



# Appropriate Assessment Natura Impact Statement

February 2023



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# Acronyms and Abbreviations

AA	Appropriate Assessment
ABP	An Bord Pleanála
APIS	Authorisation for Placing in Service
ASA	Applications for Safety Approvals
ASP	Auxiliary Supply Points
BNHR	Birds and Natural Habitats Regulations
BIWQ	Biotic Index of Water Quality
BPM	Best Practicable Means
BS	British Standard
BSI	British Standard Institution
CCE	Chief Civil Engineer
CCTV	Closed Circuit Television
CDWMP	Construction and Demolition Waste Management Plan
CEMP	Construction Environmental Management Plan
CFA	Continuous Flight Auger
CIÉ	Córas Iompair Éireann
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CLO	Community Liaison Officer
CME	Chief Mechanical Engineer
CMS	Cable Management System
CO	Conservation Objective
COR	Certificate of Registration
CRR	Commission for Railway Regulation
CTC	Centralised Traffic Control centre
CTMP	Construction Traffic Management Plan
CWR	Continuous Welded Rail
DART	Dublin Area Rapid Transport (IÉ's Electrified Network)
DC	Direct Current



DCC	Dublin County Council
DMU	Diesel Multiple Unit
DMURS	Design Manual for Urban Roads and Streets
DEHLG	Department of Environment, Heritage and Local Government
DPC	Dublin Port Company
DRI	Distribution Regulator Installation
E & B	Earthing and Bonding
EC	European Communities
ECoW	Environmental Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMC	Electromagnetic Compatibility
EMP	Environmental Management Plan
EMS	Environmental Management System
EMU	Electrical Multiple Unit
EOP	Environmental Operating Plan
EPA	Environmental Protection Agency
EQR	Environmental Quality Ratio
ER	Employer's Representative
ESB	Electricity Supply Board
EU	European Union
FLIRT	Fast Light Intercity and Regional Train
FLU	Full Length Unit
GDA	Greater Dublin Area
GFA	Gross Floor Area
GIS	Geographic Information Systems
GNI	Gas Networks Ireland
GRP	Glass Reinforced Plastic
GSWR	Great Southern and Western Rail Line
GWB	Groundwater body
HDD	Horizontal Direction Drill
HETAC	Higher Education and Training Awards Council

HGV	Heavy Good's Vehicle
IAPS	Invasive Alien Plant Species
ICT	Information and Communications Technology
IÉ	Iarnród Éireann
IEF	Important Ecological Features
IFI	Inland Fisheries Ireland
IROPI	Imperative Reasons of Overriding Public Interest
IRP	Incident Response Plan
KCC	Kildare County Council
KRP	Kildare Route Project
LOC	Location Cases
LSE	Likely Significant Effects
LV	Low Voltage
MEP	Mechanical, Electrical and Plumbing
MMP	Mobility Management Plan
MDSC	Main Distribution and Storage Compound
NBDC	National Biodiversity Data Centre
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
NTA	National Transport Authority
NTCC	National Train Control Centre
OBJ	Object Controller
OHLE	Overhead Line Equipment
OPW	Office of Public Works
P & C	Points and Crossings
PPP	Pollution Prevention Plan
PPT	Phoenix Park Tunnel
PSCS	Project Supervisor Construction Stage
PSDP	Project Supervisor Design Process
PSP	Principal Supply Points
PW	Permanent Way
QI	Qualifying Interests

QMS	Quality Management System
RAMS	Risk Assessments and Method Statements
RM	Resource Manager
RO	Railway Order
RPA	Root Protection Areas
RS	Rolling Stock
RWMP	Resource & Waste Management Plan
SAC	Special Areas of Conservation
SAT	Site Acceptance Test
SCI	Special Conservation Interests
SDCC	South Dublin County Council
SDZ	Strategic Development Zone
SDRA	Strategic Development Regeneration Area
SEB	Signalling Equipment Building
SEM	Site Environmental Manager
SER	Signalling Equipment Room
SET	Signalling, Electricity and Telecoms
SHD	Strategic Housing Development
SID	Strategic Infrastructure Development
SMCP	Stakeholder Management and Communication Plan
SPA	Special Protection Areas
S-P-R	Source-Pathway-Receptor
SSRS	Small Streams Risk Score
STC	Single Track Cantilevers
SuDS	Sustainable Urban Drainage Systems
T & C	Testing and Commissioning
TER	Telecom Equipment Room
TII	Transport Infrastructure Ireland
TPHPD	Trains per Hour per Direction
TSI	Technical Specifications for Interoperability
TSR	Temporary Speed Restriction
TTA JV	TYPSA, TUC RAIL and ATKINS Design Joint Venture
TTC	Twin Track Cantilevers

UGC	Underground Cables
UTX	Under Track Crosses
VLD	Voltage Limiting Device
VRS	Vehicle Restraint Systems
WFD	Water Framework Directive
Zol	Zone of Influence

# 1. Introduction

Córas Iompair Éireann, hereafter referred to as CIÉ or ‘the Applicant’, is applying to An Bord Pleanála (ABP) (“the Board”) for a Railway Order (RO) for the DART+ South West Project (“the proposed Project”) under the Transport (Railway Infrastructure) Act 2001 (as amended and substituted). The 2001 Act has been amended to take account of the 2014 EIA Directive and the requirements relating to the preparation of an EIAR, by the European Union (EU) (Railway Orders) (Environmental Impact Assessment) (Amendment) Regulations 2021 (S.I. No. 743 of 2021).

The TTA-JV (Tynsa, Tuc Rail and Atkins Joint Venture) supported by RPS have been commissioned by CIÉ to prepare, on its behalf, the RO application including a Natura Impact Statement (NIS) – Stage 2 – for the DART+ South West Project (hereafter referred to as “the proposed Project”) in accordance with relevant EU and national legislation, associated guidelines and standards.

The purpose of this report is to inform the Competent Authority – An Bord Pleanála – for its determination on Appropriate Assessment (AA). This report assesses whether the proposed Project, alone or in-combination with other plans and projects, will have an adverse effect on the integrity of any European site(s) in view of best scientific knowledge and the Conservation Objectives (CO) of the site(s).

This NIS comprises a report on the scientific examination of evidence and will identify and classify any implications on European sites listed in Section 0 in view of their CO. The assessment will identify any potential for impacts that may adversely affect the integrity of European sites.

The NIS has been prepared by Dr. Miles Newman (BSc (Hons), MSc, PG Dip, PhD, CEnv, MCIEEM), a Principal Ecologist with RPS and has over 12 years of experience. The Principal Ecologist has been supported by a team of suitably qualified and experienced ecologists.

## 1.1. Legislative Context

### 1.1.1. Appropriate Assessment

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as “The Habitats Directive”, and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds, better known as “The Birds Directive”, provide legal protection for habitats and species of European importance. Ireland has given effect to or transposed the Habitats and Birds Directives through Part XAB of the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as amended (“the BNHR”).

Section 177U(2)(b) of the Planning and Development Act 2000 (as amended) provides that the Competent Authority (in this case An Bord Pleanála - which grants the Railway Order) shall carry out a screening for appropriate assessment under section 177U(1) of the PDA 2000 before consent for proposed development is given. Section 177U(8)(f) of the PDA 2000 then defines ‘consent for proposed development as *inter alia* including approval for development under section 43 of the Transport (Railway Infrastructure) Act 2001.



The BNHR 2011 were amended inter alia by the European Union (Birds and Natural Habitats) (Sea-fisheries) Regulations 2013 (S.I. No. 290 of 2013); the European Communities (Birds and Natural Habitats) (Amendment) Regulations 2013 (S.I. No. 499 of 2013); the European Communities (Birds and Natural Habitats) (Amendment) Regulations 2015 (S.I. No. 355 of 2015); Chapter 4 of the Planning, Heritage and Broadcasting (Amendment) Act 2021 (No.11 of 2021) and the European Union (Birds and Natural Habitats) (Amendment) Regulations 2021 (S.I. No. 293 of 2021).

#### 1.1.1.1. The Habitats Directive

The Habitats Directive” provides protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of a European Union (EU)-wide network of sites known as Natura 2000 (hereafter referred to as ‘European sites’).

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to have a significant effect on or to adversely affect the integrity of European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (AA):

*“Any plan or project not directly connected with or necessary to the management of the [European] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In 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.”*

Article 6(4) states:

*“If, in spite of a negative assessment of the implications for the [European] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.”*

Each European site has assigned Conservation Objectives (CO) and a list of Qualifying Interests (QI) or Special Conservation Interests (SCI). The CO concept appears in the eighth recital of Directive 92/43/EEC which reads: *“whereas it is appropriate, in each area designated, to implement the necessary measures having regard to the conservation objectives pursued”*. Article 1 then explains that *“conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status”*.

The National Parks and Wildlife Service (NPWS) publish CO for European sites on their website. NPWS advise in the general introductory notes of their site-specific conservation objectives (SSCO) series publications, that an appropriate assessment based on their *“published conservation objectives will remain valid even if the CO targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out”*. NPWS advise that to assist in that regard, it is essential that the date and version are included when objectives are cited. In the context of the proposed Project, the requirement (to screen) for AA under the Habitats Directive is transposed by the

Planning and Development Act 2000 (as amended); ‘the Planning Acts’, and the and the Planning and Development Regulations 2001 (as amended).

Under Section 177V (1) of the Planning Development Act 2000 (as amended) the competent authority shall determine under Article 6.3 of the Habitats Directive as to whether or not, a proposed development, would adversely affect the integrity of a European site.

Under Section 177V (2) the competent authority shall take into account each of the following matters in their AA determination:

- (a) The NIS (defined below);
- (b) Any supplemental information furnished in relation to an NIS;
- (c) If appropriate, any additional information sought by the planning authority and furnished by the applicant in relation to a NIS;
- (d) Any additional information furnished to the competent authority at its request in relation to a NIS;
- (e) Any information or advice obtained by the competent authority;
- (f) If appropriate, any written submissions or observations made to the competent authority in relation to the application for consent for proposed development; and
- (g) Any other relevant information.

Under the Planning and Development Act 2000 (as amended), section 177T, an NIS is defined as “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’. The NIS must ‘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.”

## 1.2. Stages of Appropriate Assessment

The Department of the Environment, Heritage and Local Government (DEHLG) Guidelines (DEHLG, 2010) outlines the European Commission’s methodological guidance (EC, 2021), promoting a four-stage process to complete the AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

The four stages are summarised diagrammatically in Figure 1.1 below, and an outline of the steps and procedures involved in completing each stage follows.

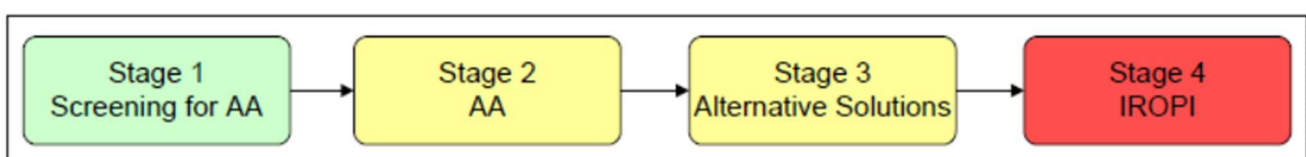


Figure 1.1 Four stages of Appropriate Assessment (from DEHLG (2010)).

### **Stage 1: Screening/Test of Significance**

This process identifies whether the proposed Project is directly connected to or necessary for the management of a European site(s) and identifies whether the development is likely to have significant impacts upon a European site(s) either alone or in combination with other projects or plans.

The output from this stage is a determination for each European site(s) of not significant, significant, potentially significant, or uncertain effects. The latter three determinations will cause the proposed Project to be taken forward to Stage 2 of the assessment process.

The Screening for AA for the proposed Project is provided under separate cover.

### **Stage 2: Appropriate Assessment**

This stage considers the impact of the proposed Project on the integrity of a European site(s), either alone or in combination with other projects or plans, with respect to: (i) the site's COs; and (ii) the site's structure, function and its overall integrity. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts is undertaken.

The output from this stage is a NIS. This document must include sufficient information for the competent authority to carry out the AA. If the assessment is negative, (i.e. adverse effects on the integrity of a site cannot be excluded), despite the application of measures to reduce or eliminate adverse effects, and if it is to proceed it must go to Stage 3.

This report is the output of Stage 2, AA. The steps for Stage 2 AA broadly follow those adopted by EC (2021) and DEHLG (2010) (see Section 3.1):

- Step 1 – Information Required (Section 6.1 to 6.2);
- Step 2 – Present CO (Section 6.4);
- Step 3 – Predicted Effects (Section 6.5);
- Step 4 – Describe Mitigation Measures (Section 7);
- Conclusion (Section 8).

### **Stage 3: Assessment of Alternatives**

This process examines alternative ways of achieving the objectives of the proposed Project that avoid adverse impacts on the integrity of the European site. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or if all alternatives would result in negative impacts to the integrity of the European sites, then the process either moves to Stage 4 or the proposed Project is abandoned.

### **Stage 4: Assessment where Adverse Impacts Remain**

This stage includes the identification of compensatory measures being demonstrated for the proposed Project, in the context of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

#### **1.2.1. Summary of Steps**

To recap, Article 6(3) of the Habitats Directive provides for a two-stage process when it comes to a competent authority's consideration and evaluation of the implications of a proposed 'plan or project'

for an area protected under the Habitats Directive.<sup>1</sup> The first stage involves a screening for appropriate assessment: a ‘stage 1 screening’ and this document addresses Stage 1 only.

The second stage is the ‘Stage 2 appropriate assessment’ and arises where, having ‘screened’ the application/development proposal, the competent authority determines that an appropriate assessment is required, in which case it must then carry out that appropriate assessment.

The two stages have been considered by the Superior Courts in Ireland in numerous cases; the following cases set out the key questions and tests to be applied by the competent authority at each stage:

- *Kelly (Ted) v. An Bord Pleanála* [2014] IEHC 400 (High Court, Finlay-Geoghehan J.);
- *Connelly v. An Bord Pleanála* [2018] IESC 31 (Supreme Court, Clarke CJ.);
- *Kelly (Eoin) v-An Bord Pleanála* [2019] IEHC 84 (High Court, Barniville, J.).

The 2014 decision of the High Court in *Kelly (Ted) v An Bord Pleanála* was based on a detailed review of the provisions of the Habitats Directive and of the caselaw of the Court of Justice of the European Union (CJEU) and of the implementing provisions in Ireland.<sup>2</sup> The approach and analysis of the High Court was also approved by the Supreme Court in *Connelly* (2018).

### Stage 1: Screening for Appropriate Assessment

The following principles apply to the stage 1 screening for appropriate assessment. These are taken principally from the analysis of the High Court in *Kelly (Eoin) v An Bord Pleanála* (2019) which, of the three decisions referenced above, is the decision in which the earlier stage, that is the stage 1 screening for appropriate assessment, was most in issue.

- i. Measures which are not permitted to be taken into account at the screening stage are those measures which are intended to avoid or reduce the harmful effects of the particular plan or project envisaged on the relevant European sites. (While there is no reference in Article 6(3) of the Habitats Directive to the concept of a ‘mitigation measure’, such measures are sometimes generally referred to as ‘mitigation measures’);
- ii. The threshold test is that an appropriate assessment will be required if the proposed development is *‘likely to have a significant effect’* on a European Site either individually or in combination with other plans or projects;
- iii. The triggering of the requirement to proceed to the Stage 2 appropriate assessment is not dependent on a determination that the proposed development will *definitely* have significant effects on a European Site; such a requirement (for the Stage 2 appropriate assessment) will arise if significant effects are a *‘mere probability’* (in this regard, Barniville J. noted that the CJEU decision in *Waddenzee*<sup>3</sup> referred to *‘a probability or a risk’*);
- iv. In light of the precautionary principle, such a *‘risk’* exists if *‘it cannot be excluded on the basis of objective information’* that the development *‘will have significant effects’* on a European Site. (underscoring added);
- v. In Ireland, section 177U(4) of the Planning and Development Act 2000 (“PDA 2000”) employs the expression *‘cannot be excluded’*. Under section 177U(4), an appropriate

<sup>1</sup> The term ‘European Site’ is used and is taken from the Planning and Development Act 2000 (as amended).

<sup>2</sup> Contained in Part XAB of the Planning and Development Act 2000.

<sup>3</sup> *Waddenzee* (Case C-127/02) [2004] ECR I-07405

assessment will be required if, on the basis of objective information, a 'significant effect', on a European Site 'cannot be excluded';

- vi. Under section 177U(5) PDA 2000 an appropriate assessment will not be required if, on the basis of objective information, a 'significant effect' on a European Site, 'can be excluded';
- vii. In the case of 'doubt as to the absence of significant effects' an appropriate assessment must be carried out. The requirement to conduct appropriate assessment will arise where, at screening stage, it is ascertained that the particular development is 'capable of having any effect' (albeit this must be any 'significant effect') on the European site;
- viii. The 'possibility' of there being a 'significant effect' on the European Site will give rise to a requirement to carry out an appropriate assessment for the purposes of Article 6(3). There is no need to 'establish' such an effect and it is merely necessary to determine that there 'may be' such an effect;
- ix. In order to meet the threshold of likelihood of significant effect, the word 'likely' in Article 6(3) Habitats Directive and section 177U(1) PDA 2000 should be read as being *less than the balance of probabilities*. The test does not require any 'hard and fast evidence that such a significant effect is likely'. It merely has to be shown there is a 'possibility' that this significant effect is likely;
- x. The assessment of whether there is a risk of 'significant effect' on the European Site must be made in light, *inter alia*, of the 'characteristics and specific environmental conditions of the site concerned' by the relevant plan or project;
- xi. Plans or projects or applications for developments which have 'no appreciable effect' on the protected site are excluded from the requirement to proceed to appropriate assessment. If all applications for permission for proposed developments capable of having 'any effect whatsoever' on the protected site were to be caught by Article 6(3) (or section 177U) 'activities on or near the site would risk being impossible by reason of legislative overkill.'<sup>4</sup>;
- xii. While the threshold at the screening stage of Article 6(3) and section 177U is 'very low',<sup>5</sup> nonetheless it is a threshold which must be met before it is necessary to proceed to the Stage 2 appropriate assessment.

The following principles apply to the Stage 2 process:

## Stage 2: Appropriate Assessment

The Stage 2 appropriate assessment is the consideration of whether there is an adverse effect on the integrity of (a) European Site(s). The threshold at the second stage is 'noticeably higher than that laid down at the first stage'<sup>6</sup>.

This stage assesses whether a plan or project, either alone or in combination with other plans and projects, would adversely affect the integrity of (a) European Site(s) in view of the Site's conservation objectives.

The determination which the competent authority makes on this issue in the Stage 2 appropriate assessment determines its jurisdiction to undertake the decision on the development consent. Unless

<sup>4</sup> Per Barniville J. at para 68 of *Kelly (Eoin) v An Bord Pleanála* [2019] IEHC 84, referencing the Opinion of Advocate General Sharpston in *Sweetman & Others v An Bord Pleanála* (Case C-258/11) ECLI: EU:C:2012:743

<sup>5</sup> Per Barniville J. at para 68 of *Kelly (Eoin) v An Bord Pleanála* [2019] IEHC 84, referencing (1) the Opinion of Advocate General Sharpston *Sweetman & Others v An Bord Pleanála* (Case C-258/11) ECLI: EU:C:2012:743 (para 49) and (2) the decision of Finlay-Geoghegan J. in *Kelly (Ted) v An Bord Pleanála* [2014] para 30.

<sup>6</sup> *Sweetman & Others v An Bord Pleanála* (Case C-258/11) ECLI: EU:C:2012:743



the Stage 2 appropriate assessment determination is that the proposed development will not adversely affect the integrity of any relevant European Site, the competent authority may not take a decision giving consent for the proposed development.

An appropriate assessment carried out under the Irish legislation must meet the requirements of Article 6(3) of the Habitats Directive as set out and interpreted in the CJEU caselaw. Hence, an appropriate assessment conducted in Ireland, in order to reflect and be compliant with the findings of the CJEU caselaw on Article 6(3), must (in terms of approach and methodology) include an *examination, analysis, evaluation, findings, conclusions, and a final determination*.<sup>7</sup>

There are four distinct requirements in the Stage 2 appropriate assessment decision. After reviewing and approving the analysis of Finlay-Geoghegan J. in *Kelly (Ted) v An Bord Pleanála* (2014), Clarke CJ. (in *Connelly*) distilled these to precisely the following:

- First, the appropriate assessment must identify, in the light of the best scientific knowledge in the field, all aspects of the development project which can, by itself or in combination with other plans or projects, affect the European site in the light of its conservation objectives.
- Second, there must be complete, precise, and definitive findings and conclusions regarding the previously identified potential effects on any relevant European Site. As a matter of EU law, there is a separate obligation to make specific scientific findings which allow the subsequent conclusion to be reached.
- Third, on the basis of those findings and conclusions, the competent authority must be able to determine that no scientific doubt remains as to the absence of the identified potential effects.
- Fourth and finally, where the preceding requirements are satisfied, the competent authority may determine that the proposed development will not adversely affect the integrity of any relevant European site.

Clarke CJ emphasised in *Connelly* '...there seems, as a matter of EU law, to be a separate obligation to make specific scientific findings which allow that conclusion to be reached.' Therefore, the overall conclusion which must be reached before the competent authority has jurisdiction to grant a development consent after an appropriate assessment is that all scientific doubt about the potential adverse effects on the sensitive area have been removed.

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<sup>7</sup> CJEU in *Waddenzee* (Case C-127/02) [2004] ECR I-7405, *Commission v. Spain* (Case C-404/09) [2011] E.C.R. I-11853 and *Sweetman* (Case C-258/11)

## 2. Description of the Project

The second of the infrastructural projects of the DART+ Programme to be delivered will be the DART+ South West Project, the subject of this report. The proposed Project will require modernisation and modifications to the existing railway infrastructure. There is a range of general linear works required along the full length of the proposed Project to enable the electrification of the line and the upgrade of the existing network.

### 2.1. DART+ South West Overview

The DART+ Programme is a key transportation improvement scheme to form a high-quality and integrated public transport system. It will generate benefits for the residents of the Greater Dublin Area (GDA) 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 (Dublin Area Rapid Transport) network is circa 50km long, extending from Malahide/Howth to Bray/Greystones and 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, resignalling and certain interventions to remove constraints across the four main rail corridors within the GDA, as per below:

- DART+ South West (this Project) – 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 North – circa 50km from Drogheda to the City Centre.
- DART+ Coastal South – circa 30km from Greystones to the City Centre.
- DART+ Fleet – purchase of new electrified fleet to serve new and existing routes.

The proposed Project will complete four tracking between Park West & Cherry Orchard Station and Heuston Station, in addition to resignalling and electrification of the entire route. The completion of the four tracking will remove a significant existing constraint on the line, which is currently limiting the number of train services that can operate on this route. DART+ South West will also deliver track improvements along the Phoenix Park Tunnel Branch Line, which will allow a greater number of trains to access the city centre.

Upon completion of the electrification of the DART+ South West route, new DART trains will be used on this railway corridor, similar to those currently operating on the Malahide/Howth to Bray/Greystones Line. DART+ South West will improve performance and increase train and passenger capacity on the route between Hazelhatch & Celbridge Station and Heuston Station and through the Phoenix Park Tunnel Branch Line to the City Centre, covering a distance of circa 20km. Figure 2.1 provides a schematic layout of the proposed DART+ South West project.

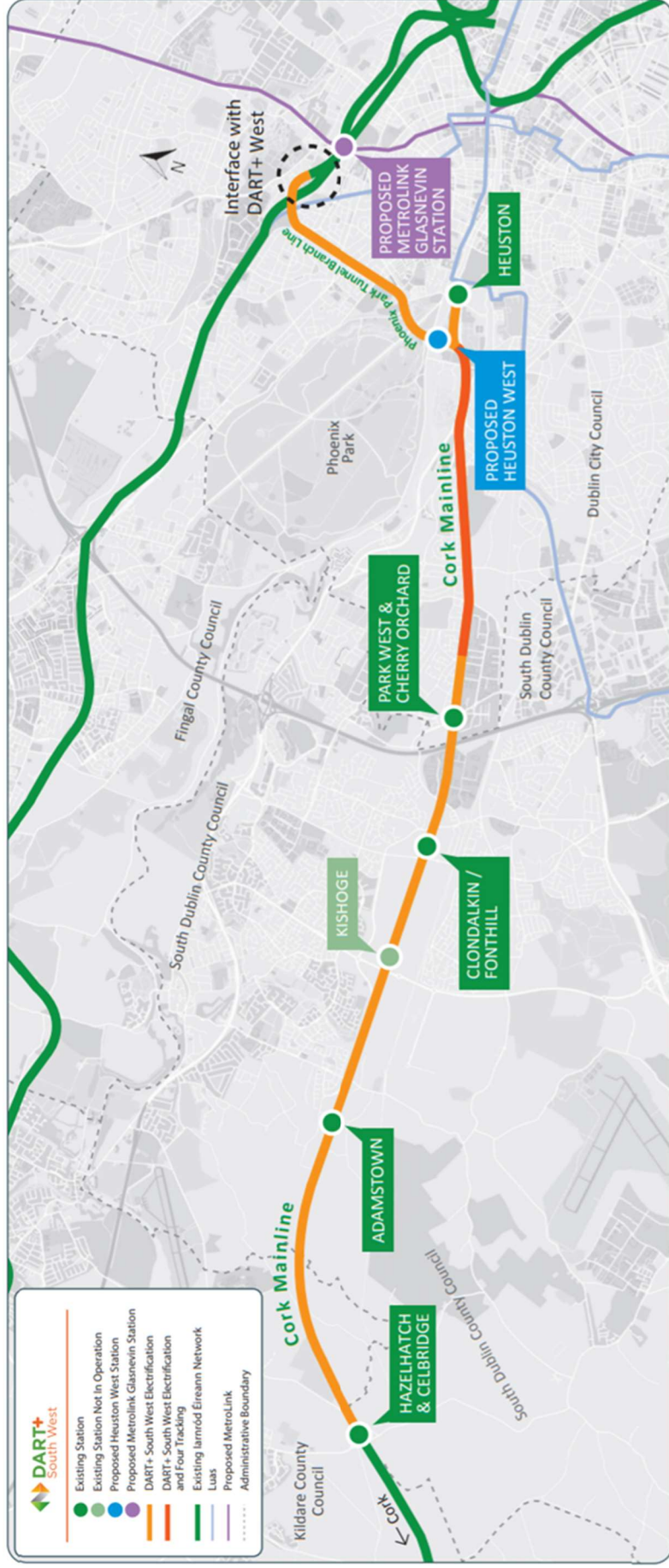


Figure 2.1: DART+ South West

## 2.2. Project Description

A full description of the proposed Project, the construction strategy, the Construction Environmental Management Plan (CEMP) and the proposed Project drawings are provided in Appendices A, B, C and D respectively. This is in line with Section 42A the Transport (Railway Infrastructure) Act 2001 (as amended), which provides for a 'coordinated assessment'.

The proposed Project has been divided into four main geographic areas (Zones A to D), which delineate the rail corridor from west to east as outlined in Appendix A. The four zones are as follows:

- Zone A - Hazelhatch & Celbridge Station to Park West & Cherry Orchard Station (refer to Appendix A);
- Zone B - Park West & Cherry Orchard Station to Heuston Station (incorporating Inchicore Works) (refer to Appendix A);
- Zone C – Heuston Yard & Station (incorporating New Heuston West Station) (refer to Appendix A); and
- Zone D - Liffey Bridge to Glasnevin Junction (Phoenix Park Tunnel Branch Line) (refer to Appendix A).

## 3. Methodology

### 3.1. Appropriate Assessment Guidance and Legislation

Both EU and national guidance exist in relation to Member States' fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this AA has had regard to the following guidance and legislation:

#### Guidance

- DEHLG (2009, rev. 2010) *Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government;
- EC (2000) *Communication from the Commission on the Precautionary Principle*. Office for Official Publications of the European Communities, Luxembourg;
- EC (2006) Nature and biodiversity cases: Ruling of the European Court of Justice;
- EC (2007a) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission;
- EC (2007b) Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. European Commission, Luxembourg;
- EC (2014) Article 6 of the Habitats Directive: Rulings of the European Court of Justice;
- EC (2018) *Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*, Office for Official Publications of the European Communities, Luxembourg. European Commission;
- EC (2021) Commission Notice. Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission.
- NPWS (2013) Ireland's Summary Report for the period 2008 – 2012 under Article 12 of the Birds Directive. National Parks and Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland;
- NPWS (2019a) The Status of Protected EU Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished Report, National Parks & Wildlife Services. Department of Culture, Heritage and the Gaeltacht, Dublin;
- NPWS (2019b) The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished Report, National Parks and Wildlife Service. Department of Culture, Heritage and the Gaeltacht, Dublin; and
- NPWS (2019c) The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished Report, National Parks and Wildlife Service. Department of Culture, Heritage and the Gaeltacht, Dublin.



There have been significant changes to AA practice since both the EC (2001) and the DEHLG (2010) guidance, arising from practice and rulings in European and Irish courts. These changes have been considered in the preparation of this report.

## 3.2. Relevant European Sites

### 3.2.1. Establishing a Zone of Influence

The Zone of Influence (Zoi) is defined as described in the report to inform AA Screening (RPS, 2022). In order to establish the Zoi of the proposed Project, nationally available data on protected habitats and species were mapped using Geographic Information Systems (GIS). These data were interrogated for source-pathway-receptor (S-P-R) connectivity, where:

- The ‘source’ is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features and its COs;
- The ‘pathway’ is defined as the means or route by which a source can affect the ecological receptor; and
- The ‘receptor’ is defined as the SCI of Special Protection Areas (SPAs) or QI of Special Areas of Conservation (SACs) for which COs have been set for the European sites being screened.

A S-P-R model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The S-P-R model was used to identify a list of European sites, and their QIs/SCIs, with potential links to European sites. These are termed as ‘relevant’ European sites/QI/SCI throughout this report.

### 3.2.2. Adverse Effects on the Integrity of European Sites

The European Commission’s 2018 Notice (EC, 2019) advises that the purpose of the appropriate assessment is to assess the implications of the plan or project in respect of the site’s CO, either individually or in-combination with other plans or projects. The conclusions should enable the competent authorities to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus of the appropriate assessment is therefore specifically on the species and/or the habitats for which the European site is designated.

EC (2018) also emphasises the importance of using the best scientific knowledge when carrying out the appropriate assessment in order to enable the competent authorities to conclude with certainty that there will be no adverse effects on the integrity of the site. This guidance notes that it is at the time of adoption of the decision authorising implementation of the project that there must be no reasonable scientific doubt remaining as to the absence of adverse effects on the integrity of the site in question.

As regards the meaning of ‘integrity’, this clearly relates to ecological integrity. This can be considered as a quality or condition of being whole or complete. In a dynamic ecological context, it can also be considered as having the sense of resilience and ability to evolve in ways that are favourable to conservation.

The ‘integrity of the site’ can be usefully defined as (EC, 2018):

*“the coherent sum of the site’s ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated”.*

EC (2018) notes that if the competent authority considers the mitigation measures are sufficient to avoid the adverse effects on site integrity identified in the appropriate assessment, they will become an integral part of the specification of the final plan or project or may be listed as a condition for project approval.

EC (2020) advises that it is for the competent authorities, in the light of the conclusions made in the appropriate assessment on the implications of a plan or project for the European site concerned, to approve the plan or project. This decision can only be taken after they have made certain that the plan or project will not adversely affect the integrity of the site. That is the case where no reasonable scientific doubt remains as to the absence of such effects.

EC (2020) also reaffirms that the authorisation criterion laid down in the second sentence of Article 6(3) of the Habitats Directive integrates the precautionary principle and makes it possible effectively to prevent the protected sites from suffering adverse effects on their integrity as the result of the plans or projects. A less stringent authorisation criterion could not as effectively ensure the fulfilment of the objective of site protection intended under that provision. The onus is therefore on demonstrating the absence of adverse effects rather than their presence, reflecting the precautionary principle. It follows that the appropriate assessment must be sufficiently detailed and reasoned to demonstrate the absence of adverse effects, in light of the best scientific knowledge in the field.

### 3.2.3. Consideration of *ex-situ* effects

EC (2018) advises that Member States, both in their legislation and in their practice, allow for the Article 6(3) safeguards to be applied to any development pressures, including those which are external to European sites, but which are likely to have significant effects on any of them.

The Court of Justice of the European Union (CJEU) developed this point when it issued a ruling in case C-461/17 (“Brian Holohan and Others v An Bord Pleanála”) that determined *inter alia* that Article 6(3) of Directive 92/43/EEC must be interpreted as meaning that an AA must on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed Project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the CO of the site.

In that regard, consideration has been given in this Stage 2 appraisal to inform appropriate assessment to implications for habitats and species located both inside and outside of the European sites considered in the screening appraisal with reference to those sites’ COs where effects upon those habitats and/or species are liable to affect the COs of the sites concerned.

### 3.2.4. Conservation Objectives

The COs for each European site are to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the site has been selected.

- The favourable conservation status 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.

The COs of European sites published by the NPWS in Ireland note that an AA based on the most up to date COs will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out.

The most up-to-date COs for the European sites being considered have been used in this NIS. Details in relation to the QIs of SACs is based on publicly available data sourced from the NPWS website.

### 3.2.5. In-Combination Effects

Article 6(3) of the Habitats Directive requires that in-combination effects with other plans or projects are also considered. As set out in EC (2018), significance will vary depending on factors such as magnitude of impact, type, extent, duration, intensity, timing, probability, cumulative effects and the vulnerability of the habitats and species concerned.

EC (2021) notes that cumulative environmental effects can be defined as effects on the environment caused by the combined action of past, current and future activities. Although the effects of one development may not be significant, the combined effects of several developments together can be significant.

EC (2021) also notes that *“in-combination provision concerns other plans or projects that have been already **completed, approved but uncompleted, or proposed** (i.e. for which an application for approval or consent has been submitted). “In addition to the effects of the plans or projects that are the main subject of the assessment, it may be appropriate to consider the effects of already completed plans and projects, including those preceding the date of transposition of the directive or the date of designation of the site. The effects of such completed plans and projects would typically form part of the site’s baseline conditions which are considered at this stage”.*

Plans and projects that have been approved in the past but have not yet been implemented or completed should be included in the in-combination provision. As regards other proposed plans or projects, on grounds of legal certainty it would seem appropriate to restrict the ‘in combination’ provision to plans that have been proposed, (i.e. for which an application for approval or consent has been submitted) (EC, 2021).

This mirrors the advice contained in EC (2018) which advises that other plans or projects which are completed, approved but uncompleted, or proposed should be considered. EC (2018) specifically advises that “as regards other proposed plans or projects (i.e. other projects not proposed by the Applicant), on grounds of legal certainty it would seem appropriate to restrict the in-combination provision to those which have been actually proposed, i.e. for which an application for approval or consent has been introduced”.

The ability for impacts arising from the proposed Project to overlap with those from other projects, plans and activities to result in adverse effects are considered. This means that, in most examples, an overlap of the physical extents of the impacts arising from the two (or more) projects, plans or activities must be established for an in-combination effect to arise. For example, for a cumulative sedimentation effect to be established between the proposed Project and another project, it must be established that the extent of sediment release from both projects has the potential to overlap and may affect a receptor at the same location.

Exceptions to this exist for certain mobile receptors that may move between, and be subject to, two or more separate physical extents of impact from two or more projects. For example, species such as otter may be affected by water quality impacts from the proposed Project, as well as those from other projects where the extent of another area affecting water quality does not directly overlap with that of the proposed Project. Where relevant, mitigation is proposed as necessary to prevent adverse in-combination effects from occurring.

### 3.3. Consultation

Throughout both the design and the environmental assessment processes, there were consultations both with the statutory consultees, the NPWS and Inland Fisheries Ireland (IFI), and other relevant stakeholders.

Public consultation was conducted as part of the early-stage design of the proposed Project.

The stakeholder and public consultation undertaken in respect of the proposed Project is set out in the Public Consultation No. 1 Findings Report (for PC1) and Public Consultation No. 2 Findings Report (for PC2). All feedback was collated, including feedback specific to the EIA topic ‘Biodiversity’.

In addition to feedback related to PC1 and PC2, feedback was also sought on the EIA Scoping Report issued to environmental stakeholders in November 2021. The topic of Biodiversity and Appropriate Assessment was also discussed as part of pre application meetings with An Bord Pleanála.

A summary of the specific consultations in relation to Biodiversity and AA, relevant to the NIS is presented in Table 3.1.

**Table 3.1: Consultation Summary in relation to Biodiversity and Appropriate Assessment**

Consultee	Key Issues Identified in Response
Development Applications Unit (NPWS)	<p>The Development Applications Unit (NPWS) responded by e-mail (23<sup>rd</sup> June 2021) to the First Public Consultation phase (PC1) on the Emerging Preferred Option and identified the following points:</p> <ul style="list-style-type: none"> <li>• Railway corridors in urban areas, as they normally encompass strips of uncultivated ground on railway cuttings and embankments, frequently act as refuges for flora and fauna and route ways along which plants and animals penetrate into built-up areas.</li> </ul>

Consultee	Key Issues Identified in Response
	<ul style="list-style-type: none"> <li>• Therefore, because of this significance of railway corridors for biodiversity, including potentially protected species, detailed floral and faunal surveys will be required of the rail corridors.</li> <li>• Such surveys should particularly concentrate on the section of rail line between Park West and Heuston Stations, where it is proposed to widen the rail corridor.</li> </ul>
Inland Fisheries Ireland (IFI)	<p>IFI responded by letter (13<sup>th</sup> Dec 2021) to the EIA Scoping Report and identified the following points:</p> <ul style="list-style-type: none"> <li>• The project will transect many important river systems in particular River Liffey and its tributaries.</li> <li>• IFI must be consulted of any works that may directly affect the watercourses or riparian habitats (e.g. surface water discharge).</li> <li>• IFI should be consulted in relation to any proposal that may manipulate the surface water channel and instream works must be carried out between July to September.</li> <li>• Essential watercourse crossings where instream works are proposed will be carried out between July to September. Any utility diversions required should be done by directional drilling to protect riverine habitats. Timing constraints do not apply to directional drilling at any time of year unless otherwise stated by IFI.</li> <li>• Environmental construction management planning is required to ensure no negative impact on the surface water flora and fauna during construction and operation.</li> <li>• Guideline's documentation: Planning for watercourses in urban environment &amp; River restoration works.</li> <li>• IFI also stated the following:  <i>"It would be important to ensure that mitigation measures are put in place at all locations and stages of the project to ensure the protection and conservation of the aquatic habitats located therein".</i>  <i>"We refer you to our guidance document entitled Guidelines on the Protection of Fisheries during construction works in and adjacent to waters"</i> </li> </ul>
An Bord Pleanála	Pre-application meeting No. 3 (17 <sup>th</sup> June 2021) with An Bord Pleanála. The proposed approach to the topic of Biodiversity to be addressed in the EIAR and AA was presented to ABP in the form of a project presentation. This included the Biodiversity Study Area – Zol.
An Bord Pleanála	Pre-application meeting No. 7 (1 <sup>st</sup> March 2022) with An Bord Pleanála. An update to the topic of Biodiversity to be addressed in the EIAR and AA was presented to ABP in the form of a project presentation. ABP was advised that a Stage 2 NIS is currently being prepared as part of the proposed Project. Detailed Surveys that have been undertaken (Habitats, Flora, and Invasive Alien Plant Species (IAPS)) were presented to ABP along with detailed Bat Surveys, noting that surveys were ongoing for evidence of roosting and bat activity.

### 3.4. Ecological Data

#### 3.4.1. Desk Study

A desk study was completed to assess the potential for all QIs and SCIs of European sites to occur, given their ecological requirements identified by Balmer *et al.*, (2013) for SCIs, and the NPWS for QIs (NPWS, 2019a, b, c).

SCI Birds and mobile QI species can travel many kilometres from their core areas, and desktop surveys assessed the potential presence of such species beyond the European sites for which they are QIs/SCIs. Desktop studies had particular regard for the following sources:



- EPA online interactive mapping tool<sup>8</sup>;
- Information on ranges of mobile QI populations in Volume 1 of NPWS Status of EU Protected Habitats and Species in Ireland (NPWS, 2019a), and associated digital shapefiles obtained from the NPWS Research Branch;
- Information on ranges of mobile SCIs bird populations from Bird Atlas 2007–11 (Balmer *et al.*, 2013), excluding birds of prey whose ranges were determined with reference to Hardey *et al.*, (2013);
- Mapping of European site boundaries and COs for relevant sites in County Dublin and beyond, as relevant, available online from the NPWS;
- Distribution records for QI and SCI species of European sites held online by the National Biodiversity Data Centre (NBDC)<sup>9</sup>;
- Data including surface and ground water quality status, and river catchment boundaries available from the online database of the EPA;
- National and regional surveys of semi-natural habitats, including grasslands (O'Neill *et al.*, 2013), saltmarsh (McCorry and Ryle, 2009; Devaney and Perrin, 2015), and woodland (Perrin *et al.*, 2008); and
- Boundaries for catchments with confirmed or potential freshwater pearl mussel (FWPM) *Margaritifera* populations in GIS format available online from the NPWS.

### 3.4.2. Field Study

This report is informed by detailed ecological surveys of the proposed Project, carried out by RPS Ecologists on various dates and across seasons between 2020 and 2022 (see Appendix E). Surveys were carried out for terrestrial and aquatic flora and fauna, during the optimum seasons (where possible) which have provided information on the existing environment.

The surveys assessed the potential for all QI/SCI of European sites and third schedule invasive species<sup>10</sup> to occur, given their ecological requirements identified by Balmer *et al.*, (2013) for birds, and the NBDC and NPWS for all other species/habitats (NPWS, 2019a, b, c). The surveys included checks of suitable habitats for all highly mobile QI/SCI species potentially occurring.

Field surveys relevant to the QI/SCI in this statement are summarised in Table 3.2 below and the findings of the site visits for QI/SCI for relevant European sites are provided in Section 4.4.

<sup>8</sup> Available online at <https://gis.epa.ie/EPAMaps/default>. Accessed April 2022.

<sup>9</sup> Assessing records up to 10 years old (from date of search), for an area of 5 km from the Project site. Available online at: <https://maps.biodiversityireland.ie/Map>, Accessed April 2022.

<sup>10</sup> Regulation 49 of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011) as amended specifically relate to the control of IAS listed in the Third Schedule (lists 59 species (including plants and animals)).

**Table 3.2: Summary of Field Surveys completed relevant to this NIS**

Field Survey Focus	Extent of Survey	Overview of Survey	Survey Contractor	Date(s)
Habitats	Extent of proposed Project and environs.	Habitat classification to Fossitt (2000).	RPS	August and November 2020; May, June, August, and September 2021; May 2022
Protected Flora	Extent of proposed Project and environs.	Assessment of potential for species listed in Annex II of Habitats Directive.	RPS	August and November 2020; May, June, August, September 2021 and May 2022
Invasive alien plants and animals	Extent of the proposed Project and environs.	Identification of Third Scheduled species of European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).	RPS	August and November 2020; May, June, August, September 2021 and May 2022
Aquatic (Freshwater ecology survey)	All watercourses crossed by the proposed Project.	Macroinvertebrate Survey (3 min Kick sample and 2 min Stone wash). Q value assessment.	RPS	August 2021

### 3.4.3. Difficulties Encountered/Limitations

#### 3.4.3.1. Desk study

Sources of desk study information are neither exhaustive nor necessarily easily available, and an extensive effort was made to obtain ecological data in the public domain to inform the description of the baseline environment and its assessment. Additional information, not in the public domain, is likely to exist, but could not be obtained or assessed here. This limitation is acknowledged and incorporated into the assessment and is deemed to not affect the certainty or predictability of the assessment.

#### 3.4.3.2. Field surveys

The receiving environment (i.e. baseline condition) may naturally vary through seasons and between years (NRA, 2008). All reasonable effort has been made to address this (e.g. combined use of desk and field survey data), and the limitation is acknowledged. Once incorporated into the assessment the limitation is deemed to not affect the certainty or predictability of the assessment.

In cases where field survey was not possible, desk study resources were assessed (satellite imagery, LIDAR imagery, and Google Maps Street view), professional judgement and supplemented where possible using binoculars from accessible lands. As a result, a precautionary approach has been applied to the assessment when considering impacts in these areas. This limitation is acknowledged and incorporated into the assessment and is deemed to not affect the certainty or predictability of the assessment.

## 4. Baseline Description

This section details the desktop and field survey results, in order to describe the relevant receiving environment of the proposed Project. The relevant receiving environment relates to anything that may be directly or indirectly linked to the QIs/SCIs of relevant European sites.

### 4.1. Relevant European Sites

Potential connectivity between the European sites and the proposed Project follows the source-pathway receptor model (S-P-R).

Ten European sites identified within the Zol do not support connectivity to the proposed Project through any environmental pathways (see Table 4.1). These sites included Glenasmole Valley SAC, Rye Water Valley/Carton SAC, Red Bog Kildare SAC, Rogerstown Estuary SAC, Malahide Estuary SAC, Ballynafagh Bog SAC, Wicklow Mountains SAC, Poulaphouca Reservoir SPA, Wicklow Mountains SPA and Malahide Estuary SPA. Taking the characteristics and habitat requirements of the QI/SCIs into account, these sites were not considered further in Section 5.

The proposed Project does however support connectivity to twelve European sites, namely, Baldoyle Bay SAC, Ireland's Eye SAC, South Dublin Bay SAC, Howth Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Baldoyle Bay SPA, Ireland's Eye SPA, Howth Head Coast SPA and Dalkey Islands SPA. Consequently, these 12 European sites are identified to have potential adverse effects on qualifying features and are assessed further in this report. Relevant European sites and their associated relevant QI/SCIs are shown in Figure 4.1 and listed in Table 4.1 below.

Table 4.1: European sites considered in this assessment

Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
<b>Glenasmole Valley SAC [001209]</b> , located 8.54km south of the proposed Project, CO - Generic Version 7.0 [07/04/20] (NPWS, 2020a)	Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco Brometalia</i> ) (* important orchid sites)* [6210]	To maintain or restore the favourable conservation condition.	No.  Site is located upstream and is separated from the p proposed Project by existing river water bodies and groundwater bodies.
	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> ) [6410]		
	Petrifying springs with tufa formation ( <i>Cratoneurion</i> )* [7220]		
<b>Rye Water Valley/Carlton SAC [001398]</b> , located 2.9km north of the proposed Project, CO - Generic Version 7.0 [07/04/20] (NPWS, 2020b)	Petrifying springs with tufa formation ( <i>Cratoneurion</i> )* [7220]	To maintain or restore the favourable conservation condition.	No.  Site is located upstream of the proposed Project but is connected via the Dublin Groundwater body (GWB). This GWB consists of general flow paths over a distance of less than a kilometre and flow toward the nearest surface water body (i.e. the River Liffey) which is directly adjacent to and/or intersects the proposed Project.  Where groundwater discharges to surface water, it then flows toward the coast.  It is highly unlikely that groundwater flow from the proposed Project will interact with this SAC and therefore, connectivity between the proposed Project and this SAC is ruled out.
	Narrow-mouthed Whorl Snail <i>Vertigo angustior</i> [1014]		
	Desmoulin's Whorl Snail <i>Vertigo moulinsiana</i> [1016]		
<b>Red Bog, Kildare SAC [000397]</b> , located	Transition mires and quaking bogs [7140]	To maintain the favourable conservation condition.	No.

Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
12.4km southwest of the proposed Project, CO - Specific Version 1.0 [17/07/19]. (NPWS, 2019d)			Site is separated from the proposed Project by existing river water bodies and groundwater bodies.
<b>Rogerstown Estuary SAC [000208]</b> , located 15km north east of the proposed Project, CO - Specific Version 1.0 [14/08/13]. (NPWS, 2013e)	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330] Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition.	No. Site is separated from the proposed Project by existing river water bodies and groundwater bodies. The site is also located outside the first coastal waterbody (Dublin Bay) within the North-Western Irish Sea coastal waterbody. Therefore, it is scoped out for further assessment.
<b>Malahide Estuary SAC [000205]</b> , located 11.5km north east of the proposed Project, CO - Specific Version 1.0 [27/05/13]. (NPWS, 2013f)	Mudflats and sandflats not covered by seawater at low tide [1140] <i>Salicornia</i> and other annuals colonising mud and sand [1310] <i>Spartina</i> swards ( <i>Spartinion maritima</i> ) [1320]	To maintain the favourable conservation condition. To maintain the favourable conservation condition. Spartina swards ( <i>Spartinion maritima</i> ) was originally listed as a qualifying Annex I habitat for Malahide Estuary SAC due to historical records of two rare forms of cordgrass– small cordgrass ( <i>Spartina maritima</i> ) and Townsend's cordgrass ( <i>S. x townsendii</i> ). However, Preston et al. (2002) considers both forms to be alien. In addition, all stands of cordgrass in Ireland are now regarded as common cordgrass ( <i>S. anglica</i> ) (McCorry et al., 2003; McCorry and Ryle, 2009). As a consequence, a CO has not been prepared for this habitat. It will therefore not be necessary to assess the	No. Site is separated from the proposed Project by existing river water bodies and groundwater bodies. Therefore it is scoped out for further assessment.



Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
		likely effects of plans or projects against this Annex I habitat at this site.	
	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330] Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	To restore the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition.	
<b>Ballynafagh Bog SAC</b> [000391], located 14.7km southwest of the proposed Project, CO - Specific Version 1.0 [10/11/15]. (NPWS, 2015c)	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]	To restore the favourable conservation condition. The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the CO for this habitat is inherently linked to that of Active raised bogs (7110) and a separate CO has not been set in Ballynafagh Bog SAC. Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate CO has not been set for the habitat in Ballynafagh Bog SAC. To maintain the favourable conservation condition.	No. Site is separated from the proposed Project by existing river water bodies and groundwater bodies.
<b>Baldoyle Bay SAC</b> [000199], located 10km north east of the proposed Project, CO - Specific Version 1.0 [19/11/12]. (NPWS, 2012a)	Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330] Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410]	To maintain the favourable conservation condition.	<b>Yes.</b> Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. Extent of potential effects from the proposed Project activities undetermined and therefore precautionary principle applied.

Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
<p><b>Ireland's Eye SAC</b> [002193], located 14.3km north east of the proposed Project, CO - Specific Version 1.0 [27/01/17]. (NPWS, 2017b)</p>	<p>Perennial vegetation of stony banks [1220]</p> <p>Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]</p>	<p>To maintain the favourable conservation condition.</p>	<p><b>Yes.</b></p> <p>Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. Extent of potential effects from the proposed Project activities undetermined and therefore precautionary principle applied.</p>
<p><b>South Dublin Bay SAC</b> [IE 000210], located 5.6km north east of the proposed Project, CO - Specific Version 1.0 [22/08/13]. (NPWS, 2013b)</p>	<p>Mudflats and sandflats not covered by seawater at low tide [1140]</p>	<p>To maintain the favourable conservation condition.</p>	<p><b>Yes.</b></p> <p>Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. Extent of potential effects from the proposed Project activities undetermined and therefore precautionary principle applied.</p>
<p><b>Howth Head SAC</b> [IE000202], located 12km east of the proposed Project, CO - Specific Version 1.0 [06/12/16]. (NPWS, 2016)</p>	<p>Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]</p> <p>European dry heaths [4030]</p>	<p>To maintain the favourable conservation condition.</p> <p>To maintain the favourable conservation condition.</p>	<p><b>Yes.</b></p> <p>Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay.</p> <p>Extent of potential effects from the proposed Project activities undetermined and therefore precautionary principle applied.</p>

Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
<p><b>Rockabill to Dalkey Island SAC [003000]</b>, located 12.3km east of the proposed Project, CO - Specific Version 1.0 [06/11/13]. (NPWS, 2013d)</p>	<p>Reefs [1170] Harbour porpoise <i>Phocoena phocoena</i> [1351]</p>	<p>To maintain the favourable conservation condition. To maintain the favourable conservation condition.</p>	<p><b>Yes.</b> Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay.  Extent of potential effects from the proposed Project activities undetermined and therefore precautionary principle applied.</p>
<p><b>North Dublin Bay SAC [E000206]</b>, located 6.3km east of the proposed Project, CO - Specific Version 1.0 [07/05/13]. (NPWS, 2013c)</p>	<p>Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] <i>Petalwort Petalophyllum ralfsii</i> [1395] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]</p>	<p>To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition.</p>	<p><b>Yes.</b> Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay.  Extent of potential effects from the proposed Project activities undetermined and therefore precautionary principle applied.</p>

Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
<p><b>Wicklow Mountains SAC [002122]</b>, located 11.7km southeast of the proposed Project, CO - Specific Version 1.0 [31/07/17]. (NPWS, 2017a)</p>	<p>Humid dune slacks [2190] Otter <i>Lutra lutra</i> [1355] Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletalia uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] Natural dystrophic lakes and ponds [3160] Northern Atlantic wet heaths with <i>Erica Tetralix</i> [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] Calaminarian grasslands of the <i>Violetalia calaminariae</i> [6130] Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] Blanket bogs (* if active bog) [7130] Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopstetalia ladani</i>) [8110] Calcareous rocky slopes with chasmophytic vegetation [8210] Siliceous rocky slopes with chasmophytic vegetation [8220] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]</p>	<p>To restore the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition. To maintain the favourable conservation condition. To restore the favourable conservation condition. To restore the favourable conservation condition.</p>	<p>No. This SAC is located upstream of the proposed Project c. 16.5km southwest via surface waterbodies. Although there is likely to be some connectivity in the regional otter population, the core population of the SAC is unlikely to be significantly affected, particularly owing to their territorial extents.</p>
<p><b>Poulaphouca Reservoir SPA [004063]</b>, located 14.6km south of the proposed Project, CO - Generic Version 7.0</p>	<p>Greylag Goose <i>Anser anser</i> [A043] Lesser Black-backed Gull <i>Larus fuscus</i> [A183]</p>	<p>To maintain or restore the favourable conservation condition.</p>	<p>No. Site is separated from the proposed Project by existing river water bodies and groundwater bodies.</p>

Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
[07/04/20] (NPWS, 2020c)			
<b>South Dublin Bay and River Tolka Estuary SPA [004024]</b> , located 3.3km east of the proposed Project, CO - Generic Version 7.0 [09/03/15] (NPWS, 2015a)	Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046] 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] Sanderling <i>Calidris alba</i> [A144] Dunlin <i>Calidris alpina alpina</i> [A149] Bar-tailed Godwit <i>Limosa lapponica</i> [A157] Redshank <i>Tringa tetanus</i> [A162] Black-headed Gull <i>Chroicocephalus ridibundus</i> [A179] Roseate Tern <i>Sterna dougallii</i> [A192] Common Tern <i>Sterna hirundo</i> [A193] Arctic Tern <i>Sterna paradisaea</i> [A194] Wetlands [A999]	To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. Grey Plover is proposed for removal from the list of SCIs for South Dublin Bay and River Tolka Estuary SPA. As a result, a site-specific CO has not been set for this species.  To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition. To maintain the favourable conservation condition.	<b>Yes.</b> Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. The discharges potentially influencing the habitat upon which the SCI species are dependent.  Potential use of the River Liffey corridor for bird movements from the SPA to inland areas with provisional risk of collision risk with proposed overhead lines at the River Liffey crossing.  Extent of potential effects from the proposed Project activities not yet determined and therefore precautionary principle applied.
<b>North Bull Island SPA [004006]</b> , located 6.3km east of the proposed Project, CO - Generic Version 7.0 [09/03/15] (NPWS, 2015b)	Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046] Shelduck <i>Tadorna tadorna</i> [A048] Teal <i>Anas cracca</i> [A052] Pintail <i>Anas acuta</i> [A054] Shoveler <i>Anas clypeata</i> [A056] Oystercatcher <i>Haematopus ostralegus</i> [A130]	To maintain the favourable conservation condition.	<b>Yes.</b> Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. The discharges potentially influencing the habitat



Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
	<p>Golden Plover <i>Pluvialis apricaria</i> [A140]</p> <p>Grey Plover <i>Pluvialis squatarola</i> [A141]</p> <p>Knot <i>Calidris canutus</i> [A143]</p> <p>Sanderling <i>Calidris alba</i> [A144]</p> <p>Dunlin <i>Calidris alpina</i> [A149]</p> <p>Black-tailed Godwit <i>Limosa limosa</i> [A156]</p> <p>Bar-tailed Godwit <i>Limosa lapponica</i> [A157]</p> <p>Curlw <i>Numenius arquata</i> [A160]</p> <p>Redshank <i>Tringa totanus</i> [A162]</p> <p>Turnstone <i>Arenaria interpres</i> [A169]</p> <p>Black-headed Gull <i>Chroicocephalus ridibundus</i> [A179]</p> <p>Wetland and Waterbirds [A999]</p>		<p>upon which the SCI species are dependent.</p> <p>Potential use of the River Liffey corridor for bird movements from the SPA to inland areas with provisional risk of collision risk with proposed overhead lines at the River Liffey crossing.</p> <p>Extent of potential effects from the proposed Project activities not yet determined and therefore precautionary principle applied.</p>
<p><b>Wicklow Mountains SPA [004040]</b>, located 11.7km south of the proposed Project, CO - Generic Version 7.0 [07/04/20] (NPWS, 2020d)</p>	<p>Merlin <i>Falco columbarius</i> [A098]</p> <p>Peregrine Falco peregrinus [A103]</p>	<p>To maintain or restore the favourable conservation condition.</p>	<p>No. Site is separated from the proposed Project by existing river water bodies and groundwater bodies. Both species for which this site is designated are unlikely to occur within the area of the Project.</p>
<p><b>Baldoyle Bay SPA [004016]</b>, located 10.4km east of the proposed Project, CO - Specific Version 7.0 [19/11/12] (NPWS, 2012b)</p>	<p>Brent Goose <i>Branta bernicla hrota</i> [A046]</p> <p>Shelduck <i>Tadorna tadorna</i> [A048]</p> <p>Ringed Plover <i>Charadrius hiaticula</i> [A137]</p> <p>Golden Plover <i>Pluvialis apricaria</i> [A140]</p> <p>Grey Plover <i>Pluvialis squatarola</i> [A141]</p> <p>Bar-tailed Godwit <i>Limosa lapponica</i> [A157]</p>	<p>To maintain the favourable conservation condition.</p>	<p><b>Yes.</b></p> <p>Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. The discharges potentially influencing the habitat</p>

Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
	Wetlands [A999]		<p>upon which the SCI species are dependent.</p> <p>Potential use of the River Liffey corridor for bird movements from the SPA to inland areas with provisional risk of collision risk with proposed overhead lines at the River Liffey crossing.</p> <p>Extent of potential effects from the proposed Project activities not yet determined and therefore precautionary principle applied.</p>
<p><b>Malahide Estuary SPA [004025]</b>, located 11.7km south of the proposed Project, CO - Specific Version 1.0 [16/08/13] (NPWS, 2013g)</p>	<p>Great Crested Grebe <i>Podiceps cristatus</i> [A005]</p> <p>Brent Goose <i>Branta bernicla hrota</i> [A046]</p> <p>Shelduck <i>Tadorna tadorna</i> [A048]</p> <p>Pintail <i>Anas acuta</i> [A054]</p> <p>Goldeneye <i>Bucephala clangula</i> [A067]</p> <p>Red-breasted Merganser <i>Mergus serrator</i> [A069]</p> <p>Oystercatcher <i>Haematopus ostralegus</i> [A130]</p> <p>Golden Plover <i>Pluvialis apricaria</i> [A140]</p> <p>Grey Plover <i>Pluvialis squatarola</i> [A141]</p> <p>Knot <i>Calidris canutus</i> [A143]</p> <p>Dunlin <i>Calidris alpina</i> [A149]</p> <p>Black-tailed Godwit <i>Limosa limosa</i> [A156]</p> <p>Bar-tailed Godwit <i>Limosa lapponica</i> [A157]</p>	<p>To maintain the favourable conservation condition.</p>	<p>No. Site is separated from the proposed Project by existing river water bodies and groundwater bodies. However, there is connectivity via the marine environment but by virtue of distance (c. 28 km) and dilution of potential pollutants within the marine environment, it is scoped out for further assessment.</p>








Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
	Redshank <i>Tringa totanus</i> [A162] Wetlands [A999]		
Ireland's Eye SPA [004117], located 14.2km east of the proposed Project CO - Generic Version 7.0 [07/04/20] (NPWS, 2022a)	Cormorant <i>Phalacrocorax carbo</i> [A017] Herring Gull <i>Larus argentatus</i> [A184] Kittiwake <i>Rissa tridactyla</i> [A188] Guillemot <i>Uria aalge</i> [A199] Razorbill <i>Alca torda</i> [A200]	To maintain or restore the favourable conservation condition.	<p><b>Yes.</b></p> <p>Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. The discharges potentially influencing the habitat upon which the SCI species are dependent.</p> <p>Potential use of the River Liffey corridor for bird movements from the SPA to inland areas with provisional risk of collision risk with proposed overhead lines at the River Liffey crossing.</p> <p>Extent of potential effects from the proposed Project activities not yet determined and therefore precautionary principle applied.</p>
Howth Head Coast SPA [004113], located 14.6km east of the proposed Project, CO- Generic Version 7.0	Kittiwake <i>Rissa tridactyla</i> [A188]	To maintain or restore the favourable conservation condition.	<p><b>Yes.</b></p> <p>Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. The discharges</p>

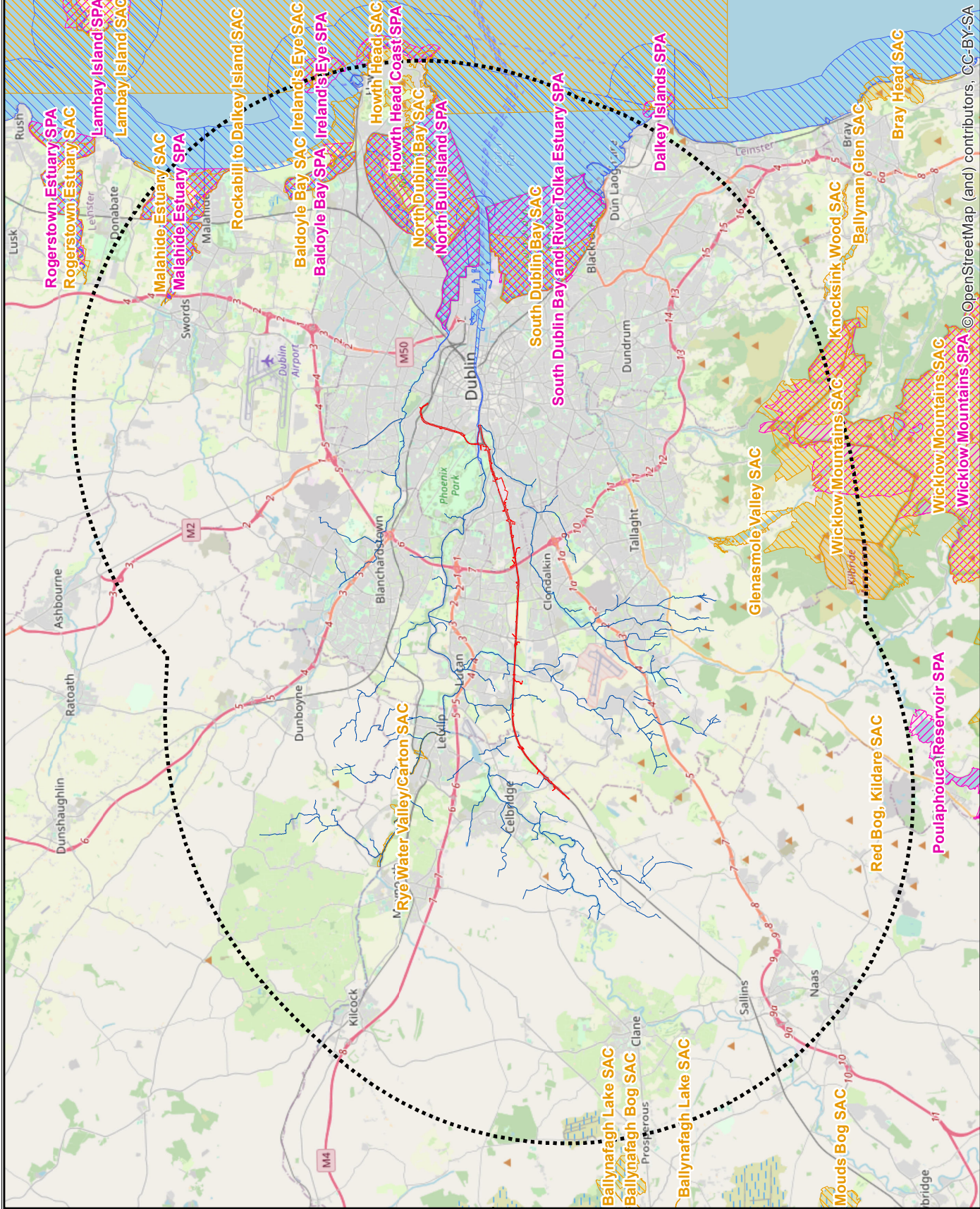
Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
[07/04/20] (NPWS, 2022b)			<p>potentially influencing the habitat upon which the SCI species are dependent.</p> <p>Potential use of the River Liffey corridor for bird movements from the SPA to inland areas with provisional risk of collision risk with proposed overhead lines at the River Liffey crossing.</p> <p>Extent of potential effects from the proposed Project activities not yet determined and therefore precautionary principle applied.</p>
<p><b>Dalkey Islands SPA</b> [004172], located 15km southeast of the proposed Project, CO - Generic Version 7.0 [07/04/20] (NPWS, 2022c)</p>	<p>Roseate Tern <i>Sterna dougallii</i> [A192] Common Tern <i>Sterna hirundo</i> [A193] Arctic Tern <i>Sterna paradisaea</i> [A194]</p>	<p>To maintain or restore the favourable conservation condition.</p>	<p><b>Yes.</b></p> <p>Indirect hydrological connectivity via the River Liffey and its tributaries, and Liffey Estuary which discharges into Dublin Bay. The discharges potentially influencing the habitat upon which the SCI species are dependent.</p> <p>Potential use of the River Liffey corridor for bird movements from the SPA to inland areas with provisional risk of collision risk with proposed</p>

Site (Code), Distance from the proposed Project, and Conservation Objectives Version	Qualifying Interest(s) (*Priority Habitat) and Special Conservation interest(s)	Conservation Objective(s)	Identified Potential Pathways
			<p>overhead lines at the River Liffey crossing.</p> <p>Extent of potential effects from the proposed Project activities not yet determined and therefore precautionary principle applied.</p>



# Legend

-  Redline Development
-  Boundary
-  Zone of Influence (15km Buffer)
-  Watercourses
-  Special Area of Conservation (SAC)
-  Special Protection Area (SPA)
-  Transitional/Coastal Waterbodies



Project Title: **DART + SOUTH WEST**

Drawing Title: **Figure 4.1: European Sites within the Zol of the Project**

Drawing File Name: **DP-04-23-DWG-EV-ITTA-23807**

Status: **S3**

Version: **v02**

Client: **Irish Rail**

Engineering provider: **ATKINS**

Supported by: **NPWS**

Drawn: **RG**

Checked: **HF**

Approved: **AG**

Date: **24/11/2022**

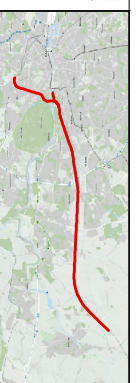
Scale: **1:250,000 @ A4**

Project Code: **5195886**

Issue: **TTA**

IMS Code: **CC-BY-SA**

Rev	Date	Drawn	Checked	Approved	Description
v02	11/11/2022	NR	HF	AG	Description
v01	08/09/2022	NR	HF	AG	Description



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**DART+ South West**

**NTA** National Transport Authority

**EUROPEAN UNION** 2020

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## 4.2. Hydrological Connectivity

Analysis of the EPA online mapper identified five River Waterbodies, one Groundwater body (GWB), one Transitional Waterbody and one Coastal Waterbody in the vicinity of the proposed Project. Their water quality status and risk of meeting WFD objectives are summarised in Table 4.2. All River Waterbodies drain into the Liffey Estuary Upper, before entering the Liffey Estuary Lower.

The proposed Project is within the Dublin GWB. The flow path of this GWB is generally towards the coast and also towards the River Liffey and Dublin City.

**Table 4.2: Baseline for Waterbodies in the vicinity of the proposed Project<sup>11</sup>**

EPA Waterbody Name	EPA Code	WFD Status 2013-2018	Risk of not Meeting WFD Objectives	Biotic Index (RPS baseline surveys)	EPA Quality Status
<b>River Waterbodies</b>					
Castletown_09	IE_EA_09C500830	Good	Review	Q3	Moderately polluted
Tributary of the Castletown_09	-	-	-	Q3	Moderately polluted
Coneyburrow_09	IE_EA_09L011900	Good	Review	Q3	Moderately polluted
Lucan Stream	IE_EA_09L012100	Moderate	At Risk	n/a	n/a
Griffeen River	IE_EA_09L012100	Moderate	At Risk	Q3	Moderately polluted
Tributary of the Griffeen River	-	-	-	Q2-3	Moderately polluted
River Liffey	IE_EA_09L012360	Moderate	At Risk	-	-
<b>Groundwater Bodies</b>					
Dublin	IE_EA_G_008	Good	Review	-	-
<b>Transitional Waterbodies</b>					
Liffey Estuary Upper	IE_EA_090_0400	Good	Review	-	-
<b>Coastal Waterbodies</b>					
Dublin Bay	IE_EA_090_0000	Good	Not at Risk	-	-

## 4.3. Habitats Relevant to European Sites

Thirteen QI habitats are designated as part of the six SAC considered in this report. One SCI habitat is designated as part of the 3 SPAs. These include:

- **Fixed coastal dunes with herbaceous vegetation (grey dunes)**

The QI Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] habitat is located approximately 6.3km downstream of the proposed Project, above the high-water mark. This habitat is contained within one European site identified within Section 4.1, North Dublin Bay SAC.

<sup>11</sup> Source: EPA mapping available online at <https://gis.epa.ie/EPAMaps/>



- **Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)**

The QI Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] habitat is located approximately 6.3km downstream of the proposed Project, above the high-water mark. This habitat is contained within one European site identified within Section 4.1, North Dublin Bay SAC.

- **Vegetated sea cliffs of the Atlantic and Baltic coasts**

The QI Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] habitat is located approximately 12.3km and 14.6km downstream of the proposed Project, above the high-water mark. This habitat is contained within two European sites identified within Section 4.1, Howth Head SAC and Ireland's Eye SAC.

- **European dry heaths**

The QI European dry heaths [4030] habitat is located approximately 12km downstream of the proposed Project, above the high-water mark. This habitat is contained within one European site identified within Section 4.1, Howth Head SAC.

- **Perennial vegetation of stony banks**

The QI Perennial vegetation of stony banks [1220] habitat is located approximately 14.8km downstream of the proposed Project, above the high-water mark. This habitat is contained within one European site identified within Section 4.1, Ireland's Eye SAC.

- **Annual vegetation of drift lines**

The QI Annual vegetation of drift lines [1210] habitat is located approximately 6.3km downstream of the proposed Project, below the high-water mark. This habitat is contained within one European site identified within Section 4.1, North Dublin Bay SAC.

- **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)**

The QI Atlantic salt meadows [1330] habitat is located approximately 8.6km and 10.4km downstream of the proposed Project, below the high-water mark. This habitat is contained within one European site identified within two European sites identified within Section 4.1, Baldoyle Bay SAC and North Dublin Bay SAC.

- **Embryonic shifting dunes**

The QI Embryonic shifting dunes [2110] habitat is located approximately 6.3km downstream of the proposed Project, above the high-water mark. This habitat is contained within one European site identified within Section 4.1, North Dublin Bay SAC.

- **Humid dune slacks**

The QI Humid dune slacks [2190] habitat is located approximately 7.5km downstream of the proposed Project, above the high-water mark. This habitat is contained within one European site identified within Section 4.1, North Dublin Bay SAC.

- **Mediterranean salt meadows (*Juncetalia maritimi*)**

The QI Mediterranean salt meadows [1410] habitat is located approximately 10.6km and 8.5km downstream of the proposed Project, below the high-water mark. This habitat is contained within two European sites identified within Section 4.1, Baldoyle Bay SAC and North Dublin Bay SAC.

- **Mudflats and sandflats not covered by seawater at low tide**

The QI Mudflats and sandflats not covered by seawater at low tide [1140] habitat is located approximately 10km, 5.6km and 6.3km downstream of the proposed Project, below the high-water mark. This habitat is contained within three European sites identified within Section 4.1, Baldoyle Bay SAC, South Dublin Bay SAC and North Dublin Bay SAC.

- ***Salicornia* and other annuals colonising mud and sand**

The QI *Salicornia* and other annuals colonising mud and sand [1310] habitat is located approximately 10.3km and 7.3km downstream of the proposed Project, below the high-water mark. This habitat is contained within two European sites identified within Section 4.1, Baldoyle Bay SAC and North Dublin Bay SAC.

- **Reefs**

The QI Reefs [1170] habitat is located approximately 12.3km downstream of the proposed Project, below the high-water mark. This habitat is contained within one European site identified within Section 4.1, Rockabill to Dalkey Island SAC.

- **Wetlands**

The QI Wetlands [A999] habitat is located approximately 3.3km, 5.6km and 6.3km downstream of the proposed Project, below the high-water mark. This habitat is contained within three European sites identified within Section 4.1, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA and Baldoyle Bay SPA.

Surveys confirmed that there was no presence of habitats with an affinity to Annex I habitat within the footprint of the proposed Project.

## 4.4. Species Relevant to European Sites

### 4.4.1. Qualifying Interests

Two QI species are designated as part of two SACs considered in this report, namely, Rockabill to Dalkey Island SAC and North Dublin Bay SAC. These include:

- Harbour porpoise *Phocoena phocoena*; and
- Petalwort *Petalophyllum ralfsii*.

Harbour porpoise is designated as part of Rockabill to Dalkey Island SAC and petalwort is designated as part of North Dublin Bay SAC. No records for these species were returned from the NBDC data search (i.e. within 5km of the proposed Project), however they are known to occur off both along the coastline and offshore downstream of the proposed Project.

QI harbour porpoise occurs year-round as part of the Rockabill to Dalkey Island SAC, which provides suitable habitat for harbour porpoise including inshore shallow sand and mudbanks and rocky reefs scoured by strong current flow.

Data obtained from the Irish Whale and Dolphin Group (IWDG) provided an extensive log of marine mammal monitoring of Dublin Bay (Berrow *et al.*, 2010; Wall *et al.*, 2013; O'Brien *et al.*, 2016). A 2008

survey (Berrow *et al.*, 2010) of Dublin Bay identified 69 individuals<sup>12</sup> of harbour porpoises over five survey dates, recorded with an average density estimate for 1.19 per km<sup>2</sup>, while a more recent 2016 survey of Rockabill to Dalkey Island SAC (O'Brien *et al.*, 2016) identified 246 individuals of harbour porpoises over four survey dates, recorded with an average density estimate for 1.55 per km<sup>2</sup>.

QI petalwort is a liverwort of bare, moist, stable sand or of short turf, mainly on mildly to strongly base-rich dune slacks and machair where the habitat can be subject to inundation. The known population of this species at Bull Island occurs along the track that cuts through the Alder marsh, south and east of St. Anne's Golf Club (Campbell, 2013; NPWS, 2013c).

#### 4.4.2. Special Conservation Interests

The desk study returned records for 52 SCI bird species within 5km of the proposed Project from the preceding ten years, 14 of which are relevant to this assessment (see Table 4.3). The majority of SCI birds associated with downstream European sites are almost exclusively coastal.

**Table 4.3: Relevant Special Conservation Interest Birds Returned from NBDC Data Search**

Species Name	Record Count	Date of Last Record
Arctic tern <i>Sterna paradisaea</i> [A194]	2	31/12/2011
Bar-tailed godwit <i>Limosa lapponica</i> [A157]	4	31/12/2011
Black-headed gull <i>Chroicocephalus ridibundus</i> [A179]	131	21/05/2020
Common tern <i>Sterna hirundo</i> [A193]	5	31/12/2011
Cormorant <i>Phalacrocorax carbo</i> [A017]	53	17/07/2021
Curlew <i>Numenius arquata</i> [A160]	26	09/07/2021
Dunlin <i>Calidris alpina</i> [A149]	6	31/12/2011
Grey plover <i>Pluvialis squatarola</i> [A141]	3	31/12/2011
Herring gull <i>Larus argentatus</i> [A184]	198	16/07/2020
Kittiwake <i>Rissa tridactyla</i> [A188]	4	01/03/2018
Oystercatcher <i>Haematopus ostralegus</i> [A130]	16	31/08/2017
Ringed plover <i>Charadrius hiaticula</i> [A137]	6	31/12/2011
Sanderling <i>Calidris alba</i> [A144]	3	31/12/2011
Teal <i>Anas cracca</i> [A052]	20	26/02/2017

There is limited suitable nesting and roosting habitats for breeding or wintering birds located within the footprint of the proposed Project. Breeding bird surveys identified the presence of 32 bird species. Of these, surveys returned records for one SCI species relevant to this NIS: herring gull *Larus argentatus*, a probable breeder on a roof structure within Inchicore Works, outside the proposed works area.

Overall, 26 SCI birds are designated as part of the six SPAs considered in this report. The SCI bird species relevant to this assessment, their habitat preferences and general ecology (i.e. foraging behaviour, commuting/migration movements within the Zol of the proposed Project) are provided in Table 6.1 below.

<sup>12</sup> Individuals refers to adults, juveniles and calves.



## 5. Stage 1 Screening for Appropriate Assessment

### 5.1. Potential for Likely Significant Effects

The report to inform screening for AA (RPS, 2022) identified the potential for Likely Significant Effects (LSEs) resulting from the following effect pathways:

- Habitat deterioration - changes in water quality (contaminants) (Impact 1);
- Habitat deterioration - changes in water quality (siltation) (Impact 2); and
- SCI species mortality or injury due to electrification of the River Liffey crossing (Impact 3).

### 5.2. To Inform Screening for Appropriate Assessment Conclusion

Through an assessment of the source-pathway-receptor model, which considered the Zol of effects from the proposed Project and the potential in-combination effects with other plans or projects, the following findings were reported by RPS (2022):

- The proposed Project is not directly connected with or necessary to the management of a European site;
- Applying the precautionary principle, alone, the proposed Project is likely to result in LSEs on a number of European sites. The LSEs relate primarily to potential downstream impacts to water quality (contamination and sedimentation) and potential collision risk of one or more SCI species with the electrification of the River Liffey crossing; and
- Also, in-combination with other plans or projects, it is not possible to conclude at this stage that no in-combination LSE of the proposed Project with these other plans and projects.

In light of this conclusion, it is the opinion of RPS, that the Competent Authority, An Bord Pleanála, in completing its AA Screening, should find that the proposed Project, either individually or in combination with other plans or projects, is likely to have a significant effect on the listed European sites. The Board's AA must contain complete, precise and definitive findings and conclusions in relation to the implications of the proposed Project. It is therefore recommended that the proposed Project is brought forward to Stage 2 – Natura Impact Assessment for consideration of adverse effects on integrity of European sites and the need for mitigation of these effects.

## 6. Stage 2 Appropriate Assessment

### 6.1. Required Information

The requirement to carry out a NIS followed on from the conclusion arrived at during the Screening process (provided under separate cover). In order to determine if the identified source-pathway-receptor linkages could give rise to LSEs, the following steps are taken:

1. Identification of the information required, including the proposed Project, linkages to European sites, and description of relevant European sites;
2. Examination of the site-specific COs and attributes of QIs/SCIs of relevant European sites; and
3. Prediction of any LSEs of the proposed Project, including in-combination effects.

### 6.2. Pathways to European Sites

A full description of the proposed Project and the construction strategy are provided in Appendices A and B respectively.

The potential pathways between the proposed Project and European sites have been assessed. Following the identification of European sites as listed in Table 4.1 and the baseline information described in Section 4.2 and 4.4, a secondary scoping has been carried out before sites are taken forward for Stage 2 assessment. During secondary scoping, only relevant identified effects are brought forward to the next part of the NIS assessment.

The QIs/SCIs of the European sites considered in this report are described below with regard to the source-pathway-receptor model, and the three impact pathways identified during the Stage 1 Screening for Appropriate Assessment (see Section 5.1). QIs/SCIs with no identified source-pathway-receptor link(s) are not assessed further in this NIS.

#### 6.2.1. Habitats

##### 6.2.1.1. SAC habitats and SPA wetlands

###### 6.2.1.1.1. Hydrological connectivity

Connectivity has been identified between the proposed Project and the six SACs and three SPAs to which the fourteen habitats (thirteen designated as part of SACs and one designated as part of SPA) listed in Table 4.2. Eight of these QI habitats occur above the high-water mark and have therefore been scoped out from Stage 2 assessment. These include:

- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130];
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120];
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230];
- European dry heaths [4030];
- Embryonic shifting dunes [2110];
- Humid dune slacks [2190];

- Annual vegetation of drift lines [1210]; and
- Perennial vegetation of stony banks [1220].

Based on the exclusion of the above listed habitats which occur above the high-water mark, QI habitat associated with Ireland's Eye SAC, North Dublin Bay SAC and Howth Head SAC are no longer considered for assessment in this NIS.

Therefore, the following six intertidal/coastal QI habitats, designated as part of Baldoyle Bay SAC, South Dublin Bay SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, North Bull Island SPA, Baldoyle Bay SPA and South Dublin Bay and River Tolka Estuary SPA, have been identified to have hydrological connectivity to the proposed Project:

- Atlantic salt meadows (*Glaucopuccinellietalia maritima*) [1330];
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410];
- Mudflats and sandflats not covered by seawater at low tide [1140];
- *Salicornia* and other annuals colonising mud and sand [1310];
- Reefs [1170]; and
- Wetlands [A999].

#### 6.2.1.1.2. Scoping of impacts

As detailed above, six intertidal/coastal QI habitats have been identified to have hydrological connectivity with the proposed Project. Hydrological connectivity is via the Liffey Estuary. Potential for adverse effects are associated with these downstream habitats as a result of impacts on water quality-impact category 1 and 2 (Impact 3 is not relevant) (i.e. contaminants and sediment). However, when considering the following with respect to increases in pollutants and/or suspended sediments and subsequent deposition:

- The Project is proposed along an existing railway line;
- There is existing track drainage in place;
- In general, the nature of the works (i.e. four-tracking, electrification, bridge replacement/modifications) are largely localised and short-term, and will not produce pollutants or sediment of significant magnitudes; and
- The works in the vicinity of Heuston Yard and Station (incorporating New Heuston West Station) will be the main source of uncontrolled sediment/pollutant release (i.e. construction of new Heuston West station, demolitions, electrification) owing to its proximity to the Liffey Estuary Upper. However, the works will not produce pollutants or sediment of significant magnitudes, nor will any elevated concentrations have an adverse effect within the immediate vicinity of the Liffey Estuary Upper or downstream of the proposed Project when considering dispersion and dilution within the Liffey Estuary over time and distance.

The proposed Project will not produce contaminants or sediment of significant magnitudes to cause an adverse effect on site integrity. Therefore, pollutants and sediment shall not jeopardise the

conservation targets for these QI habitats, namely: habitat area/distribution, community extent/distribution/structure, vegetation structure/composition and physical structure.

On this basis, there will be no adverse effect on the integrity of European site(s) (Baldoyle Bay SAC, South Dublin Bay SAC, Rockabill to Dalkey Island SAC and North Dublin Bay SAC) resulting from surface water pollution, due to the proposed Project alone, and no reasonable scientific doubt remains as to the absence of such effects.

## 6.2.2. Species

### 6.2.2.1. SAC species

#### 6.2.2.1.1. Hydrological connectivity

Connectivity has been identified between the proposed Project and two SACs to which two QI species belong. These include:

- Harbour porpoise *Phocoena phocoena* [1351]; and
- Petalwort *Petaophyllum ralfsii* [1395].

Petalwort occurs above the high-water mark and therefore its occurrence within North Dublin Bay SAC and is not considered further for assessment in this NIS.

#### 6.2.2.1.2. Scoping of impacts

As detailed above, one QI species has been identified to have hydrological connectivity with the proposed Project: harbour porpoise. Potential for adverse effects are associated with impacts on water quality- impact category 1 and 2 (Impact 3 is not relevant) (i.e. contaminants and sediment). However, when considering the proposed Project will not produce contaminants or sediment of significant magnitudes and the ecology of this species being far beyond the reach of any such impacts, no adverse effects are predicted.

On this basis, there will be no adverse effect on the integrity of European site(s) (North Dublin Bay SAC) resulting from surface water pollution, due to the proposed Project alone, and no reasonable scientific doubt remains as to the absence of such effects.

### 6.2.2.2. SPA Species

#### 6.2.2.2.1. Special Conservation Interests

Although hydrological connectivity has been identified between the proposed Project and the six SPAs to which the 26 SCI birds in Table 6.1 belong, several are coastal birds which are unlikely to roost/commute/forage within the footprint of the proposed Project and/or the Liffey Estuary Upper. As surface water pollution (impact category 1 and 2) will be localised to the Liffey Bridge area, if SCI birds are known to roost/commute/forage within the Liffey Estuary Upper, the SCI bird may also be at risk of collision with OHLE infrastructure (impact category 3).

Table 6.1: Project links with SCI birds

Species Name	Relevant European Site(s)	Relevance to the proposed Project Zol	Impact Category	Assessment and rationale	Scoped In/Out
Arctic Tern <i>Sterna paradisaea</i> [A194]	South Dublin Bay and River Tolka Estuary SPA; and Dalkey Islands SPA	<p><b>Breeding:</b> Breed in Dublin Docks on a man-made mooring structure known as the E.S.B. dolphin.</p> <p><b>Roosting:</b> Found roosting in intertidal habitat, roosting locations for this SCI species have not been mapped for South Dublin Bay and River Tolka Estuary SPA and Dalkey Islands SPA. However, the main roosting area within South Dublin Bay is noted as the exposed sand banks in South Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown (NPWS, 2015a).</p> <p><b>Foraging:</b> Dublin Bay area and marine waters foraging on small fish.</p> <p><b>Commuting/Migration movements:</b> While Arctic terns are known to occasionally breed “inland on the fresh water lakes of Lough Corrib (Co. Galway) and Lough Conn (Co. Mayo)” (BWI, 2022), the lack of such suitable freshwater lakes for breeding terns in the Dublin area eliminates the need for Arctic tern to commute from their foraging and roosting grounds in Dublin Bay upstream towards the proposed Project. Migration movements generally follow the coastline (RSPB, 2022).</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	Scoped Out.
Bar-tailed Godwit <i>Limosa lapponica</i> [A157]	South Dublin Bay and River Tolka Estuary SPA; North Bull Island SPA; and Baldoyle Bay SPA	<p><b>Breeding:</b> Wintering (non-breeding). Breed in Norway, Sweden, Finland and Russia.</p> <p><b>Roosting:</b> Found roosting above the high-water mark in intertidal habitat, roosting locations for this SCI species have been mapped for South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA and Baldoyle Bay SPA in 2012 and 2014 (NPWS 2012b and 2014c).</p> <p><b>Foraging:</b> Forage by probing within intertidal sediment of mud and sandflats for invertebrate</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect</li> </ul>	Scoped Out.

<p>Black-headed Gull <i>Larus ridibundus</i> [A179]</p>	<p>South Dublin Bay and River Tolka Estuary SPA; and North Bull Island SPA</p>	<p>species, such as polychaete worms, particularly lugworms (BWI, 2022). <b>Commuting/Migration movements:</b> Not found inland, wintering population is entirely coastal as they prefer sandy estuaries (BWI, 2016). Migration is generally across the open sea and along coastlines. When they depart to go to breeding grounds, bar-tailed godwit don't fly directly to their destination but instead they migrate in stages, refuelling along the way at suitable habitat (BWI, 2022). <b>Breeding/Wintering:</b> Breed in Ireland, however these SPAs are classified for wintering populations (non-breeding) only. <b>Roosting:</b> Roosting locations for this SCI species has been mapped for South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA in 2014 (NPWS 2014c). Roost in intertidal and supratidal habitat however, this bird can also be found roosting inland, particularly in urban and suburban gardens (open ground, trees and vegetation) (BTO, 2022). <b>Foraging:</b> Feeds on insects especially in arable fields as well as worms, fish and scraps. Will also exploit domestic and fisheries waste (BWI, 2022) and can be seen foraging throughout the streets of Dublin. <b>Commuting/Migration movements:</b> Found intertidally along the coast and are also known to use inland sites where there is plenty of food (NatureSpot, 2022). Suitable habitat for roosting and foraging are available in proximity to the proposed Project, and therefore this species may be using the upper Liffey Estuary for commuting purposes. Migration occurs to inland breeding sites such as major inland lakes (BWI, 2022). However, the lack of such suitable habitat for foraging black-headed gull in the Dublin Bay/Liffey Estuary area eliminates the need for this SCI bird to migrate</p>	<p>overhead lines on Liffey Bridge)</p>	<ul style="list-style-type: none"> <li>on the prey available to this SCI bird downstream of the proposed Project. Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	
			<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project or within suitable terrestrial habitat.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project or within suitable terrestrial habitat.</li> <li><b>Impact 3 has been scoped in</b> for further assessment as this wintering population is considered likely to regularly commute along the River Liffey beyond the lower reaches of estuaries to suitable foraging and roosting grounds within the area surrounding the proposed Project (migrating populations will not be adversely affected). Black-headed gull may be susceptible to collision with the proposed electrified overhead lines on Liffey Bridge.</li> </ul>	<p><b>Scoped In.</b> Link identified with Impact 3.</p>



<p>Black-tailed Godwit <i>Limosa limosa</i> [A156]</p>	<p>North Bull Island SPA</p>	<p>from their foraging and roosting grounds further inland past the proposed Project.</p> <p><b>Breeding:</b> Breed in Ireland, however this SPA is classified for wintering populations (non-breeding) only.</p> <p><b>Roosting:</b> Found roosting in intertidal habitat, roosting locations for this SCI species have been mapped for North Bull Island SPA (NPWS 2014c). During surveys completed by BWI, over 80% of surveyed Black-tailed Godwits were found on Bull Island (BWI, 2016).</p> <p><b>Foraging:</b> Visual and tactile feeders - feed on a range of invertebrates, including bivalves, polychaete worms and shore crabs. Prefer to feed on muddier estuaries, but also feed in brackish pools and on nearby rough pasture. While on pasture, they feed on the larvae of crane fly (Tipulidae) and on the amphipod <i>Corophium volutator</i> (BWI, 2022).</p> <p><i>“They have also been recorded feeding on grain in stubble fields on the Wexford Slobs.”</i> (BWI, 2022), however, the lack of such suitable habitat for foraging Black-tailed godwit in the Dublin Bay/Liffey Estuary area eliminates the need for these birds to commute from their foraging and roosting grounds in Dublin Bay upstream towards the proposed Project.</p> <p><b>Commuting/Migration movements:</b> Highly faithful to roost sites and unlikely to be commuting beyond the lower reaches of estuaries. Seldom seen along non-estuarine coast (BWI, 2022).</p> <p>The wintering population in Ireland is of Icelandic origin where it originally breeds. After the breeding season, they migrate to Ireland for winter (BWI, 2022).</p>	<ol style="list-style-type: none"> <li>1. Changes in water quality (contaminants)</li> <li>2. Changes in water quality (siltation)</li> <li>3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li>• Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>• Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>• Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	<p><b>Scoped Out.</b></p>
<p>Common Tern <i>Sterna hirundo</i> [A193]</p>	<p>South Dublin Bay and River Tolka</p>	<p><b>Breeding:</b> Breed in Dublin Docks on a man-made mooring structure known as the E.S.B. dolphin and at the Grand Canal Dock (Waterways Ireland, 2018). Breeds on the coast, with larger colonies in Co. Dublin, Co. Wexford and Co.</p>	<ol style="list-style-type: none"> <li>1. Changes in water quality (contaminants)</li> </ol>	<ul style="list-style-type: none"> <li>• Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect</li> </ul>	<p><b>Scoped Out.</b></p>

<p>Cormorant <i>Phalacrocorax carbo</i> [A017]</p>	<p>Ireland's Eye SPA</p>	<p>Galway. Also breeds inland on islets in freshwater lakes, notably in Co. Galway and in Co. Mayo (BWI, 2022). <b>Roosting:</b> Roosting locations for the SCI species have not been mapped for South Dublin Bay and River Tolka Estuary SPA and Dalkey Islands SPA. However, the main roosting area within South Dublin Bay is noted as the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandlymount and Williamstown (NPWS, 2015a). Found roosting in intertidal habitat and large inland lakes. <b>Foraging:</b> Foraging habitats include the open sea, brackish waters, lagoons, estuaries, rivers, lakes, reservoirs, ponds and marshes (ECON, 2014), where they feed mainly on fish, but also consume shrimps and other crustaceans. <b>Commuting/Migration movements:</b> Mainly coastal when not breeding. Inland breeding colonies are known to travel toward the coast to reach estuaries (ECON, 2014), however given the lack of such suitable inland freshwater lakes for breeding terns in the Dublin area eliminates the need for Common tern to commute from their foraging and roosting grounds in Dublin Bay upstream towards the proposed Project.</p>	<p>2. Changes in water quality (siltation) 3. SCI species mortality or injury (Liffey Bridge electrification)</p>	<p>on the prey available to this SCI bird downstream of the proposed Project. Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project. Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</p>	<p>Scoped in. Link identified with Impact 1, 2 and 3.</p>
<p>Ireland's Eye SPA</p>	<p><b>Breeding/Wintering:</b> Classified for its breeding population, of which the majority of Cormorant nest on Thulla (islet) (NPWS, 2011b). <b>Roosting:</b> Roosting locations for this SCI species have not been mapped for Ireland's Eye SPA. However, Cormorant are known to assemble on exposed rocks and islands to roost at night or in colonies in trees on lakes or flooded gravel pits (Wildlife Trusts, 2022). <b>Foraging:</b> Cormorants forage mainly in shallow water rather than offshore waters over rocky as well as sandy substrates feeding on fish, crustaceans, amphibians and insects. Within the marine environment studies have recorded a mean max (+ standard deviation)</p>	<p>1. Changes in water quality (contaminants) 2. Changes in water quality (siltation) 3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<p><b>Impact 1 has been scoped in</b> for further assessment. This is on the basis that cormorant may be present within the upper Liffey Estuary and contaminants and/or sediment released as a result of the proposed Project may adversely affect prey within the immediate vicinity of the Liffey Bridge (i.e. the impact is localised and differs from downstream effects in the lower Liffey Estuary where impacts are not predicted over distance and dilution). <b>Impact 2 has been scoped in</b> for further assessment. This is on the basis that cormorant may be present</p>	<p>Scoped in. Link identified with Impact 1, 2 and 3.</p>	

<p>Curllew <i>Numenius arquata</i> [A160]</p>	<p>North Bull Island SPA</p>	<p>foraging range of 35km (i.e. 25+10) for this species (the proposed Project is within this range-as the crow flies) (Woodward <i>et al.</i>, 2019). Studies by BWI and have also confirmed cormorants use the Liffey Channel for feeding and roosting (BWI, 2016). <b>Commuting/Migration movements:</b> Known to move between breeding and wintering areas, and commute in small parties from the roost to feeding areas (often inland) (Natural England, 2012a). Most migration routes follow obvious landmarks such as river valleys or coastlines (RSPB, 2022).</p>	<p>1. Changes in water quality (contaminants) 2. Changes in water quality (siltation) 3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<p>within the upper Liffey Estuary and contaminants and/or sediment released as a result of the proposed Project may adversely affect prey within the immediate vicinity of the Liffey Bridge (i.e. the impact is localised and differs from downstream effects in the lower Liffey Estuary where impacts are not predicted over distance and dilution).</p> <ul style="list-style-type: none"> <li>• <b>Impact 3 has been scoped in</b> for further assessment as there is potential for this breeding population to commute/migrate along the River Liffey to suitable foraging and roosting grounds within the area surrounding the proposed Project. Cormorant may be susceptible to collision with the proposed electrified overhead lines on Liffey Bridge.</li> </ul>	
		<p><b>Breeding:</b> Breed in Ireland, however this SPA is classified for wintering populations (non-breeding) only. <b>Roosting:</b> Roosting locations for the SCI species have been mapped for North Bull Island SPA in 2014 (NPWS 2014c). Roost communally on saltmarshes and sand banks (BWI, 2022). <b>Foraging:</b> Feed in groups on tidal mudflats, saltmarshes and nearby farmland on invertebrates, particularly ragworms, crabs and molluscs (BWI, 2022). <b>Commuting/Migration movements:</b> Travel over land and along rivers to get to upland breeding sites, however this population is wintering. The majority of the Wintering population remain within the site for much of the winter (NPWS, 2014b) and may move inland to nearby farmland, however such suitable habitat is limited the Dublin area.</p>	<p>1. Changes in water quality (contaminants) 2. Changes in water quality (siltation) 3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<ul style="list-style-type: none"> <li>• Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>• Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>• Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	<p><b>Scoped out.</b></p>

Dunlin <i>Calidris alpina</i> [A149]	South Dublin Bay and River Tolka Estuary SPA; and North Bull Island SPA	<p><b>Breeding:</b> Breed in Ireland, however this SPA is classified for wintering populations (non-breeding) only.</p> <p><b>Roosting:</b> Roosting locations for the SCI species have been mapped for South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA in 2014 (NPWS 2014c). Found roosting in intertidal habitat.</p> <p><b>Foraging:</b> Forage intertidally feeding predominantly on small invertebrates of exposed estuarine mudflats, particularly polychaete worms and small gastropods (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> Do not commute far from their intertidal roosting sites and can be found on muddy edges of estuaries close to the tide edge (BWI, 2022).</p> <p>Migrate along the coastline but during migration they can be known to stop-over in rivers, but only in areas that are less than 2 inches deep (AllAboutBirds, 2022).</p>	<p>1. Changes in water quality (contaminants)</p> <p>2. Changes in water quality (siltation)</p> <p>3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<p>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</p> <p>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</p> <p>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</p>	Scoped out.
Golden Plover <i>Pluvialis apricaria</i> [A140]	North Bull Island SPA; and Baldoyle Bay SPA	<p><b>Breeding:</b> Breed in Ireland, however this SPA is classified for wintering populations (non-breeding) only.</p> <p><b>Roosting:</b> Roosting locations for the SCI species have been mapped for Baldoyle Bay SPA in 2014 (NPWS, 2014a). Roosting locations have not been mapped for North Bull Island SPA. Found roosting in tidal flats.</p> <p><b>Foraging:</b> Feed primarily within agricultural grassland and arable land on invertebrate species. Intertidal feeding is observed to a greater degree during cold weather periods when grassland feeding areas are frozen over (NPWS, 2012c).</p> <p><b>Commuting/Migration movements:</b> Commuting will be toward terrestrial habitat (agricultural and arable land), however given the lack of such</p>	<p>1. Changes in water quality (contaminants)</p> <p>2. Changes in water quality (siltation)</p> <p>3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<p>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</p> <p>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</p> <p>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this</p>	Scoped out.

<p>Grey Plover <i>Pluvialis squatarola</i> [A141]</p>	<p>North Bull Island SPA; and Baldoyle Bay SPA</p>	<p>suitable habitat for foraging golden plover in the Dublin area eliminates, the need to commute from foraging and roosting grounds in Dublin Bay upstream towards the proposed Project.</p> <p>Inland breeding populations are predominantly in upland blanket bogs of the West of Ireland where golden plover may use lakes/rivers as corridors for migration (BWI, 2022), however this is a wintering population which are largely found in densely packed flocks along the coast and in suitable grassland/arable habitat.</p> <p><b>Breeding:</b> Wintering (non-breeding). Breed in the high Arctic (BWI, 2022).</p> <p><b>Roosting:</b> Roosting locations for the SCI species have been mapped for Baldoyle Bay SPA, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA in 2012 and 2014 (NPWS 2012b and 2014c). Found roosting in intertidal habitat.</p> <p><b>Foraging:</b> Feeds on a wide variety of burrowing intertidal invertebrates, particularly polychaete worms, molluscs and crustaceans (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> As an exclusively coastal bird during Winter (BWI, 2022), Grey plover is not considered to commute from foraging and roosting grounds in Dublin Bay upstream towards the proposed Project. In terms of migration, arrives in Ireland from Siberia toward the end of July (BWI, 2022). Will migrate overland but most will follow the coastline (Exo et al., (2019).</p>	<p>1. Changes in water quality (contaminants) 2. Changes in water quality (siltation) 3. SCI species mortality or injury (Liffey Bridge electrification)</p>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	<p>bird is unlikely to be commuting beyond the lower reaches of estuaries.</p>	
<p>Guillemot <i>Uria aalge</i> [A199]</p>	<p>Ireland's Eye SPA</p>	<p><b>Breeding:</b> SPA is classified for wintering populations (non-breeding) only.</p> <p><b>Roosting:</b> Roosting locations for this SCI species have not been mapped for Ireland's Eye SPA. Found roosting tightly packed on cliffs, among boulders at the bases of cliffs and steep ledges of coasts and islands (BWI, 2022).</p>	<p>1. Changes in water quality (contaminants) 2. Changes in water quality (siltation) 3. SCI species mortality or injury</p>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> </ul>	<p>Scoped out.</p>	



<p>Herring Gull <i>Larus argentatus</i> [A184]</p>	<p>Ireland's Eye SPA</p>	<p><b>Foraging:</b> forage mainly on small fish and some invertebrates, caught by surface diving in the open sea of inshore and offshore waters. <b>Commuting:</b> As a highly marine species which is essentially oceanic apart from coming ashore to breed on cliffs and steep ledge, commuting is along the coastline and open sea. <b>Migration:</b> Spends winter at sea (only comes ashore to nest) migrating across the North Sea and the north east Atlantic (Natural England, 2012b).</p>	<p>(Liffey Bridge electrification)</p>	<p>basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project. Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</p>	
		<p><b>Breeding/Wintering:</b> Classified for its breeding population on Ireland's Eye. In general, breeds in colonies around the coast of Ireland and also inland in Co. Donegal and Co. Galway. <b>Roosting:</b> Roosting locations for this SCI species have not been mapped for Ireland's Eye SPA but are known to roost on Ireland's Eye. In general, can be found roosting along the coast in intertidal habitat and cliffs as well as on roofs in coastal urban areas (RSPB, 2022). <b>Foraging:</b> Forage/scavenge in coastal areas in the intertidal zone and at sea on fish, invertebrates and insects. Often feeds on the coast and follows fishing boats and uses landfill sites (BWI, 2022). Also found in coastal urban areas eating urban refuse, terrestrial habitat including grassland agricultural fields and inland aquatic habitats. Can be known to forage up to distances of 92km (Woodward <i>et al.</i>, 2019). <b>Commuting/Migration movements:</b> Herring gull has both a terrestrial and aquatic diet (O'Hanlon and Nager, 2017), with potential to occur commuting and foraging throughout the Dublin area and within the upper Liffey Estuary in high densities. Resident herring gull tend to migrate inland in winter (RSPB, 2022) and appear to prefer coastal habitat during long distance migration (Weseloh <i>et al.</i>, 2020).</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li><b>Impact 1 has been scoped in for</b> further assessment. This is on the basis that herring gull may be present within the upper Liffey Estuary and contaminants and/or sediment released as a result of the proposed Project may adversely affect prey within the immediate vicinity of Liffey Bridge (i.e. the impact is localised and differs from downstream effects in the lower Liffey Estuary where impacts are not predicted over distance and dilution).</li> <li><b>Impact 2 has been scoped in for</b> further assessment. This is on the basis that herring gull may be present within the upper Liffey Estuary and contaminants and/or sediment released as a result of the proposed Project may adversely affect prey within the immediate vicinity of Liffey Bridge (i.e. the impact is localised and differs from downstream effects in the lower Liffey Estuary where impacts are not predicted over distance and dilution).</li> <li><b>Impact 3 has been scoped in for</b> further assessment as there is potential for this breeding population to regularly commute/migrate along the River Liffey to suitable foraging and</li> </ul>	<p><b>Scoped In.</b> Link identified with Impact 1, 2 and 3.</p>

<p>Kittiwake <i>Rissa tridactyla</i> [A188]</p>	<p>Ireland's Eye SPA; and Howth Head Coast SPA</p>	<p><b>Breeding:</b> Classified for breeding populations. <b>Roosting:</b> Roosting locations for this SCI species have not been mapped for Ireland's Eye SPA. Found roosting/nesting on steep cliffs/ledges and will occasionally use man-made structures such as old buildings (BWI, 2022). <b>Foraging:</b> Forage mainly on small pelagic shoaling fish, invertebrates and waste from commercial fishing, close to the coastline and while in flight (JNCC, 2022). <b>Commuting/Migration movements:</b> As a highly marine species which is essentially oceanic apart from coming ashore to breed on cliffs and steep ledge, commuting is along the coastline and open sea. In relation to migration, kittiwake spends winter at sea in the North Atlantic and North sea and only comes ashore to nest (JNCC, 2022). Migrate in the open ocean.</p>	<p>1. Changes in water quality (contaminants) 2. Changes in water quality (siltation) 3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<p>roosting grounds within the area surrounding the proposed Project. Herring gull may be susceptible to collision with the proposed electrified overhead lines on Liffey Bridge.</p>	<p><b>Scoped Out.</b></p>
<p>Knot <i>Calidris canutus</i> [A143]</p>	<p>South Dublin Bay and River Tolka Estuary SPA; and North Bull Island SPA</p>	<p><b>Breeding:</b> Wintering (non-breeding). Breed in northern Greenland and from the Queen Elizabeth Islands of high Arctic Canada west (BWI, 2022). <b>Roosting:</b> Roosting locations for the SCI species have been mapped for South Dublin Bay and River Tolka Estuary SPA in 2014 (NPWS 2014c). Roosting locations for the SCI species have not been mapped for North Bull Island SPA. Found roosting in intertidal habitat and some supratidal habitat close to the coast on well concealed and sparsely vegetated gravel and rocky slopes (BWI, 2022). <b>Foraging:</b> This species is a specialist mud and sandflat forager, pecking visible items off the surface or probing to the depth of their bill. Knots</p>	<p>1. Changes in water quality (contaminants) 2. Changes in water quality (siltation) 3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<p>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project. Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project. Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</p>	<p><b>Scoped Out.</b></p>

<p>Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046]</p>	<p>South Dublin Bay and River Tolka Estuary SPA North Bull Island SPA Baldoyle Bay SPA</p>	<p>possess large numbers of sensors on their bills and that they are able to detect hard-shelled prey even when buried beyond the reach of their bills (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> Wintering distribution is entirely coastal, and their preferred habitat mostly includes estuarine sites with extensive areas of muddy sand (BWI, 2022). Migration patterns are variable but generally stop over at key coastal and mudflat habitat during their migration from Greenland and northern Canada (Dublin Bay Birds Project, 2020). On this basis, although they fly overland the proposed Project area is not a suitable stop-off site.</p> <p><b>Breeding/Wintering:</b> Classified for its wintering (non-breeding) population. Do not breed in Ireland.</p> <p><b>Roosting:</b> Roosting locations for this SCI species have been mapped for South Dublin Bay and River Tolka Estuary SPA in 2014 (NPWS, 2015a). Roosting locations for this SCI species have not been mapped for North Bull Island SPA and Baldoyle Bay SPA. Found roosting in intertidal habitat, of which Bull Island is the principal roosting site.</p> <p><b>Foraging:</b> Forage on coastal estuaries, intertidal habitat and also on inland terrestrial grasslands from mid-winter. Feed mostly on eelgrass, which grows on muddy estuaries, and also on coastal grasslands (grazing on grass sward) (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> Light-bellied brent geese feed on grasslands in Dublin City when their main food source in Dublin Bay, eelgrass, becomes exhausted. Areas close to the proposed Project which have potential to support this species include, the gardens at the Royal Kilmainham hospital, the National War Memorial Park and Phoenix Park. Migrate across land and sea to winter along coasts (RSPB, 2022).</p>	<p>1. Changes in water quality (contaminants) 2. Changes in water quality (siltation) 3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<p>foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</p>	<p><b>Scoped In.</b> Link identified with Impact 3.</p>
		<p>• Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</p> <p>• Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</p> <p>• <b>Impact 3 has been scoped in</b> for further assessment as this wintering population is considered likely to regularly commute up the River Liffey to available foraging grassland habitat. Migrating geese may also be susceptible to collision with the proposed electrified overhead lines on Liffey Bridge. Based on RPS's wider knowledge of the area, brent geese are known to occur within Liffey Valley</p>			

<p>Oystercatcher <i>Haematopus ostralegus</i> [A130]</p>	<p>South Dublin Bay and River Tolka Estuary SPA; and North Bull Island SPA</p>	<p><b>Breeding:</b> Breed in Ireland, however these SPAs are classified for wintering populations (non-breeding) only. <b>Roosting:</b> Roosting locations for the SCI species have been mapped for South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA in 2014 (NPWS 2014c). Found roosting in intertidal and supratidal habitat. <b>Foraging:</b> Forage primarily on tidal flats and sandy coastal although they can be found foraging along non-estuarine coastlines and may be seen occasionally foraging terrestrially on grasslands for earthworms (BWI, 2022). <b>Commuting/Migration movements:</b> Almost entirely coastal through the winter and will also commute to nearby coastal terrestrial areas to forage. If this wintering population was to migrate to breeding locations, oystercatcher may migrate using river corridors to reach inland lakes. However, the lack of such suitable freshwater lakes for breeding oystercatcher in the Dublin area eliminates the need for them to commute/migrate from their foraging and roosting grounds in Dublin Bay upstream towards the proposed Project.</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<p>Park c. 2.5km west of the Liffey Bridge crossing.</p> <ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	<p><b>Scoped Out.</b></p>
<p>Pintail <i>Anas acuta</i> [A054]</p>	<p>North Bull Island SPA</p>	<p><b>Breeding:</b> Breed in Ireland, however this SPA is classified for wintering populations (non-breeding) only. <b>Roosting:</b> Roosting locations for the SCI species have not been mapped for North Bull Island SPA. Found roosting in intertidal habitat, within estuaries or coastal brackish lagoons as well as flooded agricultural fields (BWI, 2022). <b>Foraging:</b> Forage in groups along coasts and estuaries. Their diet consists largely of plant seeds and underwater plants, while insects and crustaceans are also eaten. They also feed on farmland, particularly stubble (BWI, 2022). However, farmland is limited in the Dublin area</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> </ul>	<p><b>Scoped Out.</b></p>

		and eliminates the need for pintail to commute from their foraging and roosting grounds in Dublin Bay upstream towards the proposed Project. <b>Commuting/Migration movements:</b> Although breeding within terrestrial wetlands, only few breeding records in Ireland (one pair in County Down in 1994). Wintering birds may migrate inland to wetlands and lakes, but limited evidence suggest they do so in the Dublin area.			<ul style="list-style-type: none"> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	
Razorbill <i>Alca torda</i> [A200]	Ireland's Eye SPA	<p><b>Breeding:</b> Classified for breeding populations.</p> <p><b>Roosting:</b> Roosting locations for this SCI species have not been mapped Ireland's Eye SPA. Found roosting on cliffs ledges, steep coastal cliffs, fissures in the cliffs and also in screens (BWI, 2022).</p> <p><b>Foraging:</b> Forage mainly on small fish, as well as some invertebrates, caught by surface diving (BWI, 2022; AllAboutBirds, 2022).</p> <p><b>Commuting/Migration movements:</b> A highly marine species founds on coast and islands. This species is essentially oceanic apart from coming ashore to breed. In relation to migration, razorbill spends winter at sea in the North Atlantic and only comes ashore to nest (JNCC, 2022). Migrate in the open ocean.</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	Scoped Out.	
Redshank <i>Tringa totanus</i> [A162]	South Dublin Bay and River Tolka Estuary SPA; and North Bull Island SPA	<p><b>Breeding:</b> Wintering (non-breeding). Breed in bogs and marshes of northern Scandinavia east across Siberia (BWI, 2022).</p> <p><b>Roosting:</b> Roosting locations for the SCI species have been mapped for South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA in 2014 (NPWS 2014c). Found roosting on mudflats, large estuaries and inlets (BWI, 2022).</p> <p><b>Foraging:</b> Forage mainly by pecking at the surface or probing within intertidal mudflats,</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified)</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect</li> </ul>	Scoped Out.	



<p>Ringed Plover <i>Charadrius hiaticula</i> [A137]</p>	<p>South Dublin Bay and River Tolka Estuary SPA; and Baldoyle Bay SPA.</p>	<p>favouring the muddier sections of sites (NPWS, 2014c). <b>Commuting/Migration movements:</b> Don't fly far from roosting locations (NPWS, 2014c) to forage and are largely coastal in winter. Small numbers use inland lakes (BWI, 2022), however the lack of suitable habitat in the Dublin Bay area/Liffey Estuary area eliminates the need for Redshank to commute from their foraging and roosting grounds in Dublin Bay upstream towards the proposed Project. Migration can be overlaid and along coasts, however the proposed Project area is not deemed a suitable staging site for this SCI birds and is unlikely to occur within the proposed Project area.</p>	<p>overhead lines on Liffey Bridge)</p>	<ul style="list-style-type: none"> <li>on the prey available to this SCI bird downstream of the proposed Project. Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	
		<p><b>Breeding:</b> Breed in Ireland, however this SPA is classified for wintering populations (non-breeding) only. <b>Roosting:</b> Roosting locations for the SCI species have been mapped for South Dublin Bay and River Tolka Estuary SPA in 2014 (NPWS 2014c). Roosting locations for the SCI species have not been mapped for Baldoyle Bay SPA. Found roosting within intertidal habitat of which they are highly faithful. <b>Foraging:</b> Hunts visually, scanning the area for signs of movement which indicate potential prey. It feeds on a variety of invertebrates, particularly polychaete worms and crustaceans (BWI, 2022). <b>Commuting/Migration movements: Some</b> commute inland from wintering sites during the breeding season particularly in the west, where their preferred nesting habitat is on short-grazed pasture. However, the lack of such suitable pastures for breeding plover in the Dublin area eliminates the need for this bird to commute from their foraging and roosting grounds in Dublin Bay upstream towards the proposed Project.</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	<p><b>Scoped Out.</b></p>

Species	Location	Key Information	Impacts	Scoped Out.
<p>Roseate Tern <i>Sterna dougallii</i> [A192]</p>	<p>South Dublin Bay and River Tolka Estuary SPA; and Dalkey Islands SPA</p>	<p><b>Breeding:</b> Breed in Ireland, however these SPAs are classified for wintering populations (non-breeding) only.</p> <p><b>Roosting:</b> Roosting locations for this SCI species have not been mapped for South Dublin Bay and River Tolka Estuary SPA and Dalkey Islands SPA. Found roosting on the ground in colonies on sand, shingle, and areas with sparse vegetation but with shelter present.</p> <p><b>Foraging:</b> Chiefly forage on marine fish over shallow coastal inshore waters such as sandbars and inlets where they plunge dive to take fish from the surface of the water (BWI, 2022; AllAboutBirds, 2022).</p> <p><b>Commuting/Migration movements:</b> Roseate terns concentrate their foraging effort along coastal and intertidal habitat (Pratte, <i>et al.</i>, 2020). They migrate along coast or well out to sea. Roseate terns tend to migrate close to the coast when that is an option (Wernham <i>et al.</i>, 2002), and so it is unlikely that they will occur upstream within the Liffey Estuary toward the proposed Project as due to their habitat preference for foraging during migration in sheltered coastal waters.</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>
<p>Sanderling <i>Calidris alba</i> [A144]</p>		<p><b>Breeding:</b> Wintering (non-breeding). Breeds across Arctic tundra, preferring small patches of vegetation (BWI, 2022).</p> <p><b>Roosting:</b> Roosting locations for the SCI species have been mapped for South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA in 2014 (NPWS 2014c). Found roosting in intertidal habitat.</p> <p><b>Foraging:</b> Forage along the tide line where they rush in and out with the waves searching for small prey such as sandhoppers, polychaete worms and shrimp-like crustaceans (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> Predominantly commute along the coast on sandy shorelines, non-estuarine coastlines or the outer parts of estuaries based on their habitat</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<ul style="list-style-type: none"> <li>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird downstream of the proposed Project.</li> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for</li> </ul>

<p>Shelduck <i>Tadorna tadorna</i> [A048]</p>	<p>Baldoyle Bay SPA; and North Bull Island SPA</p>	<p>preference. In terms of migration, this bird migrates overland but predominantly offshore and along coasts where they stop off and feed along sandy coasts (Macwhirter <i>et al.</i>, 2020).</p> <p><b>Breeding:</b> Breed in Ireland, however this SPA is classified for wintering populations (non-breeding) only.</p> <p><b>Roosting:</b> Roosting locations for the SCI species have been mapped for North Bull Island SPA in 2014 (NPWS, 2014c). Roosting locations for the SCI species have not been mapped for Baldoyle Bay SPA. Found roosting in coastal areas on sheltered estuaries and tidal mudflats with few records inland (BWI, 2022)</p> <p><b>Foraging:</b> Chief prey source is <i>Hydrobia ulvae</i> (a type of mudsnail), which is present in almost all estuaries, and often in large numbers. Prefer to feed in shallow waters (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> Commute along the coast, sandy shorelines, non-estuarine coastlines or the outer parts of estuaries. Are known to occur throughout Dublin Bay and are unlikely to commute upstream toward the proposed Project owing to their habitat preference. Inland records of Shelduck are generally increasing in the non-breeding season when they are returning to breeding sites (i.e. rivers and inland lakes) and on passage from their coastal wintering areas (Green <i>et al.</i>, 2019). However, the habitat in the proposed Project area is not deemed suitable for them.</p>	<ol style="list-style-type: none"> <li>1. Changes in water quality (contaminants)</li> <li>2. Changes in water quality (siltation)</li> <li>3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<p>foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</p> <ul style="list-style-type: none"> <li>• Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</li> <li>• Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</li> <li>• Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	<p><b>Scoped Out.</b></p>
<p>Shoveler <i>Anas clypeata</i> [A056]</p>	<p>North Bull Island SPA</p>	<p><b>Breeding:</b> Breed in Ireland, however these SPAs are classified for wintering populations (non-breeding) only.</p> <p><b>Roosting:</b> Roosting locations for the SCI species have not been mapped for North Bull Island SPA. Found roosting in margins of shallow wetlands, saltmarshes and estuaries.</p> <p><b>Foraging:</b> Feed predominantly on zooplankton. Prefer shallow eutrophic waters rich in plankton, and occur on a variety of habitats while wintering</p>	<ol style="list-style-type: none"> <li>1. Changes in water quality (contaminants)</li> <li>2. Changes in water quality (siltation)</li> <li>3. SCI species mortality or injury (collision risk with proposed</li> </ol>	<ul style="list-style-type: none"> <li>• Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</li> <li>• Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</li> </ul>	<p><b>Scoped Out.</b></p>

		<p>in Ireland, including coastal estuaries, lagoons and inland lakes and callows (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> Surveys completed by BWI in 2016 suggest they occur almost exclusively on north bull island with some also occurring on Dollymount strand (BWI, 2016). In terms of callows and inland lake habitat, the lack of such suitable habitat for Shoveler in the Liffey Estuary area eliminates the need for this species commute/migrate from their foraging and roosting grounds on North Bull Island upstream towards the proposed Project.</p>	<p>electrified overhead lines on Liffey Bridge)</p>	<p>basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</p> <ul style="list-style-type: none"> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	
<p>Teal <i>Anas cracca</i> [A052]</p>	<p>North Bull Island SPA</p>	<p><b>Breeding:</b> Breed in Ireland, however this SPA is classified for wintering populations (non-breeding) only.</p> <p><b>Roosting:</b> Roosting locations for the SCI species have been mapped for North Bull Island SPA in 2014 (NPWS 2014c). Found roosting on wetlands with good cover, such as reedbeds as well as shallow water on estuarine lagoons, coastal and inland marshes and flooded pastures.</p> <p><b>Foraging:</b> Forage on small seeds predominately, but <i>Enteromorpha</i> sp. and molluscs are also frequently taken. Occasionally feed on chironomid larvae. Forage mostly with only the bill submerged (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> Commuting is typically close to roost sites. A meta-analysis of distances flown (flight distance) between roost site and feeding site for teal during migration and winter identified a max mean flight distance of 8.4km from surveys completed in France (Johnson <i>et al.</i>, 2014). In terms of migration, breeding populations can be found near small freshwater lakes and pools or small upland streams away from the coast. However, the lack of such suitable habitat for breeding teal the Dublin area eliminates the need for them to commute/migrate from their foraging and roosting grounds in Dublin Bay upstream towards the proposed Project.</p>	<ol style="list-style-type: none"> <li>Changes in water quality (contaminants)</li> <li>Changes in water quality (siltation)</li> <li>SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</li> </ol>	<p>Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</p> <ul style="list-style-type: none"> <li>Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</li> <li>Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	<p><b>Scoped Out.</b></p>

Turnstone <i>Arenaria interpres</i> [A169]	North Bull Island SPA	<p><b>Breeding:</b> Wintering (non-breeding). Breed all around shores of Scandinavia (BWI, 2022).</p> <p><b>Roosting:</b> Roosting locations for the SCI species have been mapped for North Bull Island SPA in 2014 (NPWS 2014c). Found roosting on the rocky shoreline, just above the high-tide.</p> <p><b>Foraging:</b> Diet includes sandhoppers &amp; other marine invertebrates obtained from where they spend most of their time creeping and fluttering over rocks, picking out food from under stones. Also forage on fish carrion washed up on shore (BWI, 2022).</p> <p><b>Commuting/Migration movements:</b> Their focus is rocky shore and are considered to only commute along the coastline rather than in upper estuaries based on their habitat preference. In terms of migration, likely to fly overland however the proposed Project area is not a suitable stop-off site.</p>	<p>1. Changes in water quality (contaminants)</p> <p>2. Changes in water quality (siltation)</p> <p>3. SCI species mortality or injury (collision risk with proposed electrified overhead lines on Liffey Bridge)</p>	<ul style="list-style-type: none"> <li>• Impact 1 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</li> <li>• Impact 2 has been scoped out from further assessment. This is on the basis that the proposed Project will not produce contaminants or sediment of a significant magnitude to cause an adverse effect on the prey available to this SCI bird (i.e. grassland or eelgrass).</li> <li>• Impact 3 has been scoped out from further assessment as habitat in the upper estuary is deemed unsuitable for foraging, roosting, breeding and/or staging for migration and therefore this bird is unlikely to be commuting beyond the lower reaches of estuaries.</li> </ul>	Scoped Out.
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Based on the findings in Table 6.1, species are scoped out from further consideration as no pathway of adverse effect on the integrity of any European site has been identified. Potential linkages were identified for light-bellied brent geese *Branta bernicla hrota* and black-headed gull *Chroicocephalus ridibundus* of South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA, light-bellied brent geese of Baldoyle Bay SPA, and cormorant *Phalacrocorax carbo* and herring gull of Ireland's Eye SPA.

### 6.3. European Sites for Stage 2 Assessment

Relevant European sites brought forward for Stage 2 assessment are detailed in Table 6.2. In total, four SPAs (and four SCIs) have been brought forward for further assessment.

**Table 6.2: European sites for Stage 2 Assessment.**

Site (Code)	Special Conservation interest(s)	Distance to the proposed Project (approx.)
South Dublin Bay and River Tolka Estuary SPA [004024]	<ul style="list-style-type: none"> <li>Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046]</li> <li>Black-headed Gull <i>Chroicocephalus ridibundus</i> [A179]</li> </ul>	5.6km east
North Bull Island SPA [004006]	<ul style="list-style-type: none"> <li>Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046]</li> <li>Black-headed Gull <i>Chroicocephalus ridibundus</i> [A179]</li> </ul>	6.3km east
Baldoyle Bay SPA [004016]	<ul style="list-style-type: none"> <li>Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046]</li> </ul>	10.4km east
Ireland's Eye SPA [004117]	<ul style="list-style-type: none"> <li>Cormorant <i>Phalacrocorax carbo</i> [A017]</li> <li>Herring Gull <i>Larus argentatus</i> [A184]</li> </ul>	14.2km east

### 6.4. Conservation Objectives of European Sites

#### 6.4.1. South Dublin Bay and River Tolka Estuary SPA

Site specific COs for South Dublin Bay and River Tolka Estuary SPA are available (NPWS, 2015a). Table 6.3 identifies the CO attributes which could be adversely affected by the proposed Project, for 'relevant' QIs scoped into the assessment.

**Table 6.3: Conservation Objective Attributes for the South Dublin Bay and River Tolka Estuary SPA**

Relevant Special Conservation interest	Site Specific Conservation Objective (NPWS, 2015a; Version 1, 09/03/2015)	Site Specific Attributes Potentially Affected by the proposed Project (NPWS, 2015a; Version 1, 09/03/2015)
Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046]	To maintain the favourable conservation	<p><b>Population Trend:</b> Potential for commuting/migrating Light-bellied Brent Goose to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on population trends.</p> <p><b>Distribution:</b> Potential for commuting/migrating Light-bellied Brent Goose to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on their distribution.</p>

Relevant Special Conservation interest	Site Specific Conservation Objective (NPWS, 2015a; Version 1, 09/03/2015)	Site Specific Attributes Potentially Affected by the proposed Project (NPWS, 2015a; Version 1, 09/03/2015)
Black-headed Gull <i>Chroicocephalus ridibundus</i> [A179]		<p><b>Population Trend:</b> <u>Potential</u> for commuting Black-headed Gull to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on population trends.</p> <p><b>Distribution:</b> <u>Potential</u> for commuting Black-headed Gull to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on their distribution.</p>

### 6.4.2. North Bull Island SPA

Site specific COs for North Bull Island SPA are available (NPWS, 2015b). Table 6.4 identifies the CO attributes which could be adversely affected by the proposed Project, for 'relevant' QIs scoped into the assessment.

**Table 6.4: Conservation Objective Attributes for the North Bull Island SPA**

Relevant Special Conservation interest	Site Specific Conservation Objective (NPWS, 2015b; Version 1, 09/03/2015)	Site Specific Attributes Potentially Affected by the proposed Project (NPWS, 2015b; Version 1, 09/03/2015)
Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046]	To maintain the favourable conservation condition	<p><b>Population Trend:</b> <u>Potential</u> for commuting/migrating Light-bellied Brent Goose to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on population trends.</p> <p><b>Distribution:</b> <u>Potential</u> for commuting/migrating Light-bellied Brent Goose to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on their distribution.</p>
Black-headed Gull <i>Chroicocephalus ridibundus</i> [A179]		<p><b>Population Trend:</b> <u>Potential</u> for commuting Black-headed Gull to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on population trends.</p> <p><b>Distribution:</b> <u>Potential</u> for commuting Black-headed Gull to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on their distribution.</p>

### 6.4.3. Baldoyle Bay SPA

Site specific COs for Baldoyle Bay SPA are available (NPWS, 2013h). Table 6.5 identifies the CO attributes which could be adversely affected by the proposed Project, for 'relevant' QIs scoped into the assessment.

**Table 6.5: Conservation Objective Attributes for the Baldoyle Bay SPA**

Relevant Special Conservation interest	Site Specific Conservation Objective (NPWS, 2013h; Version 1, 27/02/2013)	Site Specific Attributes Potentially Affected by the proposed Project (NPWS, 2013h; Version 1, 27/02/2013)
Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A046]	To maintain the favourable conservation condition	<p><b>Population Trend:</b> <u>Potential</u> for commuting/migrating Light-bellied Brent Goose to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on population trends.</p> <p><b>Distribution:</b> <u>Potential</u> for commuting/migrating Light-bellied Brent Goose to collide with Liffey Bridge OHLE infrastructure during the operational phase. Mortality may have an adverse effect on their distribution</p>

#### 6.4.4. Ireland's Eye SPA

Site specific COs for Ireland's Eye SPA are not available (NPWS, 2022a). In this case, the next closest designated site with relevant and available qualifying features has been used as a substitute - Saltee Islands SPA (NPWS, 2011a). Table 6.6 identifies the CO attributes which could be adversely affected by the proposed Project, for 'relevant' QIs scoped into the assessment.

**Table 6.6: Conservation Objective Attributes for the Ireland's Eye SPA (as substituted by the Saltee Islands SPA)**

Relevant Special Conservation interest	Site Specific Conservation Objective (NPWS, 2022a; Version 9, 26/01/2022)	Site Specific Attributes Potentially Affected by the proposed Project (NPWS, 2011a; Version 1, 21/10/2011)
Cormorant <i>Phalacrocorax carbo</i> [A017]	To maintain or restore the favourable conservation condition	<p><b>Breeding population abundance apparently occupied nests (AONs):</b> <u>Potential</u> for foraging Cormorant/Herring gull to be adversely affected by surface water pollution (prey) during the construction and operational phase and commuting/migrating Cormorant/Herring gull to collide with Liffey Bridge OHLE infrastructure during the operational phase causing direct mortality.</p> <p><b>Productivity rate:</b> <u>Potential</u> for foraging Cormorant/Herring gull to be adversely affected by surface water pollution (prey) during the construction and operational phase and commuting Cormorant/Herring gull to collide with Liffey Bridge OHLE infrastructure, whereby both reduced food availability and increased mortality rates may affect productivity rates.</p> <p><b>Distribution: breeding colonies:</b> <u>No potential</u> as breeding colonies are known to nest on Ireland's eye (Cormorant specifically on Thulla islet).</p> <p><b>Prey biomass available:</b> <u>Potential</u> for foraging Cormorant/Herring gull to be adversely affected by surface water pollution (reduction in prey) during the construction and operational phase.</p> <p><b>Barriers to connectivity:</b></p>
Herring Gull <i>Larus argentatus</i> [A184]		

Relevant Special Conservation interest	Site Specific Conservation Objective (NPWS, 2022a; Version 9, 26/01/2022)	Site Specific Attributes Potentially Affected by the proposed Project (NPWS, 2011a; Version 1, 21/10/2011)
		<p>Potential for commuting/migrating Cormorant/Herring gull to collide with Liffey Bridge OHLE infrastructure during the operational phase.</p> <p><b>Disturbance at the breeding site:</b></p> <p>No potential as breeding colonies are known to nest on Ireland's eye (Cormorant specifically on Thulla islet).</p>

## 6.5. Predicted Effects

### 6.5.1. South Dublin Bay and River Tolka Estuary SPA

#### 6.5.1.1. Overview

South Dublin Bay and Tolka Estuary SPA is a marine site comprising a substantial part of Dublin Bay, covering an area of 2,193.17ha. It includes almost all of the intertidal area in the south of the bay between the River Liffey and Dun Laoghaire, as well as a large portion of the Tolka Estuary to the north of the River Liffey. It also includes Booterstown Marsh, an area of grassland at Poolbeg, north of Irishtown Nature Park and a small area of shallow marine waters in the bay. In the south bay, the intertidal flats extend for almost 3km at their widest point and the sediments are mainly well-aerated sands. There is a diversity of species here including green algae and a well-developed macro-invertebrate fauna. The Tolka Estuary has varying sediments, from soft thixotropic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall. Booterstown Marsh is an enclosed area of saltmarsh and muds which is cut off from the sea by the railway line, except where it is linked by the Nutley stream. This SPA supports an internationally important population of wintering light-bellied brent goose *Branta bernicla hrota*, which is one of the QIs for this site. It is also autumn roosting ground for significant populations of common tern, roseate tern and arctic tern (NPWS, 2015d).

#### 6.5.1.2. Assessment against relevant conservation objectives

##### 6.5.1.2.1. Construction phase

Adverse effects to site integrity are not predicted during the construction phase, as no pathway exists between the proposed Project and the relevant SCIs identified.

##### 6.5.1.2.2. Operational phase

###### Population Trend

Light-bellied brent goose and black-headed gull have been scoped in for assessment under the conservation attribute 'population trend' during the operational phase. Potential impacts have been identified as a result of collision risk with the proposed electrified overhead lines on the Liffey Bridge. Adverse effects would be direct (injury or mortality).

Four structures (masts) shall be attached to the existing Liffey Bridge parapet sidings to accommodate track electrification. The highest wire height will be 6m (feeder wire) from the existing bridge, while

contact wires will be located at a height between 4 and 5.5m. Electrification infrastructure on this bridge will be perpendicular with the Liffey Estuary Upper and potential flight lines used within this corridor.

Light-bellied brent goose may be commuting upstream from coastal breeding/roosting locations toward the proposed Project to forage at available grassland habitat (i.e. the gardens at the Royal Kilmainham hospital, the National War Memorial Park and Phoenix Park) as well as those which may be using the Liffey Estuary as a migration corridor as they travel north to the coastal tundra (BWI, 2022) for winter and stage in Iceland (RSPB, 2022).

Black-headed gull may also be commuting from the lower reaches of the Liffey Estuary upstream toward the proposed Project to suitable foraging and roosting grounds within Dublin City and the proposed Project area (i.e. urban habitat). Migrating populations are not considered to be adversely affected owing to the lack of suitable inland lake habitat within the Dublin and Liffey Estuary area (see Table 6.1).

Eirgrid (2016) completed a review of collision risk studies in the African Eurasian region. The review found that in Western Europe, substantial research has been carried out in agricultural areas and wetlands and the species groups most frequently found dead under power lines were ducks and swans, waders, rails, gulls, pigeons and passerines. It also found that in a study carried out by Rose and Baillie (1992) which assessed the causes of death of ringed birds recovered in the British Isles in relation to power lines, that raptors and waterbirds (e.g. light-bellied brent goose) had the highest 'hit wire' indices with shorebirds (waders, gulls (e.g. black-headed gull) and terns) having an intermediate 'hit wire' indices.

In Ireland, EirGrid completed surveys at both high risk (power lines adjacent to wetland areas) and low risk sites during both spring passage and the migratory period between wintering and breeding areas. The surveys concluded that higher numbers of waterfowl were found at high risk sites than low risk sites. Based on this information, and the location of the proposed overhead lines on Liffey Bridge, it is assumed that light-bellied brent goose and black-headed gull are vulnerable to collisions with overhead wires.

**Adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** to reduce the risk of light-bellied brent goose and black-headed gull collision with overhead lines during the operational phase.

## Distribution

Light-bellied brent goose and black-headed gull have been scoped in for assessment under the conservation attribute 'distribution' during the operational phase. The target of this attribute is to ensure that there is no significant decrease in the range, timing or intensity of use of areas by light-bellied brent goose and/or black-headed gull. Potential impacts as a result of collision risk during the operational phase are not considered to have an effect on the above factors.

**No adverse effects to site integrity are predicted** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is *not* required**.



## 6.5.2. North Bull Island SPA

### 6.5.2.1. Overview

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5km long and 1km wide and runs parallel to the coast between Clontarf and Sutton. Saltmarsh extends along the length of the landward side of the island and provides the main roost site for wintering birds in Dublin Bay. The site is an SPA under the E.U Birds Directive, of SCI for the following species: light-bellied brent goose, shelduck, teal, pintail, shoveler, oystercatcher, golden plover, grey plover, knot, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, turnstone and black-headed gull. The site is also of SCI for holding an assemblage of over 20,000 wintering waterbirds. The North Bull Island SPA is an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl (NPWS, 2014b).

### 6.5.2.2. Assessment against relevant conservation objectives

#### 6.5.2.2.1. Construction phase

Adverse effects to site integrity are not predicted during the construction phase, as no pathway exists between the proposed Project and the relevant SCIs identified.

#### 6.5.2.2.2. Operational phase

##### Population Trend

Light-bellied brent goose and black-headed gull have been scoped in for assessment under the conservation attribute 'population trend' during the operational phase.

Section 6.5.1.2 concluded that **adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** to reduce the risk of light-bellied brent goose and black-headed gull collision with overhead lines during the operational phase.

##### Distribution

Light-bellied brent goose and black-headed gull have been scoped in for assessment under the conservation attribute 'distribution' during the operational phase.

Section 6.5.1.2.2 concluded that **adverse effects to site integrity are not predicted** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is not required**.

## 6.5.3. Baldoyle Bay SPA

### 6.5.3.1. Overview

Baldoyle Bay, located to the north and east of Baldoyle and to the south of Portmarnock, Co. Dublin, is a relatively small, narrow estuary separated from the open sea by a large sand dune system. Large areas of intertidal flats are exposed at low tide. 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. Baldoyle Bay is an important site for wintering waterfowl, providing good quality feeding areas and roost sites for an excellent diversity of waterfowl species. It supports internationally important populations. Regular breeding birds include Shelduck, Mallard and Ringed Plover. In autumn, passage migrants such as curlew sandpiper *Calidris ferruginea*, spotted redshank and green sandpiper *Tringa ochropus* are regular in small numbers. Little Egret, a species which has recently colonised Ireland, also occurs at this site. Baldoyle Bay SPA is of high conservation importance, for supporting internationally important numbers of light-bellied brent goose as well as nationally important populations of a further five species, including golden plover and bar-tailed godwit, both species that are listed on Annex I of the E.U. Birds Directive. The inner part of the site is a Statutory Nature Reserve and also designated as a wetland of international importance under the Ramsar Convention (NPWS, 2014a).

### 6.5.3.2. Assessment against relevant conservation objectives

#### 6.5.3.2.1. Construction phase

Adverse effects to site integrity are not predicted during the construction phase, as no pathway exists between the proposed Project and the relevant SCIs identified.

#### 6.5.3.2.2. Operational phase

##### Population Trend

Light-bellied brent goose has been scoped in for assessment under the conservation attribute 'population trend' during the operational phase

Section 6.5.1.2.2, concluded that that **adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** to reduce the risk of light-bellied brent goose collision with overhead lines during the operational phase.

##### Distribution

Light-bellied brent goose has been scoped in for assessment under the conservation attribute 'distribution' during the operational phase.

Section 6.5.1.2.2 concluded that that **adverse effects to site integrity are not predicted** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is not required**.

### 6.5.4. Ireland's Eye SPA

#### 6.5.4.1. Overview

Ireland's Eye SPA, which has an area of 214.43ha, comprises a relatively small uninhabited island situated 1.5km north of Howth in Co. Dublin. It is located 48.9km south of the proposed Project. Alongside Ireland's Eye, the SPA encompasses Rowan Rocks, Thulla, Thulla Rocks, Carrageen Bay and a marine extension of 200m in the west and 500m to the north and east. Along the northern and eastern sides of the island, Cambrian greywackes and quartzites form impressive near-vertical cliffs reaching 69 m in height. There are also scattered exposures elsewhere on the island, particularly in

the high northern half. Habitats on the main island include shingle/sandy beaches and an extensive area of bedrock shore, which is heavily dominated by brown seaweeds and is exposed at low tide between Thulla islet and the main island. Glacial drift covers some areas of the island and there are no watercourses or springs present. Five seabird species are QIs for this SPA; Cormorant *Phalacrocorax carbo*, Herring Gull *Larus argentatus*, Kittiwake *Rissa tridactyla*, Guillemot *Uria aalge* and Razorbill *Alca torda*. The island is of high ornithological importance on a national level (NPWS, 2011b).

#### 6.5.4.2. Assessment against relevant conservation objectives

##### 6.5.4.2.1. Construction Phase

###### Breeding population abundance apparently occupied nests (AONs)

Cormorant and herring gull have been scoped in for assessment under the conservation attribute 'breeding population abundance apparently occupied nests (AONs)' during the construction phase. Potential impacts have been identified as a result of surface water run-off (sediment and pollutants). Adverse effects would be indirect (sedimentation/pollution) on prey.

Surface water run-off is expected to occur throughout the proposed Project area, however where works are localised within the operational railway corridor (i.e. electrification and four-tracking) and where existing track drainage is in place, no adverse effects as a result of surface water run-off into nearby water courses are expected to occur. The proposed works in the vicinity of Heuston Yard and Station (incorporating New Heuston West Station) (i.e. proposed New Heuston West Station, demolitions and electrifications) will be the main source of surface water run-off during the construction phase owing to its proximity to the Liffey Estuary Upper.

As described in Table 6.1, there is potential for cormorant to regularly commute/migrate to the Liffey Estuary Upper where suitable foraging (e.g. fish, insects and amphibians) and roosting grounds (e.g. trees) are available. Therefore, localised pollution and sedimentation which is expected to occur within the upper estuary may have a negative effect on the prey available to this SCI species. An impact on prey availability may adversely affect the breeding population abundance of Cormorant which are foraging in the upper estuary. As similar case is true for herring gull, as they are likely to regularly commute/migrate along the River Liffey to suitable foraging (e.g. fish, invertebrates, insects) and roosting grounds (e.g. urban buildings) available.

A natural vegetative buffer is present along the southern boundary of the Liffey Estuary Upper, which will act as an existing and established filter for some sediment and pollutant run-off, however mitigation measures will still be required.

**Adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** in order to control water pollution (sediment and pollutants) and consequently the breeding population abundance of cormorant and herring gull during the construction phase.

## Productivity rate

Cormorant and herring gull have been scoped in for assessment under the conservation attribute 'productivity rate' during the construction phase. The productivity rate of cormorant and herring gull have the potential to be adversely affected due to negative impacts on prey availability as a result of surface water run-off. Low prey availability, particularly during the breeding season can cause low productivity rates and breeding success (Cury *et al.*, 2011). Potential effects are predicted to be the same as those described under 'breeding population abundance' (see Section 6.5.4.2.1).

**Adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** in order to control water pollution (sediment and pollutants) and consequently the productivity rate of cormorant and herring gull during the construction phase.

## Prey biomass available

Cormorant and herring gull have been scoped in for assessment under the conservation attribute 'prey biomass available' during the construction phase. Potential effects will be the same as those described under 'breeding population abundance' in Section 6.5.4.2.1.

**Adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** in order to control water pollution (sediment and pollutants) and consequently prey biomass available to cormorant and herring gull during the construction phase.

### 6.5.4.2.2. Operational phase

#### Breeding population abundance apparently occupied nests (AONs)

Cormorant and herring gull have been scoped in for assessment under the conservation attribute 'breeding population abundance apparently occupied nests (AONs)' during the operational phase. Potential impacts have been identified as a result of surface water run-off (sediment and pollutants). Adverse effects would be indirect (sedimentation/pollution) on prey.

Surface water run-off is expected to occur throughout the proposed Project area during the operational phase. Existing track drainage will be in place within Zone A and D while new drainage networks are proposed within Zones B and C (see Appendix A). Zone B shall consist of three separate drainage networks along with three attenuation tanks to accommodate for increased surface water volumes as a result of four-tracking. Zone C shall consist of a track drainage system and one attenuation tank with a discharge point, located at the Liffey Estuary Upper. The new Heuston West Station will be the main source of surface water run-off during the operational phase owing to its proximity to the Liffey Estuary Upper and the new discharge point.

As described in Table 6.1, there is potential for Cormorant to regularly commute/migrate to the Liffey Estuary Upper where suitable foraging (e.g. fish, insects and amphibians) and roosting grounds (e.g. trees) are available. Therefore, localised pollution and sedimentation which is expected to occur within the upper estuary may have a negative effect on the prey available to this SCI species. An impact on prey availability may adversely affect the breeding population abundance of Cormorant which are likely foraging in the upper estuary. As similar case is true for herring gull, as they are likely to regularly

commute/migrate along the River Liffey to suitable foraging (e.g. fish, invertebrates, insects) and roosting grounds (e.g. urban buildings) available.

A natural vegetative buffer is present along the southern boundary of the Liffey Estuary Upper, which will act as an existing and established filter for some sediment and pollutant run-off, however mitigation measures will still be required.

**Adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** in order to control water pollution (sediment and pollutants) and consequently the breeding population abundance of cormorant and herring gull during the operational phase.

### Productivity rate

Cormorant and herring gull have been scoped in for assessment under the conservation attribute 'productivity rate' during the operational phase. The productivity rate of cormorant and herring gull have the potential to be adversely affected due to negative impacts on prey availability as a result of surface water run-off. Low prey availability, particularly during the breeding season can cause low productivity rates and breeding success (Cury *et al.*, 2011). Potential effects are predicted to be the same as those described under 'breeding population abundance' (see Section 6.5.4.2.2).

**Adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** in order to control water pollution (sediment and pollutants) and consequently the productivity rate of cormorant and herring gull during the construction phase.

### Prey biomass available

Cormorant and herring gull have been scoped in for assessment under the conservation attribute 'prey biomass available' during the operational phase. Potential effects will be the same as those described under 'breeding population abundance' in Section 6.5.4.2.2.

**Adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** in order to control water pollution (sediment and pollutants) and consequently prey biomass available to Cormorant and Herring gull during the operational phase.

### Barriers to Connectivity

Cormorant and herring gull have been scoped in for assessment under the conservation attribute 'barriers to connectivity' during the operational phase. Potential impacts have been identified as a result of collision risk with proposed electrified overhead lines on Liffey Bridge. Adverse effects would be direct (mortality). Impacts are predicted to be the same as those describe under Section 6.5.1.2.2.

**Adverse effects to site integrity cannot be ruled out** from the proposed Project alone in the absence of mitigation measures. Therefore, **mitigation is required** in order to reduce the risk of Cormorant and Herring gull collision with overhead lines during the operational phase.



## 6.6. In-combination Effects

Legislation, guidance and case law (see Section 1.1) requires that in-combination effects with other plans or projects are considered. On this basis, other plans and projects were considered in terms of their potential to have in-combination effects with the proposed Project.

The assessment of in-combination effects has regard for developments potentially affecting the South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Baldoyle Bay SPA and Ireland's Eye SPA with which a potential pathway has been identified in the foregoing sections of this NIS above.

A study area was defined for the in-combination assessment which included a 1km radius from the redline boundary of the proposed Project and an assessment of any project that may give rise to bird collision risk within the River Liffey corridor. RPS undertook a desk study to source publicly available information on plans, projects and activities within the defined in-combination study area using planning databases and other publicly available sources to identify other plans, projects and activities falling within the study area, which may have the potential to give rise to in-combination effects with the proposed Project.

A search was conducted of national, regional and local plans which were deemed relevant to the proposed Project. This list is not exhaustive of all plans and programmes, but instead focuses on those which may result in an in-combination effect.

### 6.6.1. Plans

A search was conducted of national, regional and local plans which were deemed relevant to the proposed Project, which are discussed below. This list is not exhaustive of all plans and programmes, but instead focuses on plans which may have result in in-combination effect within relevant European sites.

#### 6.6.1.1. National Development Plan 2021-2030

The Department of Public Expenditure and Reform recently launched the new National Development Plan (NDP), which covers the period from 2021-2030 and is the primary infrastructure investment plan adopted by the Government (DPER, 2021). The new NDP is aligned with the delivery of the National Planning Framework (NPF) 2040 objectives and sets out the State's investment priorities to 2030 within the context of a changing demographic, the need for Ireland to move to a low carbon society, Brexit and the sustainable growth opportunities brought about by a growing population.

The NDP 2021-2030 designates a number of National Strategic Outcomes (NSOs) and Priorities of the plan, including Sustainable Mobility and Enhanced Regional Accessibility. The plan seeks to enhance intra-regional accessibility through improving transport links between key urban centres of population and their respective regions, as well as improving transport links between the regions themselves. The NDP recognises the importance of significant investment in sustainable mobility (active travel and public transport) networks if the NPF population growth targets are to be achieved. Targeted investment in the DART+ programme will address some of the constraints on the Dublin City Centre rail network and provide for additional services for intercity rail services.

The Strategic Priorities of the NDP carry the potential for in-combination impacts with the proposed Project on a variety of potential receptors, through pathways of habitat fragmentation/destruction, increased disturbance, and surface/groundwater pollution. Such individual projects arising from these

priorities will, however, be subject to their own AA requirements. The NDP 2021-2030 also sets biodiversity as a priority (i.e. Enhanced Amenity and Heritage – National Strategic outcome 7).

Thus, no in-combination impacts from the National Development Plan 2021-2030 with the proposed Project are predicted.

#### 6.6.1.2. National Biodiversity Action Plan 2017-2021

The National Biodiversity Action Plan for 2017-2021 (DCHG, 2017) demonstrates Ireland’s continuing commitment to meeting and acting on its obligations to protect biodiversity for the benefit of through a series of targeted strategies and actions. The action plan is currently being updated for the period 2022-2026. Investment under the NDP is being provided to support the objectives of the National Biodiversity Action Plan, and its successor plan, including accelerating measures to conserve and restore peatlands and wetlands, combat the spread of invasive alien species, implement Local Biodiversity Action Plans and invest in agri-environment schemes.

This NIS and some of the mitigation measures proposed are considered consistent with specific objectives of the plan. For example, this NIS considers CO of relevant European sites (objective 6.1.7) in order to ensure the conservation status of sites are met, while mitigation measures include for the protection of watercourses including the River Liffey and its tributaries (objective 4.2.1) and the control of IAPS (objective 4.4.3). Relevant objectives of the National Biodiversity Action Plan include:

##### Objective 4.2.1

*“Continue to protect, enhance and monitor the ecological status of water during the second cycle of the Water Framework Directive (2015- 2021) including reducing risks to water quality and utilising ecological expertise in decision-making, and in analysis of cumulative effects.”*

##### Objective 4.4.3

*“Continue and enhance measures for eradication, where feasible, control and containment of invasive species.”*

##### Objective 6.1.7

*“Implement the conservation measures necessary to achieve the published conservation objectives for Natura 2000 sites. Develop and implement additional measures as necessary to achieve favourable conservation status both nationally and at site level.”*

As the overall aim of the plan and its successor is to protect biodiversity and to continue and improve the transposition of the EU Habitats Directive and the EU Birds Directive into national legislation, no in-combination impacts from the National Biodiversity Action Plan 2017-2021 with the proposed Project are predicted.

#### 6.6.1.3. Draft 2021 GDA Cycle Network Plan

The Draft 2021 GDA Cycle Network Plan (NTA, 2021) provides a substantial update and expanse of the 2013 GDA Cycle Network Plan, which instead of focusing on identifying adequate network links for cyclists, aims at strengthening these links through concentrating on access and local permeability within Dublin and GDA towns, and the cycling connectivity between them.

The draft GDA Cycle Network Plan considered environmental issues through the Strategic Environmental Assessment (SEA) and AA processes. The draft plan sets out a number of mitigation measures at a strategic level, which apply to all cycle routes and associated infrastructure in the plan, including some of the following (a full list of mitigation measures can be found in Table 9.1 and Table 9.2 of the SEA Report):

*“Construction Environment Management Plans (CEMPs) shall be prepared in advance of the construction of relevant projects and implemented throughout. Such plans shall incorporate relevant mitigation measures which have been integrated into the Strategy and any lower tier Environmental Impact Statement or Appropriate Assessment.”*

*“Support measures to protect the coast, the coastal edge and coastal habitats; and facilitate an Integrated Coastal Zone Management approach to ensure the conservation, management and protection of man-made and natural resources of the coastal zone.”*

*“Ensure the undertaking of appropriately detailed surveying and assessment at project/EIA level and minimisation of loss of biodiversity, including old trees or tree lines or areas of vegetation, as a result of the development of new or widened infrastructure.”*

*“Lighting fixtures should provide only the amount of light necessary for personal safety and should be designed so as to avoid creating glare or emitting light above a horizontal plane. Lighting fixtures should have minimum environmental impact, thereby contributing towards the protection of amenity and the protection of light sensitive species such as bats.”*

*“Ensure that new development is adequately serviced with surface water drainage infrastructure and promote the use of Sustainable Drainage Systems as Appropriate.”*

*“Ensure that adequate soil protection measures are undertaken where appropriate. Adequate and appropriate investigations shall be carried out into the nature and extent of any soil and groundwater contamination and the risks associated with site development work, where brownfield development is proposed.”*

#### 6.6.1.4. Greater Dublin Area Cycle Network Plan

The Greater Dublin Area Cycle Network Plan (NTA, 2013) aims to provide a consistent cycling network across Dublin City Council and link to the GDA. The network plan consists of the Urban Network, Inter-Urban Network and Green Route Network for each of the seven local authority areas comprising the GDA.

The GDA Cycle Network Plan considered environmental issues through the SEA and AA processes. The plan sets out a number of mitigation measures at a strategic level, which apply to all cycle routes in the plan, including:

1. *“In advance of any project work on greenway routes, the National Parks and Wildlife Service (NPWS) will be consulted and at a minimum an ecological survey and/or ecological impact assessment (EclA) will be carried out on the entire route in advance of final route selection to ensure the proposal is ecologically feasible before continuing further. Projects will also need to be screened for appropriate assessment requirements and their impacts considered cumulatively.”*

2. *“The greenway routes along canals should be investigated prior to development to ensure any sensitive habitats or species present are not impacted upon.”*

3. “Any proposed greenway routes along ecological corridors that include waterways and disused railway lines will ensure that consideration is given to the protection of otters (protected under the Wildlife Acts and listed on Annexes II and IV of the Habitats Directive), bats (protected under the Wildlife Acts and listed on Annex II of the Habitats Directive), kingfishers (protected under the Wildlife Acts and listed under Annex I of the Birds Directive (Directive 2009/147 EC)) plants protected under the Wildlife Acts, red-listed species and habitats listed on Annex II of the Habitats Directive as well as other habitats of importance for biodiversity.”

There is potential for future development of the cycle routes to include several crossings of the proposed Project corridor. Individual projects, however, will be subject to their own AA requirements and specific mitigation measures will need to be identified and implemented at the project-level AA stage. With the incorporation of these AA requirements and mitigation commitments, the Greater Dublin Area Cycle Network Plan is not foreseen to have any adverse effects to the ecological integrity of any European Site. No in-combination impacts from the Greater Dublin Area Cycle Network Plan with the proposed Project are predicted.

#### 6.6.1.5. Dublin City Development Plan 2022-2028

Dublin City Council (DCC) 2022-2028 sets out the policies and objectives to guide how and where development will take place within the city over the next six years. These policies and objectives aim to guide growth and development, provide a strategy to achieve proper planning and show how sustainable development can be achieved in the city. The Plan recognises that sustainable and efficient movement of people is crucial for the success and vitality of the city. Therefore, the strategic vision includes plans for further significant investment in public transport, which includes the Dart+ expansion programme.

Alongside the Dart+ Programme, the Plan highlights several large transport projects, including the proposed MetroLink, Bus Connects and Luas extension. These linear transport projects, as well as other large, proposed developments within the city, have the potential to result in in-combination impacts with the proposed Project on European sites and their associated QI habitats and species.

However, DCC recognises that the city’s natural assets are an essential resource for conserving biodiversity and for creating a low carbon, resilient and connected city. As such, the Plan sets out a number of policies that aim to protect biodiversity and conserve Natura 2000 sites within Dublin city and the surrounding environment. These policies include:

#### **Policy GI9: European Union Natura 2000 Sites**

*“To conserve, manage, protect and restore the favourable conservation condition of all qualifying interest/special conservation interests of all European sites designated, or proposed to be designated, under the EU Birds and Habitats Directives, as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) (European/Natura 2000 sites).”*

#### **Policy GI10: Flora and Fauna Protected under National and European Legislation Located Outside Designated Areas**

*“To adequately protect flora and fauna (under the EU Habitats and Birds Directives), the Wildlife Acts 1976 (as amended), the Fisheries Acts 1959 (as amended) and the Flora (Protection) Order 2022 S.I*

No. 235 of 2022, wherever they occur within Dublin City, or have been identified as supporting the favourable conservation condition of any European sites.”

### **Policy GI13: Areas of Ecological Importance for Protected Species**

*“To ensure the protection, conservation and enhancement of all areas of ecological importance for protected species, and especially those listed in the EU Birds and Habitats Directives, including those identified as supporting the favourable conservation condition of any European sites, in accordance with development standards set out in this plan.”*

The Plan also sets out a number of objectives in support of other plans, such as the National Biodiversity Action Plan and the Draft Dublin City Biodiversity Action Plan, which will ensure the successful management and conservation of all designated sites. With the implementation of biodiversity objectives and the requirement for other developments arising from the Plan to carry out AA under Article 6 of the EU Habitats Directive, adverse effects on the integrity of any European site(s) will be prevented. Therefore, no in-combination impacts from the Dublin City Development Plan 2022-2028 with the proposed Project are predicted.

#### **6.6.1.6. Park West - Cherry Orchard Local Area Plan 2019**

In 2019, Dublin City Council adopted the Park West – Cherry Orchard Local Area Plan (LAP) which allows for future development to be managed in a coordinated and sustainable manner, integrating new neighbourhoods with existing communities and providing for the needs of the existing and future populations. The Park West – Cherry Orchard LAP will remain in force for a period of six years (until 2025), however, the Council may after five years decide to extend the life of the plan, to a period no longer than ten years in total. The potential future development of the lands in the Park West – Cherry Orchard area, which includes the development of housing, commercial and recreational facilities, transport and utility infrastructure, present a potential for in-combination effects. However, the LAP sets out a number of overarching principles and objectives which are relevant to the protection of the natural environment.

The Park West – Cherry Orchard LAP outlines the key principle ‘**Green Infrastructure and Biodiversity**’ as follows:

*“To protect and promote the natural and built heritage of the area and provide a network of well-maintained parks and civic spaces connected by tree lined streets taking the opportunity to incorporate best practice Sustainable Urban Drainage System (SuDS) infrastructure as appropriate.*

*Support the aims and objectives of the Water Framework Directive for the Camac River Catchment, particularly in relation to hydromorphology and improvements in water quality and the streams that drain the LAP lands.”*

Under the topic of green infrastructure and biodiversity, the LAP also sets out a number of specific objectives which are relevant to the protection of natural heritage and biodiversity, including:

#### **Objective GI2:**

*“To enhance the planting and biodiversity value of existing local parks and other incidental areas of open space/grassland.”*



## Objective GI4:

*“To enhance the biodiversity value of the local area by protecting habitats, in particular historic hedgerows and along the Canal, and create opportunities for new habitats through appropriate landscaping schemes to integrate the natural environment into the existing and future urban environment.”*

With the incorporation of the principles and objectives for the conservation of natural heritage and biodiversity within the LAP lands, it is considered that the LAP is not foreseen to have adverse effects on any European Site(s), their QIs/SCIs and therefore their ecological integrity. While these principles and objectives are not specific to the protection of European Sites, their implementation will have a positive impact on the environment and prevent adverse impacts to any Natura 2000 sites that have connectivity to the LAP lands.

Furthermore, an AA Screening of the LAP identified that, in terms of direct, indirect and cumulative impacts, there is no potential for significant impacts on Natura 2000 sites within the Zol of the LAP. The LAP and any developments arising within will be consistent with the Dublin City Development Plan in operation, which is also subject to SEA and AA during its preparation and adoption. Therefore, no in-combination impacts from the Park West – Cherry Orchard LAP 2019 with the proposed Project are predicted.

### 6.6.1.7. South Dublin Development Plan 2022 - 2028

The South Dublin County Development Plan 2022-2028 was published on 22<sup>nd</sup> June 2022 and came into effect on the 3<sup>rd</sup> of August 2022. The new development plan sets out the land use framework to guide future development in South Dublin and aims to progress to a more sustainable development pattern in the immediate and long-term future up to 2040 and beyond. The plan includes a vision for the County’s growing communities, places, housing, jobs, sustainable transport and the delivery of services in a manner which promotes climate action and efficient patterns of land use, paying particular attention to physical, cultural, environmental and social elements. The Plan seeks to support the delivery of sustainable transport projects including the DART+ expansion programme, which have the potential to have a transformative impact on transportation within the County, by shifting the dominance of car-based transport towards sustainable public transport.

The new South Dublin Development Plan sets out policies and objectives related to housing, natural, cultural and built heritage, sustainable movement, energy, infrastructure and development, among others. These policies and objectives are consistent with national and regional planning policy as set out in the National Planning Framework and Regional Spatial and Economic Strategy. Across these topic areas, the Plan highlights a number of proposed projects and development opportunities within the County, including housing development, community and recreational amenities and sustainable transport infrastructure. Therefore, the Plan carries the potential for in-combination impacts with the proposed Project on a variety of potential ecological receptors, through pathways such as habitat fragmentation/destruction, increased disturbance, and surface/groundwater pollution.

However, the South Dublin Development Plan sets out a number of key policies and objectives which aim to protect biodiversity, natural heritage and Natura 2000 Sites in particular, including:

### Policy NCBH2 Objective 2:

*“To ensure the protection of designated sites in compliance with relevant EU Directives and applicable national legislation.”*

### Policy NCBH2 Objective 3:

*“To protect and conserve the natural heritage of the County, and to conserve and manage EU and nationally designated sites and non-designated locally important areas which act as ‘stepping stones’ for the purposes of green infrastructure and Article 10 of the Habitats Directive.”*

### Policy NCBH2 Objective 4:

*“To protect our rivers and in particular to avoid overdevelopment which could have an adverse effect on the biodiversity and ecosystems of the river.”*

### Policy NCBH3: Natura 2000 Sites

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

Within the Plan, flood risk assessment and management, the protection of watercourses and water quality and the conservation of biodiversity is incorporated into the objectives. Individual projects within the South Dublin County will be subject to their own AA requirements and specific mitigation measures will need to be incorporated into development proposals. Having regard to the biodiversity objectives within the Plan and the incorporation of environmental assessment requirements and mitigation commitments, the Plan is not foreseen to have any adverse effects to the ecological integrity of any European Site. No in-combination impacts from the South Dublin Development Plan 2022 - 2028 with the proposed Project are predicted.

#### 6.6.1.8. Clonburris Strategic Development Zone 2019

In 2006, Government Order (SI 442 of 2006) designated 180 hectares of land at Clonburris as a Strategic Development Zone (SDZ). A Planning Scheme was subsequently made in 2008. In 2015, Government Order (SI No. 604 of 2104) designated 280 hectares of land at Clonburris-Balgaddy as an SDZ; revoking the 2006 Order and 2008 Planning Scheme. Under the Designation of SDZ: Balgaddy – Clonburris, the lands which are deemed to be of economic and social importance to the state, are *“for residential development and the provision of schools and other educational facilities, commercial activities, including employment office, hotel, leisure and retail facilities, rail infrastructure, emergency services and the provision of community facilities, including health and childcare services.”*

The SDZ lands are located to the west of Dublin City Centre and the M50, between Lucan, Clondalkin and Liffey Valley. The overarching principles of the Clonburris SDZ Planning Scheme 2019 include:

- To realise the optimum development of the SDZ area with a target of 9,416 (up to 11,098) new homes offering a choice of dwelling types, sizes and tenure options;
- To develop the SDZ in a manner that maximises existing and proposed public transport opportunities, including high quality rail and bus services;

- To direct land-uses and densities across the SDZ lands in a manner that creates a sustainable urban district that is based on the integration of land-use and transport planning;
- To develop vibrant mixed-use centres around Clonburris and Kishoge railway stations as part of a hierarchy of urban centres to serve Clonburris;
- To maximise appropriate access to and use of the Grand Canal, Griffeen Valley Park and other biodiversity assets in an ecologically sensitive way, thereby offering unique selling points to the SDZ Planning Scheme; and
- To deliver a network of high quality green and blue infrastructure spaces and public parks while protecting, enhancing and sensitively upgrading the natural, built and cultural assets of Clonburris lands.

Proposals within the Clonburris Planning Scheme include residential, retail and commercial developments, schools, community and recreational facilities and transport infrastructure. The developments proposed within the Planning Scheme present a potential for in-combination effects with the proposed Project through various ecological receptors. For example, surface waters in the area, both naturally occurring rivers and streams e.g. the Griffeen and Camac river, and manmade infrastructure relating to the surface water drainage network, ultimately drain into Dublin Bay. Therefore, there is a hydrological link between the SDZ lands and the suite of European sites located in Dublin Bay.

However, the Clonburris Planning Scheme includes key principles for the protection of biodiversity and natural heritage, including:

- *To seek to protect and enhance natural, built and cultural heritage features, where appropriate, such as the Grand Canal, streams, Protected Structures and barony and townland boundary hedgerows;*
- *To avoid or minimise the impact on protected species and their habitats; and*
- *Incorporate biodiversity and heritage into new developments.*

Provisions and mitigation measures within the Planning Scheme include a requirement for CEMPs to be prepared for all physical elements proposed as part of the scheme, flood relief measures and the requirement for inclusion of SuDs features for all proposed development within the SDZ scheme area. In addition, individual applications arising from the Planning Scheme will be subject to screening for AA and specific mitigation measures will need to be identified and implemented at the project-level stage. With the incorporation of these AA requirements, mitigation commitments and principles relevant to the protection of the environment, biodiversity and Natura 2000 sites, the Planning Scheme is not foreseen to have any adverse effects to the ecological integrity of any European Site. Therefore, no in-combination impacts from the Clonburris SDZ Planning Scheme 2019 with the proposed Project are predicted.

#### 6.6.1.9. Adamstown Strategic Development Zone Planning Scheme 2014

The Adamstown SDZ covers an area of land (approximately 223.5 hectares) to the south-west of Lucan, County Dublin. In July 2001, this area was designated by the Government for residential development and associated facilities such as schools, commercial activities, office and retail facilities

and emergency services. Following a review of the previous 2003 Planning Scheme in 2013, and subsequent appeal to An Bord Pleanála, the revised Adamstown SDZ Planning Scheme was approved by An Bord Pleanála in December 2014. The Planning Scheme aims to create sustainable communities in Adamstown with regard to best practice in planning and design, integrating urban design, land use, housing, transportation, ecology and landscape and conservation.

Adamstown SDZ has been subdivided into 15 sub-areas for the purposes of the Planning Scheme; 11 'development areas' and four 'amenity areas'. Within the development areas, proposals include large residential and commercial developments, schools, social and community facilities and a railway station. The proposed amenity areas will see the development of public open spaces, including the enhancement of existing watercourses and woodland habitats. The Tobermaclugg Stream and the Griffeen River drain much of the land around Adamstown before both join the River Liffey. Therefore, a potential ecological link exists between surface water drainage from the plan lands and Natura 2000 downstream of the SDZ lands. The developments proposed within the Planning Scheme present a potential for in-combination effects with the proposed Project through various ecological receptors.

However, during preparation of the Adamstown SDZ Planning Scheme, the overarching policies and objectives of the NDP and South Dublin County Development Plan and the regional planning guidelines were taken into account. These higher level documents have been subject to the AA process themselves, in order to ensure no significant impacts are likely. With the incorporation of policies and objectives relevant to the protection of the environment, biodiversity and Natura 2000 sites, the Planning Scheme is not foreseen to have any adverse effects to the ecological integrity of any European Site. In addition, it is a requirement that each individual application within the Planning Scheme itself will be subject to screening for AA to ensure there will be no significant negative impact on Natura 2000 sites. Therefore, no in-combination impacts from the Adamstown SDZ Planning Scheme 2014 (as amended) with the proposed Project are predicted.

#### 6.6.1.10. Kildare County Development Plan

The Kildare County Development Plan 2017-2023 (KCC, 2017a) sets out an agreed vision to guide future growth and sustainable development of County Kildare. The plan highlights a number of committed and proposed infrastructural projects within the county, supported by a range of policies and objectives. These include large wastewater treatment projects and flood management and alleviation programmes. The Draft Kildare County Development Plan 2023-2029 has been published and is currently in the public consultation phase.

The current plan sets out several relevant biodiversity objectives, including:

##### **NH4:**

*“Support the conservation and enhancement of Natura 2000 Sites including any additional sites that may be proposed for designation during the period of this Plan and to protect the Natura 2000 network from any plans and projects that are likely to have a significant effect on the coherence or integrity of a Natura 2000 Site.”*

##### **NH5:**

*“Prevent development that would adversely affect the integrity of any Natura 2000 site located within and immediately adjacent to the county and promote favourable conservation status of habitats and*

protected species including those listed under the Birds Directive, the Wildlife Acts and the Habitats Directive.”; and

#### **NH6:**

*“Ensure an Appropriate Assessment, in accordance with Article 6(3) and Article 6(4) of the Habitats Directive and with DEHLG guidance (2009), is carried out in respect of any plan or project not directly connected with or necessary to the management of a Natura 2000 site to determine the likelihood of the plan or project having a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects and to ensure that projects which may give rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites will not be permitted (either individually or in combination with other plans or projects) unless for reasons of overriding public interest.”*

Within the plan, Energy and Communications, Infrastructure, Rural Development, Architectural and Archaeological Heritage and Landscape, Recreation and Amenity all incorporate flood risk assessment and management and the protection of biodiversity into objectives. A Natura Impact Report (NIR) of the Kildare County Development Plan 2017-2023 (KCC, 2017a), concluded that the risks to the QIs and COs of the Natura 2000 network are addressed by the inclusion of mitigation measures that will prioritise the avoidance of impacts in the first place and mitigate impacts where these cannot be avoided. In addition, all lower level plans and projects that arise through the implementation of the plan will be subject to their own AA requirements.

Having incorporated these AA requirements and mitigation commitments; no in-combination impacts from the Kildare County Development Plan 2017-2023 with the proposed Project are predicted.

#### **6.6.1.11. Celbridge Local Area Plan**

The Celbridge Local Area Plan 2017-2023 (KCC, 2017b) sets out the overall strategy for proper planning and sustainable development of the town of Celbridge. The potential future development of the lands in the vicinity of Hazelhatch/Celbridge rail station present a potential for in-combination effects. The local area plan (LAP) highlights the potential for downstream effects from works or development via the River Liffey, which flows into Dublin Bay SAC. However, the LAP sets out a number of strategic objectives, policies and key actions which are relevant to the protection of the natural environment.

The Celbridge LAP outlines a policy for the conservation of the Natura 2000 network through the protection of species and habitats designated under the Birds and Habitats Directives and the Wildlife Acts, as well as areas of high local biodiversity value. The following objectives are relevant to the protection of designated sites:

#### **Objective NH01.1:**

*“To ensure an Appropriate Assessment, in accordance with Article 6(3) and Article 6(4) of the Habitats Directive and with DEHLG guidance (2009), is carried out in respect of any plan or project not directly connected with or necessary to the management of a Natura 2000 site to determine the likelihood of the plan or project having a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects and to ensure that projects which may give rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites will not be permitted (either individually or in combination with other plans or projects) unless for reasons of overriding public interest”.*



## Objective NH01.2:

*“To identify, protect, conserve and enhance wherever possible, wildlife habitats and species of local importance, not otherwise protected by legislation. Such habitats would include woodland, river, grassland areas and field boundaries (hedgerows, stone walls and ditches). Such features form part of a network of habitats and corridors, which allow wildlife to exist and flourish and contribute to compliance with Article 10 of the Habitats Directive”.*

With the incorporation of these objectives for the conservation of biodiversity and natural heritage in Celbridge, it is considered that the Celbridge Local Area Plan 2017-2023 is not foreseen to have any adverse effects to the ecological integrity of any European Site. No in-combination impacts from the Celbridge Local Area Plan 2017-2023 with the proposed Project are predicted.

### 6.6.2. Projects

A search was conducted of planning applications (projects) using the My Plan map viewer (DHLGH, 2022a), and the EIA portal (DHLGH, 2022b). The search was limited to the five-year period preceding the date of issue of this report and excluded retention applications incomplete, withdrawn, and refused applications. Furthermore, a case search of An Bord Pleanála's website (ABP, 2022) was completed to identify any relevant applications, including Strategic Infrastructure Development (SID), Strategic Housing Development (SHD) and Part 8 [Local Authority] developments. EPA Datasets (EPA, 2022) for water and biodiversity, EPA licenses and foreshore application licenses were additionally consulted.

A five-year timeframe is deemed the most appropriate period for the planning search. Permissions granted more than five years ago would generally be constructed, partially constructed, or are under construction when the planning site is viewed. Applications were assessed with particular cognisance of in-combination effects as a result of surface water run-off and SCI bird collision risk.

Several small scale applications are noted in the vicinity of the proposed Project relating to single rural dwellings; building conversions; and storage facilities. However, a number of other larger scale applications were also noted and were identified to have potential for in-combination effects including data centres; the roads and drainage infrastructure works as approved under the Clonburris Strategic Development Zone Planning Scheme (2019) (refer Section 6.6.1 for Plans); the Bus Connects Corridor Scheme; and large-scale housing developments. Some foreshore licenses were also noted to have potential for in-combination effects. The full list of projects considered for the in-combination assessment are displayed in Appendix F.

- **Application 2020227<sup>13</sup> and SDZ20A/0021<sup>14</sup>** – *“Roads and drainage infrastructure works as approved under the Clonburris Strategic Development Zone Planning Scheme (2019)”.*

The proposed roads and drainage infrastructure as part of the Clonburris SDZ, is located c. 6m from the proposed DART+SW Project at its closest point. Potential for in-combination effects includes uncontrolled movement of surface water run-off. An AA Screening was completed for this development (Scott Cawley, 2022b) which concluded that *“the proposed development is not likely to have significant effects on any European sites.”* A Stage 2 NIS was not required. It is not foreseen that in-combination impacts from the development will occur. Therefore, no in-combination impacts from the Roads and

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<sup>13</sup> EIA Portal Reference Number

<sup>14</sup> Planning Application Reference Number

drainage infrastructure works as approved under the Clonburrish Strategic Development Zone Planning Scheme (2019) with the proposed Project are predicted.

- **Application ABP-313892-22<sup>13</sup>** – *Bus Connects Blanchardstown to City Centre Core Bus Corridor Scheme*

The proposed Bus Connects Corridor is located c. 96m from the proposed DART+SW Project at its closest point. Potential for in-combination effects includes the uncontrolled movement of surface water run-off. An AA Screening and a Stage 2 NIS were completed for this scheme (Scott Cawley, 2022a). The NIS recognises that the potential for adverse effects as a result of surface water run-off on downstream European site (i.e. those in Dublin Bay), however the NIS provides a suite of measures to protect surface water quality. On this basis (and in addition to various other mitigation measures), the NIS concluded that *“the Proposed Scheme 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.”* Where mitigation measures are outlined and undertaken, no in-combination effects are deemed likely. Therefore, no in-combination impacts from the Bus Connects Blanchardstown to City Centre Core Bus Corridor Scheme with the proposed Project are predicted.

- **Application SDZ19A/0011<sup>14</sup>** – *Construction of 245 dwellings*

The proposed construction of 245 dwellings (up to a maximum of c. 23,903.5sq.m. GFA), is located c. 973m from the proposed DART+SW Project. Potential for in-combination effects includes uncontrolled movement of surface water run-off. An AA Screening was completed for this development (BSM, 2019) which concluded that *“no elements of the project will result in any likely significant impact on any relevant European sites, either on their own or in-combination with other plans or projects, can be excluded.”* A Stage 2 NIS was not required. It is not foreseen that in-combination impacts from the development will occur. Therefore, no in-combination impacts from the construction of 245 dwellings at Adamstown, Co. Dublin with the proposed Project are predicted.

- **Application 2021033<sup>14</sup>** – *Construction of two single storey data centres*

The proposed construction of two single storey data centres with associated office and service areas, is located c. 550m from the proposed DART+SW Project. Potential for in-combination effects includes uncontrolled movement of surface water run-off. An AA Screening was completed for this development (Scott Cawley, 2021) which concluded that *“the possibility of any significant effects on any European sites, whether arising from the project alone or in-combination with other plans or projects, can be excluded.”* A Stage 2 NIS was not required. It is not foreseen that in-combination impacts from the development will occur. Therefore, no in-combination impacts from the construction of data centres at Ballymakailly, Co. Dublin with the proposed Project are predicted.

- **Foreshore licenses** (incl. remedial works, maintenance dredging and site investigations).

A number of foreshore licenses were considered which include activities such as remedial works, maintenance dredging and site investigations (see Appendix F). Potential for in-combination effects include sedimentation of surface waters and indirect effects on food sources associated with SCI birds. Of these foreshore applications, all were either subject to or will be subject to AA processes. The potential for in-combination impacts associated with foreshore activities are not predicted.

No projects were considered to have potential for in-combination effects with SCI bird collision risk.

### 6.6.3. In-combination Conclusion

For the above plans (Section 6.6.1), and projects (Section 6.6.2), no significant in-combination effects are predicted to affect the South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Baldoyle Bay SPA and Ireland's Eye SPA, having regard for their legal protection as European sites (through legislation at national level, and policy initiatives at national, county and local levels).

## 7. Mitigation Measures

The term “mitigation measures” are considered to be “*measures that aim to minimise, or even cancel, the negative impacts likely to arise when a plan or project is implemented so that the site’s integrity is not adversely affected. These measures are considered in the context of Article 6(3) and are an integral part of the specifications of a plan or project or conditional to its authorisation*” (EC, 2021).

A number of mitigation measures are required to control the release of suspended solids and contaminants from entering the Liffey Estuary Upper in addition to measures to reduce the collision risk of birds associated with the overhead lines at Liffey Bridge.

### 7.1. Appointment of Environmental Team

Prior to commencement of any works, the following key environmental personnel will be appointed:

- **Environmental Clerk of Works (ECoW)** to ensure that the mitigation measures outlined in this NIS (including any updates to this document following consent) are implemented in full and to supervise works in sensitive locations. The Contractor shall appoint the ECoW before the commencement of works. The ECoW shall be suitably qualified and experienced and have a minimum of five years’ experience completing similar tasks on linear infrastructure projects; and
- **Project Ecologist** to supervise all implementation and overseeing of ecological mitigation measures and ensuring that activities on site are conducted in accordance with the planning permission as they pertain to ecological matters and specifically any works that could have an effect on the SCIs of South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Baldoyle Bay SPA and Ireland’s Eye SPA. CIÉ shall appoint the Project Ecologist before the commencement of works. The Project Ecologist shall be a full member of a relevant institution, such as the Chartered Institute of Ecology and Environmental Management (CIEEM) or similar, have relevant experience in the management of mitigation measures and ecological constraints on construction sites/restoration projects, and hold or have previously held a protected species derogation licence in the Republic of Ireland.

### 7.2. Construction Stage Mitigation

#### 7.2.1. Control of Water Pollution

The following mitigation shall be implemented for the protection of SCI Cormorant and SCI Herring Gull designated as part of Ireland’s Eye SPA, during the construction phase.

##### 7.2.1.1. General Pollution Control

The following mitigation is for the general protection of watercourses:

- All method statements for works in, near (within 15m of a watercourse feature) or liable to impact on a waterway must have prior agreement with IFI and NPWS.

- Stockpiling of construction materials shall be strictly prohibited within 15 m of watercourses and water-laden channels, such as the locations identified in Table 7.1 (see also Section 7.2.1.2 for further information on the control of water pollution at Liffey Bridge):

**Table 7.1 Watercourses which intersect the proposed Project**

EPA Waterbody Name	EPA Code	Location of watercourse intersections with the proposed Project
Liffey	IE_EA_090_0400	53.347480, -6.304021
Camac	IE_EA_09C020500	53.345995, -6.304627
Grifeen	IE_EA_09L012100	53.335041, -6.447633
n/a- tributary of the Grifeen	n/a	53.334922, -6.444964
Coneyburrow_09	IE_EA_09L011900	53.335352, -6.493755
Castletown_09	IE_EA_09C500830	53.325423, -6.518929

- Stockpiling of loose materials shall be covered with an impermeable material (e.g. tarpaulin);
- Hazardous materials including diesel, fuel oils, solvents, paints and/or lubricants stored on temporary or permanent lands made available shall be stored on hardstand and within suitably designed bunded areas with a bund volume of 110% of the capacity of the largest tank/container;
- Re-fuelling of plant and construction equipment and the addition of hydraulic oil or lubricants to vehicles/equipment shall only take place on hardstand, within designated bunded areas only and not within 15 m of any watercourse or surface water feature (see Volume 3A of this EIAR, Drawing DP-04-23-DWG-EV-TTA-23750). Spill containment (i.e. drip trays) shall be used, and spill kits shall be kept available and used if necessary;
- Oils, fuel, chemicals, hydraulic fluids etc. will not be stored outside construction compounds. They will be stored in designated bunded areas at construction compounds.
- Waste oils and hydraulic fluids shall be collected in leak-proof containers and removed from the site for disposal or recycling at licensed facilities;
- Waste materials shall be stored in designated areas that are isolated from surface water drains and watercourses. Waste materials will be carefully managed including covering stockpiles during rainfall. Skips shall be closed or covered to prevent materials being blown or washed away.
- All machinery will be routinely checked to ensure no leakage of oils or lubricants occurs during the construction phase. Any spillages will be immediately contained, and the contaminated soil removed from the site and disposed of properly;
- Wash down water from exposed aggregate surfaces, cast-in-place concrete and from concrete trucks will be trapped on-site to allow sediment to settle out before clarified water is released to a drain system; and
- No waste will be buried, burnt, or dumped on-site or in land adjacent to the site.
- Only emergency breakdown maintenance shall be carried out on site. Emergency procedures and spill kits will be readily available at strategic and/or sensitive site locations and all relevant personnel will be familiar with emergency procedures;



- An appropriate emergency response will be in place for any spillage of fuels, lubricants or hydraulic oils to ensure they are immediately contained; and
- Any contaminated soil shall be removed from the site and disposed of in a licensed facility.

For the protection of watercourses associated with surface water run-off, the following measures shall be employed:

- No in-stream works will be permitted;
- Where works are required within 15m of a watercourse feature, an ecologist shall assess and verify that appropriate demarcation and signage is in place before works commence. Demarcation shall be physically marked out using post and rail/post and rope/bunting, or equivalent, and be signposted to identify an ecological sensitivity;
- Silt fencing shall be installed for all work within 15m of the River Liffey. Silt fencing shall consist of a maintainable geotextile membrane (equivalent to Terrastop™ Premium; 250µ; 45l/m2/sec). Installation, maintenance, and removal shall follow the manufacturers' specifications. The geotextile membrane will be inspected at least once a week and following any period of heavy rainfall (i.e. Orange and Red rain warning).
- The Contractor will monitor weather forecasts for heavy rain and where required, certain works and in particular excavations/earthworks will cease in order to minimise exposed soil entering surface water run-off; and
- Soil excavation will not be completed during periods of prolonged or heavy rain (i.e. Orange and Red rain warning).

### Controls over Use of Concrete

For the protection of watercourses associated with the use of concrete, the following measures shall be employed:

- All ready-mixed concrete shall be brought to site by truck. A suitable risk assessment for wet concreting shall be completed prior to works being carried out which will include measures to prevent discharge of alkaline waste waters to the underlying subsoil. Wash down and washout of concrete transporting vehicles shall take place at an appropriate facility offsite. Where this is not possible, wash down and washout shall take place within a washout berm for later disposal after drying;
- Concrete shall be contained and managed appropriately to prevent pollution of watercourses. Concrete pouring will be prevented during periods of heavy rainfall, and appropriately designed mixes shall be used; and
- Waste materials shall be stored in designated areas that are isolated from surface water drains. Skips shall be closed or covered to prevent materials being blown or washed away.

### Control and Response to Environmental Incidents and Accidents

In the case of environmental incidents or accidents occurring during the construction phase of the proposed Project, the following measures will be applied:

- The Contractor will be required to have available on site spill kits and hydrocarbon absorbent materials to deal with any accidental spillages;
- An Environmental Incident and Emergency Response Plan will be established by the Contractor to deal with incidents or accidents during construction that may give rise to pollution in watercourses proximal to the works. This will include means of containment in the event of accidental spillage of hydrocarbons or other pollutants (e.g. oil booms, soakage pads);
- All employees and subcontractors involved on site will be given a comprehensive induction prior to commencement of the works. The environmental training and awareness procedure will ensure that staff are familiar with the principles of the CEMP, the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.
- Throughout all stages of the construction phase the Contractor will ensure that all site personnel are made aware of the importance of the freshwater environments and the requirement to avoid pollution of all types;
- All hazardous materials on site will be stored within secondary containment designed to retain at least 110% of the total storage contents;
- Temporary bunds for oil/diesel storage tanks will be used off- site during the construction phase of the proposed Project as appropriate;
- Safe handling of all potentially hazardous materials will be emphasised to all construction personnel employed during this phase of the proposed Project; and
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the site and properly disposed of at a suitable licensed facility.

#### 7.2.1.2. Control of Water Pollution at Liffey Bridge

In addition to the general pollution prevention measures, additional measures will be applied to control water pollution at Liffey Bridge (Zone D: River Liffey Bridge to Glasnevin Junction, of the proposed Project):

- Attenuation tanks will greatly reduce the risk of untreated or uncontrolled discharges entering the Liffey Estuary, however mitigation in the form of hard engineering structures such as vortex grit chambers and silt barriers will be required to prevent an adverse effect on water quality and prey available to breeding populations of cormorant and herring gull;
- Discharge into watercourses will only be carried out with the consent of the ECoW to ensure all available measures have been applied to prevent siltation/pollution of the Liffey Estuary Upper;
- Clearly defined working areas, delineated by temporary protective fencing will be required, and are essential to ensure there is a sufficiently large buffer zone between working areas and the Liffey Estuary Upper and to avoid accidental incursion by personnel, materials or equipment;
- Stockpiling of construction materials (i.e. loose materials or any material that may give rise to runoff) will be located greater than 15m from the bankside of the Liffey Estuary Upper (see also Section 7.2.1) and will be covered with an impermeable material (e.g. tarpaulin);

- Silt fences will be installed and maintained along the southern boundary of Liffey Bridge and will comply with the requirements of ASTM D6462 – 19 Standard Practice for Silt Fence Installation and Maintenance (June 2019) (ASTM, 2019) and adhere to IFI (2016) Guidelines. As a minimum;
  - Silt fences will comprise of a supported geotextile fabric or similar with posts at 4 m distance as a minimum;
  - Silt fences will comprise a double geotextile layer;
  - Material geotextile should be adequately buried at an ‘L’ shape to its marker line (minimum 150mm) and the trench backfilled and compacted; and
  - Silt fences will be inspected daily and after heavy rainfall.

## 7.3. Operational Stage Mitigation

### 7.3.1. Control of Water Pollution

The following mitigation shall be implemented for the protection of SCI Cormorant and SCI Herring Gull designated as part of Ireland’s Eye SPA, during the operational phase to control water pollution at Liffey Bridge (Zone D: River Liffey Bridge to Glasnevin Junction, of the proposed Project):

- The design of the proposed Project allows for all surface water run-off from the proposed Project to be treated prior to discharge to the River Liffey through either through the existing drainage networks or through proposed drainage networks, which include: ‘filter drains’, and ‘attenuation tanks’;
- The release of discharge to the River Liffey after attenuation, will not exceed the existing greenfield runoff rate; and
- An A Class 1 bypass separator will be installed on the inlet pipe to the attenuation tank in order to treat surface water and remove any potential contamination prior to entering the tank and ultimately prior to discharge to the River Liffey.

### 7.3.2. Bird collision risk

The following mitigation shall be implemented for the protection of SCI light-bellied brent goose and SCI black-headed gull designated as part of South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA and Baldoyle Bay SPA. The feeder wire along both sides of Single Track Cantilever OHLE masts on the Liffey Bridge crossing (Zone D) will be fitted with a device to make lines more visible to commuting, foraging and migrating SCI light-bellied brent goose and SCI black-headed gull. Devices will not be required in any other location along the proposed Project.

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 7.1) 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 7.1: Examples of hanging tags (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 Image A). 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, 5m is considered appropriate for the Liffey Bridge crossing which only extends for c. 50m over the water;
- 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 by 50% to 80%. Other studies have also shown a reduction of collision rates by 50% to 94% (Prinsen *et al.*, 2011);
- Line markers shall require annual maintenance and replacement, ensuring that markers remain in position and functional throughout the lifetime of the proposed Project.

## 8. Conclusion

The TTA-JV (Typsa, Tuc Rail and Atkins Joint Venture) supported by RPS was commissioned by CIÉ to prepare, on its behalf, the RO application including this NIS for the DART+ South West Project in accordance with relevant EU and national legislation, associated guidelines and standards.

RPS has prepared this NIS to document the analysis and evaluation seeking to establish whether or not, in view of best scientific knowledge and applying the precautionary principle, and in light of the CO of relevant European sites, the proposed Project, either individually or in-combination with other plans or projects, will adversely affect the integrity of any European sites.

The construction and operation of the proposed Project has been detailed (see Section 2), and the receiving environment has been described (see Section 4). Relevant European sites have been identified within the Zol of the proposed Project via the following effect pathways (see Section 6):

- Surface water pollution; and
- Bird collision risk.

To mitigate adverse effects on the integrity of European site that are likely to arise as a result of the proposed Project, mitigation measures are specified (see Section 7). These mitigation measures outline the requirements for surface water management and bird collision risk reduction on the Liffey Bridge crossing (Zone D) during the construction and operation of the proposed Project.

Provided mitigation measures are implemented in full, it is the opinion of RPS, that the Competent Authority – An Bord Pleanála – in completing its AA determination, should find that the proposed Project, either individually or in combination with other plans or projects, will not adversely affect the integrity of any European sites.



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