyle Bay SAC [000199], Boyne Coast and Estuary SAC [001957], Rockabill to Dalkey Island SAC [003000], Lambay Island SAC [000204], North Dublin Bay SAC [000206], South Dublin Bay SAC [000210], Codling Fault Zone SAC [003015], River Nanny Estuary and Shore SPA [004158], Boyne Estuary SPA [004080], South Dublin Bay and River Tolka Estuary SPA [004024], Howth Head Coast SPA [004113], North Bull Island SPA [004006], Baldoyle Bay SPA [004016], Dalkey Island SPA [004172], Malahide Estuary SPA [004025], Rogerstown Estuary SPA [004015], Dundalk Bay SPA [004026], Skerries Islands SPA [004122], Ireland's Eye SPA [004117], Lambay Island SPA [004069], Rockabill SPA [004014], The Murrough SPA [004186], Stabannan-Braganstown SPA [004091], and the North-West Irish Sea SPA [004236], River Boyne and River Blackwater SPA [004232], the Seas Off Wexford SPA [004237], Wicklow Head SPA [004127], and Saltee Islands SPA [004002]

There are no other European sites at risk of effects from the Proposed Development.

Avoidance, design requirements and mitigation measures are set out within this NIS [and its appendices] and the effective implementation of these mitigation measures will ensure that any impacts on the conservation objectives of European sites will be avoided during the Construction and Operation phases of the Proposed Development, such that there will be no adverse effects on any European sites.

It has been objectively concluded by Scott Cawley Ltd., following an examination, analysis and evaluation of the relevant information, including in particular the nature of the predicted impacts from the Proposed Development and the effective implementation of the mitigation measures proposed, that the Proposed Development will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects and there is no reasonable scientific doubt in relation to this conclusion.

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