

## 1. EUROPEAN SITE DATA

<b>Great Island Channel Special Area Of Conservation (SAC) (site code 001058)</b>	
Conservation objective	To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.
Qualifying interests	Annex I listed habitats: mudflats, sandflats not covered by seawater at low tide, estuaries, spartina swards, Atlantic salt meadows.
References and further information	<i>Conservation Objectives for Great Island Channel SAC [001058] (NPWS), Natura 2000 Standard Data Form (NPWS), Site Synopsis Great Island Channel Site Code 001058 (NPWS)</i> (see <a href="http://www.npws.ie">www.npws.ie</a> for further details)

<b>Cork Harbour Special Protection Area (SPA) (site code 004030)</b>	
Conservation objective	To maintain or restore the favourable conservation condition of the bird species listed as special conservation interests for this SPA.
Qualifying interests	Annex I-listed bird species: bar-tailed godwit, common tern (breeding), golden plover, ruff, whooper swan. Other birds of special conservation interest include black-headed gull, black-tailed godwit, common gull, curlew, dunlin, great crested grebe, grey heron, grey plover, lapwing, lesser black-backed gull, little grebe, oystercatcher, pintail, red-breasted merganser, redshank, shelduck, shoveler, teal, and widgeon. This site is an internationally important wetland site supporting > 20,000 wintering waterfowl.
References and further information	<i>Conservation Objectives for Cork Harbour SPA [004030] (NPWS), Natura 2000 Standard Data Form (NPWS), Site Synopsis Cork Harbour SPA Site Code 004030 (NPWS)</i> (see <a href="http://www.npws.ie">www.npws.ie</a> for further details)

## 2. DETAILS OF PROPOSED DEVELOPMENT

Reference no.	<b>P8.HCP.26.11 - BLACKROCK AVENUE</b>
Development consent type	Part 8
Development location	Blackrock Avenue, Eden, Blackrock, Cork
Description of development	<ul style="list-style-type: none"> <li>• The construction of 114 no. homes, consisting of:                             <ul style="list-style-type: none"> <li>~ 55 no. 1 bed apartments</li> <li>~ 59 no. 2 bed apartments</li> </ul> </li> <li>• Provision of 56 no. car parking spaces.</li> <li>• All ancillary site works and signage as outlined on the plans and particulars.</li> </ul>
Distance from SAC	Approximately 5km
Distance from SPA	Approximately 1.1km
Relevant strategies or policies	Cork City Development Plan 2022-2028
EIS submitted?	No

## 3. ASSESSMENT OF LIKELY DIRECT, INDIRECT AND CUMULATIVE EFFECTS

Yes / No

1. Is the proposed development directly connected to or necessary for the conservation management of the SPA and/or SAC? (If yes, no further assessment required. If no, screening required.)	No
2. Is the proposed development located within or partly within the SPA?	No
3. Is the proposed development located within 100m of the SPA?	No
4. Does the proposed project involve the development, extension or upgrade of a cycleway or walkway within 200m of the SPA?	No
5. Does the proposed development involve development in the intertidal or coastal zone within the potential impact zone of the SPA?	No
6. Could the proposed project increase the level of recreational or other use of marine or intertidal areas within the potential impact zone of the SPA?	No
7. Does the proposed development involve the excavation of previously undeveloped land within an area that has been identified to be at risk of flooding within the potential impact zone of the SPA?	No
8. Does the proposed development involve the removal of significant amounts of topsoil within 100m of the SPA?	No
9. Does the existing wastewater treatment system have the capacity to treat any additional loading?	Yes

### 3. ASSESSMENT OF LIKELY DIRECT, INDIRECT AND CUMULATIVE EFFECTS

Yes / No

10. Would the proposed development result in direct surface water or other discharge to water bodies in or feeding into the SPA or SAC? Would it result in additional storm flows into a combined sewer and subsequently into a combined sewer overflow (CSO), resulting in increased frequency, quantity and/or duration of overflow from the CSO to watercourses feeding into the European sites?	No
11. Would the proposed development involve dredging or could it result in the mobilisation of marine sediments in the Harbour area?	No
12. Could the proposed development give rise to increased risk of oil or chemical spillage or leaks within the marine environment or watercourse within the potential impact zone for the SPA or SAC?	No
13. Are there relevant plans or projects which, in combination with the proposed development, are likely to give rise to any cumulative effects?	No
<b>Comments or notes</b>	

### 4. SCREENING CONCLUSION STATEMENT

*In view of the above it is considered that (tick one box only):*

- Appropriate Assessment is not required**  
The proposed development is directly connected / necessary to the conservation management of a site.
- Appropriate Assessment is not required**  
It can be excluded through screening that the proposed development will have significant effects on the sites.
- Further information is required**  
Potential impacts have been identified through initial screening and/or there is insufficient information to enable the planning authority to screen out impacts, but on balance it is determined that the issues could be resolved through minor modifications to the proposed development or by appropriate conditions. The information required is specified below.
- Appropriate Assessment is required**  
Significant issues have been identified and/or significant effects are certain, likely or uncertain, and the submission of a Natura Impact Statement (NIS) is required, or the proposed development must be rejected.

#### Further information required / Comments or Notes

In accordance with the Habitats Directive, an Appropriate Assessment (AA) Screening has been carried out on the project, in relation to any potential impacts upon the Cork Harbour Special Protection Area [Site No. 004030] and the Great Island Channel Special Area of Conservation [Site No. 001058]. The findings of the Appropriate Assessment screening noted that no significant effects on any Natura 2000 sites are likely and it was not necessary to undertake any further stage of the Appropriate Assessment process.

Please refer to Appendix A for report titled; Stage 1: Screening for Appropriate Assessment prepared by Ecosystem Services in Practice Ltd. dated June 2026.

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<b>Position:</b>	A/Director of Services, Housing
<b>Date:</b>	3 July 2026

# Appendix A

## Stage 1: Screening for Appropriate Assessment



# PROPOSED RESIDENTIAL DEVELOPMENT, BLACKROCK AVENUE, EDEN, BLACKROCK, CORK CITY



**Stage 1:**

## **SCREENING FOR APPROPRIATE ASSESSMENT**

*June 2026*

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*Ecosystem Services*

DOCUMENT QUALITY CONTROL	
<b>CLIENT</b>	John Sisk & Son Ltd.
<b>PROJECT NO.</b>	26.16
<b>PROJECT TITLE</b>	Proposed Skehard Road Housing Development, Blackrock Avenue, Eden, Blackrock, Cork City
<b>REPORT TITLE</b>	Stage 1 Screening for Appropriate Assessment

REV	STATUS	AUTHOR(S)	REVIEWED BY	APPROVED BY	ISSUE DATE
0	Draft	Lisa Dolan	N/A	Lisa Dolan	9 <sup>th</sup> April 2026
1	Draft Issued	Lisa Dolan	N/A	Lisa Dolan	29 <sup>th</sup> May 2026
2	Issued	Lisa Dolan	N/A	Lisa Dolan	2 <sup>nd</sup> June 2026
3	Issued	Lisa Dolan	N/A	Lisa Dolan	26 <sup>th</sup> June 2026
4	Issued	Lisa Dolan	N/A	Lisa Dolan	30 <sup>th</sup> June 2026
5	Issued	Lisa Dolan	N/A	Lisa Dolan	30 <sup>th</sup> June 2026

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**Appendix I:** Site Layout

**Appendix II:** Site Synopses

**Appendix III:** Finding of No Significant Effects

# 1.0 Introduction

## 1.1 Background

Cork City Council is the statutory authority and main housing authority responsible for housing services within the administrative area of Cork City in southwest Ireland.

Ecosystem Services in Practice Ltd. was appointed by John Sisk & Son Ltd. to prepare a Stage 1 – Screening for Appropriate Assessment (AA) report for the proposed construction and operation of Skehard Road Housing Development at Blackrock Avenue, Eden, Blackrock, Cork City (referred to herein as the 'proposed Project'). This Screening for Appropriate Assessment report will be submitted to inform the Part 8 Planning Process.



Figure 1.1 Location of proposed housing development (Source: Google Earth Pro)

The proposed housing development comprises of 114 no. residential apartment units (consisting of a mix of 1-bed and 2-bed units) split across 2 no. apartment blocks, which varies in height from three to five storeys over ground floor, together with all associated site development works including car parking, bicycle parking, private amenity spaces in the form of balconies and patios, and communal open spaces (McCutcheon Halley, 2026a EIA Screening).

In this regard, the main objective of the proposed Project is:

- The construction and operation of a housing development to include 114 no. residential apartment units in the southeast suburbs of Mahon and Blackrock in Cork City in order to meet with the current demand for social and affordable housing.

This report constitutes a Stage 1 – Screening for Appropriate Assessment report with regards to a proposed housing development at Blackrock Avenue, Eden, Blackrock, Cork City. The report has been prepared in accordance with Article 6(3) of the EU Habitats Directive (92/43/EEC) for the Skehard Road Housing Development, Blackrock Avenue, Cork City

This Stage 1 – Screening for Appropriate Assessment Report was completed by Lisa Dolan BSc. (Hons) Earth Science. Lisa is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Lisa Dolan

This report was completed by Lisa Dolan BSc. (Hons) Earth Science. Lisa is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Lisa has over 25 years' experience in the ecological consultancy sector working with state and semi-state bodies, local authorities, and statutory bodies in a wide variety of sectors including clean and wastewater, flood relief, drainage maintenance, transport, and recreational amenities in the area of ecological impact assessment and design. On the back of this experience, Lisa has co-authored a number of national guideline documents on behalf of state bodies. In 2014, Lisa was requested to prepare a set of guideline documents in respect of a national screening methodology for Appropriate Assessment, and on Source-Pathway-Receptor Analyses, for arterial drainage schemes and associated maintenance requirements on behalf of the OPW.

Paul Green

A botanical walkover was also undertaken by plant taxonomist Paul Green Vice County Recorder for Waterford and Wexford for the Botanical Society of the British Isles and Ireland (BSBI).

## 1.2 Need for Stage 1 – Screening for Appropriate Assessment

### 1.2.1 Natura 2000 Network

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are sites which have been designated across Europe to protect biodiversity within the European Union (EU). They typically support habitats and/or breeding and resting sites for species which are considered rare and threatened in the territory of the EU.

SACs and SPAs form part of a network of designated sites, known as Natura 2000. The Natura 2000 network stretches across all 28 no. EU countries, both on land and at sea. SACs and SPAs are often collectively referred to as 'Natura 2000 Sites'.

SACs are designated under the EU Habitats Directive (92/43/EEC) while SPAs are designated under the EU Birds Directive (79/409/EEC, as amended and codified in 2009/147/EC), and further protected under the EU Habitats Directive. Both the EU Habitats and Birds Directives were transcribed into Irish law by the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011).

The target of both EU Directives is to ensure the long-term sustainability of the habitats, breeding and resting sites for species protected within the 'Natura 2000 Network'.

Article 6 is one of the most important articles in the EU Habitats Directive. Articles 6(1) and 6(2) require Member States to take measures with regards to the Natura 2000 Network to maintain and restore the habitats and species in a favourable conservation status, avoiding activities that could significantly disturb these species and result in deterioration of their habitats or damage habitats.

Articles 6(3) and 6(4) lay down the procedure to follow when planning new developments that might affect a Natura 2000 Site. Under these Articles, an 'Appropriate Assessment' of any plan or project that is likely to have a significant effect on the Conservation Objectives of a Natura 2000 Site must be carried out.

### 1.2.2 Appropriate Assessment (AA)

In order to protect Natura 2000 Sites, Article 6(3) of the EU Habitats Directive states that: *"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives."*

Such an assessment is known as an Appropriate Assessment (AA). Guidance on Appropriate Assessment is provided by the European Commission (2000) and the Department of the Environment, Heritage and Local Government (DoEHLG, 2010). Please see Section 14.0 for further details on European and Irish guidance documents for the completion of AAs.

### 1.3 Appropriate Assessment (AA) Process

There are 4 no. stages to the AA process which are outlined in Figure 1.1.

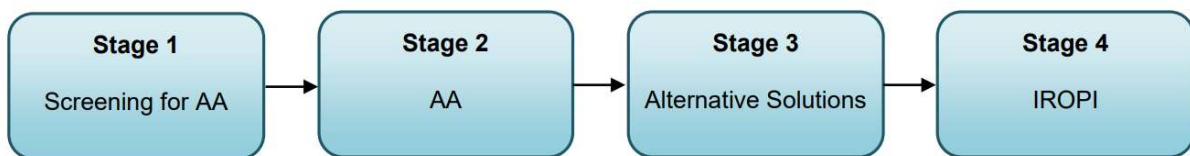


Figure 1.1 Stages of the Appropriate Assessment (AA) Process (DoEHLG, 2010)

#### 1.3.1 Stage 1 Screening

The AA process commences with Stage 1 - Screening for Appropriate Assessment to determine if a plan or project is likely to have a significant (negative) effect on a Natura 2000 Site.

Stage 1 - Screening addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3):

- i) whether a plan or project is directly connected to or necessary for the management of the site, and
- ii) whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 Site in view of its Conservation Objectives.

The conservation condition of the Qualifying Interests (*i.e.*, Annex I habitats and Annex II species) protected within SACs and Special Conservation Interests (*i.e.*, Annex I birds and supporting wetland habitats) protected within SPAs comprise the primary Conservation Objectives for all Natura 2000 Sites (see Figure 2.1).

#### Nature Conservation Determination

Stage 1 - Screening commences with a determination as to whether a plan or project is directly connected to or necessary for the management of nature conservation within a Natura 2000

Site. This involves a review of the objectives of the plan or project, followed by consultation and agreement with NPWS to confirm same.

If the answer is yes, then the process advances to Stage 2. If the answer is no, the Stage 1 - Screening process proceeds to determine if the plan or project, is likely to have significant effects on a Natura 2000 Site.

#### Determination of Likely Significant Effects

To determine if a plan or project, is likely to have a significant effect on a Natura 2000 Site, Stage 1 - Screening firstly reviews the objectives and explores alternative methods to achieve the objectives of the plan or project in order to avoid significant effects, where appropriate.

Once the objectives are confirmed, the screening process identifies all Natura 2000 Sites that could potentially be affected by the plan or project. The extent of the potential zone of influence selected will vary, depending on the nature of the development and the scale and duration of the associated construction works and the sensitivity of the habitats and species within the Natura 2000 Sites which have connectivity to the Project.

This is followed by collation of information relating to the Natura 2000 Sites within the zone of influence and the assessment with regards to the presence of likely significant effects (see Section 2.0 for further details).

The output of Stage 1 is known as a Screening for Appropriate Assessment.

Where likely significant effects on a Natura 2000 Site cannot be discounted at Stage 1, the assessment must proceed to Stage 2; and depending on the outcome of the Stage 2 Appropriate Assessment, Stages 3 and 4 may also be required.

#### 1.3.2 Stage 2 Appropriate Assessment

Stage 2 considers whether the plan or project, either alone or in combination with other plan or projects, will have negative effects on the integrity of a Natura 2000 Site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects.

Integrity is defined as: 'the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified'. Therefore, integrity is principally related to the structure and function of the site with regards to the Qualifying Interests of SACs and the Special Conservation Interests of the SPAs.

During Stage 2 a detailed, targeted assessment of the nature and potential significance of direct, indirect, and secondary impacts on a Natura 2000 Site arising from the plan or project should be completed. An assessment of cumulative impacts (both from the plan or project objectives, and other policies, plans and programmes) must also be carried out.

Where required mitigation measures must be proposed to eliminate potential impacts, if possible.

The output of Stage 2 is known as a Natura Impact Statement (NIS).

If it can be concluded in the NIS that no adverse impacts on the integrity of a Natura 2000 Site are likely, the plan or project can proceed for approval. If mitigation cannot rule out adverse effects, then the assessment advances to Stage 3.

### 1.3.3 Stage 3 Alternative Solutions

The third stage of the AA process involves the identification and assessment of alternative solutions following a review of the outcomes of Stage 2. If there are no alternative solutions identified during Stage 3, then the assessment advances to Stage 4.

### 1.3.4 Stage 4 Imperative Reasons of Overriding Public Interest (IROPI)

A plan or project will proceed to Stage 4 in circumstances where no Alternative Solutions exist and where adverse impacts remain. Stage 4 examines whether there are imperative reasons of overriding public interest (IROPI) for the plan or project to go ahead. If the answer is yes, then compensatory measures need to be agreed with the European Commission before the plan or project can proceed; if not, then the plan or project is rejected.

## 2.0 Methods

### 2.1 Detailed Methodology

A series of steps are required to complete the Stage 1 - Screening for Appropriate Assessment process as per Table 2.1. It should be noted that screening is an iterative process, and as such a number of the steps are undertaken concurrently. The collation of data via desktop study underpins the majority of steps in the screening process. The findings of the desktop study are supported by visit to the development site of the project, where required.

Table 2.1 Steps in the Stage 1 Screening Process

- 
- Nature Conservation Management Determination
  - Detailed Description of the Project
  - Potential Sources of Significant Effects
  - Identification of Natura 2000 Sites in the ZoI
  - Environmental Setting of the Project
  - Identification of Likely Significant Effects
  - Source-Pathway-Receptor Analyses
  - Likely Significant Effects Determination
- 

### 2.2 Nature Conservation Determination

The Stage 1 - Screening process commences with a desktop review of the main objectives of a project, and a determination as to whether the project is directly connected to or necessary for the management of nature conservation within a Natura 2000 Site.

Where it is determined that a project is not directly connected to or necessary for the management of nature conservation, the Stage 1 - Screening process proceeds to determine if the project, is likely to have significant effects on a Natura 2000 Site.

### 2.3 Detailed Description of the Project

The next step in the process is to prepare a detailed description of the design and associated construction or maintenance works required under the various stages of a project via a desktop study. Most of this data is acquired from the project design team and is collated under the following headings:

- Advanced Contract Stage
- Construction Stage
- Operational Stage
- Cumulative Impacts & In-combination Effects

Details of any previous, existing, or future projects are collated via a desktop study to assist with identifying the potential for any in combination or cumulative impacts.

## 2.4 Potential Sources of Significant Effects

In order to inform the screening process, data is also gathered via a desktop study on potential “sources” of impacts which may arise during the various stages of a project *e.g.*, habitat loss, use of chemicals, discharges to aquatic, transitional, estuarine or the marine environment or noise induced by plant machinery or equipment during the construction stage and operational stage. This preliminary information is utilised to assist with identifying the potential zone of influence for likely significant effects.

## 2.5 Zone of Influence

With regards to the AA process, there is no specific guidance with regards to selecting the extent of the Zone of Influence which should be applied when identifying the potential for likely significant effects arising from a project.

Available guidance (DoEHLG, 2010) recommends that “*the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects*”. Other important factors include the duration and timing (season) of the associated construction works.

A radius of 15km as per Scott Wilson *et al.* (2006) is generally adopted as the most appropriate Zone of Influence around development projects; for the purposes of determining the potential for likely significant effects on Natura 2000 Sites. However, it should be noted that this distance is not always appropriate.

With respect to minor-scale developments, where there is no surface watercourse within the site, the zone of influence may be confined to the site boundary or to within a few hundred metres of the boundary for noise, light, dust, visual and human activity related disturbances. In contrast, where a project involves instream works or is located in the vicinity of a surface watercourse, the potential Zone of Influence is likely to extend a few kilometres downstream of a project due to the risk posed by contaminants and will be influenced by the local hydrological setting including dilution effects.

In contrast, where a development is located in a ‘*Margaritifera*’ catchment, the potential Zone of Influence needs to be extended to include the entire catchment downstream of a project as far as the tidal extents *i.e.*, where saline intrusion occurs. This is due to the sensitivity of the receptor, Freshwater pearl mussel (*Margaritifera margaritifera*), and the possibility of smaller unknown downstream populations yet to be discovered.

In terms of groundwater pathways, the potential Zone of Influence for contaminants is typically downgradient of a development Project, the extent of which will depend on the local hydrogeological setting. An exception is made for karstified landscapes, where all Natura 2000 Sites underlain by the same groundwater aquifer, as the works area/development site, may need to be screened in to determine the potential for likely significant effects.

With respect to surface water and groundwater pathways, construction works downgradient of a surface waterbody or wetland habitat, which have the potential to deepen a watercourse (including drainage ditches) can impact on water levels in surface waterbodies, and/or drain wetlands habitats.

With respect to territorial species or the flight path of a particular bird species there is potential for likely significant effects on a species located in the wider landscape, and/or inhabiting a Natura 2000 Site located several kilometres or more, from a project.

## 2.6 Identification of Natura 2000 Sites in the ZoI

The next step in the process involves the identification of all Natura 2000 Sites that could potentially be affected by the proposed Project.

Relevant scientific and management data was collated via desktop on the “screened in” Natura 2000 Sites (see Table 2.2) which was followed by consultation (see Section 2.7) with relevant stakeholders, a site visit (see Section 2.8.1) and an assessment and determination with regards to the presence of likely significant effects (see Section 2.9).

The locations and boundaries of all sites within the Zone of Influence of the proposed Project were also identified and viewed using the NPWS online mapviewer and the Environmental Protection Agency’s (EPA’s) AA Geotool and Geohive Mapviewer in April and May 2026. Boundary shapefiles (.shp) were also downloaded from the NPWS website.

Table 2.2 Sources of Data Gathered on Natura 2000 Sites within the Zone of Influence

- 
- Site Synopses
  - Conservation Objectives
  - Detailed Conservation Objectives (where available)
  - Natura 2000 Standard Data Form (which details the threats to the site)
  - Site Boundaries (downloaded as shapefiles .shp)
  - Management Plans (where available)
  - Supporting documents (where available)
  - Published and unpublished reports
- 

## 2.7 Consultation

Given the urban context and types of habitats presents, no consultation was undertaken.

## 2.8 Environmental Setting of the Project

A desktop review of the relevant literature and databases was also undertaken in respect of the location of the proposed Project in order to gather information on the environmental setting and the contextual framework of the landscape surrounding the site; including the presence of any habitats and species described in the Conservation Objectives for the relevant Natura 2000 Sites.

### 2.8.1 Walkover Survey

The desktop study and consultation process (where required) were supplemented by a site visit to gather more detailed and site-specific information on the environmental setting and the contextual framework of the surrounding landscape of the proposed Project.

The presence/absence of Annex I habitats and Annex II species also known as features of Qualifying Interest for SACs and Annex I birds, and their supporting habitats referred to as features of Special Conservation Interest for the SPAs formed the main focus of the walkover survey (see Figure 2.1 for details).

In addition, the presence of other Annex listed habitats and species which are also protected under the EU Habitats Directive and EU Birds Directive were noted including:

- Article 4(2) species: regularly occurring migratory bird species
- Annex IV species: species which are protected across their entire natural range within the EU, both within and outside Natura 2000 Sites.
- Annex V species: Member States must ensure that their exploitation and taking in the wild is compatible with maintaining them in a favourable conservation status.

The site visit was also utilised to inform the Source-Pathway-Receptor Analyses in terms of the examination of potential pathways in the surrounding landscape which were identified during the desktop study. For example, all surface water features within, or in proximity, to the site were examined with a view to determining potential connectivity between the proposed Project and Natura 2000 Sites in the wider landscape. Where visible the presence of groundwater features and landforms including karstified features, fault zones or fractures, springs, caves, and bedrock at the surface which may act as groundwater pathways, were also noted (2.10.2).

The walkover survey was undertaken in accordance with the '*Best Practice Guidelines for Habitat Mapping*' (The Heritage Council, 2010), the '*Guidelines for Baseline Ecological Assessment*' (IEA, 1995) and '*Ecological Surveying Techniques for Protected Flora and Fauna During the Planning of National Road Schemes*' (TII/NRA, 2008), amongst other guideline documents, where applicable (see Section 14.0). During the walkover, the suitability of the works area to support plants, animals or habitats of note was also considered.

The walkover survey was conducted on 9<sup>th</sup> April 2026. The survey falls outside of the recognised optimal period for vegetation surveys/habitat mapping *i.e.* May to September (NRA, 2008; The Heritage Council, 2010), however, relatively mild weather conditions persisted at time of survey (see Section 2.9).

#### 2.8.2 Habitat Classification

The habitats recorded during the walkover survey were categorised as per Fossitt (2000) '*A Guide to Habitats in Ireland*' down to level III and EC (2013) '*Interpretation Manual of European Union Habitats - EUR28*', where they were found to correspond to Annex I habitats.

Fossitt (2000) is a national standard scheme for identifying, describing, and classifying habitats; based on the vegetation present and management history. The classification is hierarchical and operates at three levels, outlining the correlation between its habitat categories and the phytosociological units (plant communities) of botanical classifications.

EC (2013) is a manual published by the European Commission to provide clear, operational scientific definitions of priority and non-priority Annex I habitats, protected under the EU Habitats Directive, using pragmatic descriptive elements (*e.g.*, characteristic plants) and taking into consideration regional variations.

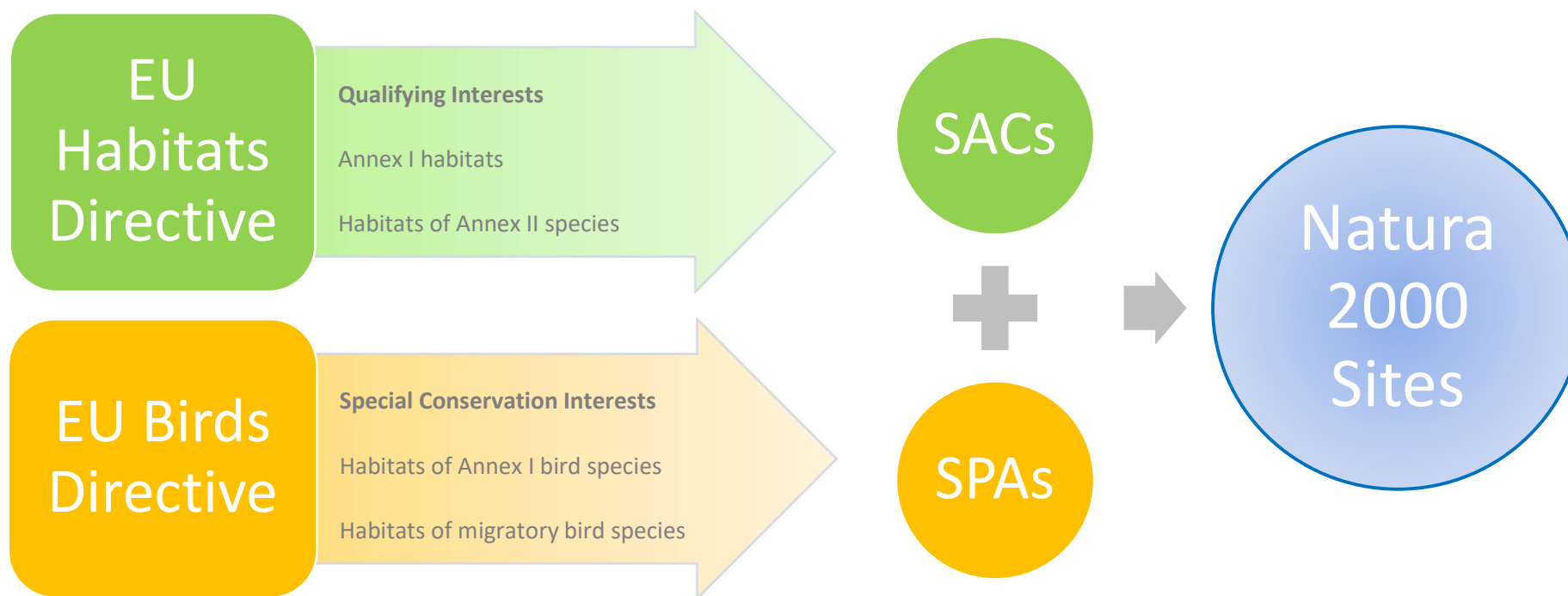


Figure 2.1 Legislative Framework for Natura 2000 Sites

## 2.9 Limitations

### Habitats & Flora

A walkover survey to assess the habitat types and flora present within the Zone of Influence of the proposed Project was undertaken on 9<sup>th</sup> April 2026. The survey was undertaken outside of the recognised optimum period for vegetation surveys/habitat mapping *i.e.*, May to September (NRA, 2008; The Heritage Council, 2010). However, given the recent relatively mild weather conditions (continued absence of severe frost at time of survey) and the expertise of the surveyor, there is no constraint on the findings of the survey.

### Birds

The survey was undertaken outside of the optimum survey period for overwintering waterbirds. An assessment of the suitability of the site to support overwintering waterbirds was undertaken. Given the absence of suitable habitat, there is no constraint on the findings of the survey.

### Bats

Bats may establish new maternity or hibernation roosts and may also use sites as temporary roosts. Therefore, the absence of bats at time of survey may not preclude the use of a tree or building by bats, at some stage in the future, or at other times of the year. Surveys, therefore, focus on searches for the presence of roosting bats, signs of former bat occupancy and also for the presence of Potential Roost Features (PRF's) as per Collins (2024). There is no constraint on the findings of the survey completed to date in relation to bats. Further bat survey work will be undertaken on completion of the Arboricultural Impact Assessment (AIA) and the micro-siting process by the Arborist (see Section 4.3.2).

## 2.10 Assessment for & Determination of Likely Significant Effects

The assessment and determination in relation to likely significant effects was based on a combination of the findings of the desk study, the site visit and consultation process (where required) undertaken in April 2026. The information gathered permitted an evaluation of the following:

- Individual elements (sources) of the project, either alone or in combination with other plans or projects, likely to give rise to impacts on Natura 2000 Sites.
- Likely direct, indirect, or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 Site by virtue of: -
  - Reduction of habitat area
  - Disturbance of key species
  - Habitat or species fragmentation
  - Reduction in species density; or
  - Changes in key indicators of conservation value
  - Climate change
- Likely changes to a Natura 2000 Site arising as a result of interference with the key relationships that define the structure and function of the site.
- Indicators of significance as a result of the identification of effects set out above in terms of:

- Habitat loss
  - Fragmentation
  - Disruption
  - Disturbance; and
  - Change to key elements of the Natura 2000 Site
- Elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale of magnitude of impacts is not known.

#### 2.10.1 Indirect or Secondary Impacts

Unlike direct impacts such as habitat disturbance or loss, indirect or secondary impacts are those that are not a direct result of a project. Rather they are often produced away from a project and via a more complex pathway (see Section 2.10.2).

#### 2.10.2 Source-Pathway-Receptor Analyses

A Source-Pathway-Receptor (S-P-R) model is typically applied to assist in determining the potential for likely significant effects arising from indirect or secondary impacts. A number of factors need to coexist in order for an indirect or secondary impact to occur. Firstly, there must be a risk enabled by the presence of a “*source*” of impact, followed by the existence of a “*receptor*” in the wider study area and a “*pathway*” connecting the source to the receptor. This is referred to as a complete Source-Pathway-Receptor chain.

The source refers to the confined or discrete point from which the impact is released into the environment, the pathway is the route by which the particular impact then travels through the environment and the receptor is the location where the impact occurs.

In terms of the AA process, for an indirect or secondary impact to have a potential significant effect on a Natura 2000 Site there must be a risk of a source impact arising from a project, a specific receptor in terms of a Natura 2000 Site in the receiving environment and a pathway between the source and the receptor (see Table 2.3).

With respect to the risk of water pollution arising from a works area on a development project, the source of impact refers to the discrete point from which a contaminant is discharged into the environment, the pathway is the hydrological (surface water) or hydrogeological (groundwater) connection by which the contaminant travels through the environment and the receptor is the location within a Natura 2000 Site where the pollution event occurs.

The information gathered during the desktop study, and the site visit to the development site assists with the identification of pathways within the environmental setting and the contextual framework of the surrounding landscape which could connect the source of a contaminant within a development site to a Natura 2000 Site: resulting in the formation of a complete Source-Pathway-Receptor chain.

A number of online data resources were accessed as part of the desktop study to acquire information pertaining to the potential presence of complete S-P-R chains including the NPWS, Environmental Protection Agency (EPA), Geological Survey of Ireland (GSI) and Ordnance Survey Ireland (OSi) online web-mapping tools and resources. Data was gathered on the following features within the study area:

- Bedrock & geological features and landforms *e.g.*, fault zones

- Karstified systems and features
- Overburden – subsoil, quaternary deposits *etc.*
- Subsoil permeability
- Aquifers & vulnerability
- Groundwater bodies
- Contours
- Surface water features (including direction of flow)
- Surface water & Groundwater Quality
- Flood maps

It should be noted that the confirmation of a pathway does not automatically infer that a significant effect(s) will occur. The likelihood for a significant effect(s) will depend upon the characteristics of the source (*e.g.*, nature of the contaminant and duration of the construction works), the characteristics of the pathway (*e.g.*, nature of the watercourse or groundwater aquifer receiving the contaminant and dilution effects) and the characteristics of the receptor (*e.g.*, the sensitivities of the Qualifying Interests or Special Conservation Interests).

Table 2.3 Potential Sources, Pathways & Receptors

---

## Land & Air Pathways

### Sources

#### Direct Impacts

- Temporary disturbance of habitat (due to accidental ingress or egress)
- Habitat loss (due to permanent structure or disturbance)

#### Indirect or Secondary Impacts

- Noise
- Light pollution
- Visual disturbance/human activities
- Vibration
- Dust
- Fumes or vapours

## Surface Water & Groundwater Pathways

### Sources of Indirect or Secondary Impacts

- Fuels, oils, greases, and hydraulic fluids
- Cementitious and bituminous materials
- Suspended solids
- Waste by products
- Foul water
- Use of chemicals during construction or operational stage

### Surface water Pathways

- Overland surface water flows (runoff)
- Surface water features *e.g.*, Drainage ditches (FW4), Depositing/lowland river (FW2) or Eroding upland river (FW1)
- Gullies and surface water drainage networks
- Fluvial, pluvial, and coastal flooding

### Groundwater Pathways

- Percolation or infiltration through the overburden
- Karstified systems and features *e.g.*, conduits, swallow holes, springs, collapse features, caves, enclosed depressions
- Fault zones or fractures
- Shallow (overburden) groundwater flow
- Deeper (bedrock aquifer) groundwater flow
- Base flows

### Ecological Receptors

- Natura 2000 Sites overlapping with a project
- Natura 2000 Sites adjacent to a project
- Natura 2000 Sites located downstream by surface water pathways (a tidal influence may reverse these paths)
- Natura 2000 Sites located down gradient by groundwater pathways (a tidal influence or karstic conduits may reverse/alter these paths)
- Ex-situ supporting habitats for Special Conservation Interests
- Territories or flight paths of Annex listed species
- Annex "listed" habitats or species

---

Furthermore, while pathways are usually determined by the natural hydrological and hydrogeological setting and the nature of the contaminants, they can also be influenced by the presence of features resulting from human activities *e.g.*, surface water drainage networks which could carry contaminants to a Natura 2000 Site.

#### 2.10.3 Determination of Likely Significant Effects

Following the DoEHLG guidance (2010) where likely effects are evaluated as being significant, potentially significant, or uncertain, or if the AA Screening process becomes overly complicated under a Stage 1 Appropriate Assessment Screening Report, then the process must proceed to Stage 2 Appropriate Assessment and the production of a Natura Impact Statement (NIS) report (see Section 1.3.2 for further details).

## 3.0 Nature Conservation Determination

### 3.1 Main Objective of the Project

The main objective of the proposed Project is:

- The construction and operation of a housing development to include 114 no. residential apartment units in the southeast suburbs of Mahon and Blackrock in Cork City in order to meet with the current demand for social and affordable housing.

### 3.2 Nature Conservation Determination

Based on a review of the main objective of the proposed Project, it has been determined that the development is not connected with and/or necessary to the management of a Natura 2000 Site, for nature conservation purposes. Therefore, the screening process will proceed to determine whether the proposed Project, alone or in combination with other plans or projects, is likely to have significant effects on a Natura 2000 Site(s).

# 4.0 Description of the Project

## 4.1 General Details



Figure 4.1 Aerial Image of the Study Site (Source: Google Earth Pro)

The gross area of the site (including Blackrock Avenue) is 0.91ha, with the net development area (excluding Blackrock Avenue) totalling 7833m<sup>2</sup> or 0.78ha (see Figure 4.1).

In terms of the overall topography, the site slopes from northwest to southeast (see Figure 3.1) with a small escarpment along the southern boundary.

The remainder and majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland with scattered trees, and scrub habitat along the small escarpment on the southern boundary, with patches of scrub on the western boundary. The site is currently in use as a public green open space.

The proposed housing development comprises of 114 no. residential apartment units (consisting of a mix of 1-bed and 2-bed units) split across 2 no. apartment blocks, which varies in height from three to five storeys over ground floor, together with all associated site development works (see Figure 4.2).

The site development works include the provision of 56 no. car parking spaces, 231 no. secure bicycle parking spaces (including secure internal storage), and private amenity spaces in the form of balconies and patios for each apartment. Associated ancillary works involve bin storage facilities, internal circulation routes, boundary treatments, public lighting, landscaping, and all relevant services infrastructure.

The total footprint of the hard surfaces associated with the proposed housing development is approx. 4995.27m<sup>2</sup> or 0.5ha *i.e.*, with the housing development covering an area of

1885.75m<sup>2</sup> (Block A & B), while the car park spaces, footpaths, hard landscaping, play area and vehicular access routes total approx. 3109.52m<sup>2</sup>, with green open space totalling 2837.73m<sup>2</sup>. The green open spaces include approx. 697.8m<sup>2</sup> of communal open spaces and a centrally located public open space of approximately 1,701.5m<sup>2</sup> (McCutcheon Halley, 2026).



Figure 4.2 Proposed housing development (indicative)

Site development works also include the provision of vehicular and pedestrian access from Blackrock Avenue, along with a direct pedestrian connection to the Mahon Boreen Pathway (Ballinsheen Road), and all related localised road, footpath, and public realm works needed to support the proposed development.

The proposed housing development also includes surface water and foul drainage infrastructure, incorporating a Sustainable Urban Drainage Systems (SuDS) strategy featuring green roofs and rain gardens, along with all necessary connections to existing public services and utilities (McCutcheon Halley, 2026).

## 4.2 Advanced Contracts Stage

### 4.2.1 Geotechnical Site Investigation

Geotechnical site investigations works were undertaken in April and May 2026 over a period of 2-3 no. days. The works involved digging or excavating exploratory holes in the form of trial pits and soakaways (see Causeway Geotech, 2026). Additional site investigation works will be required in the form of slit trenches, dynamic probes, and boreholes *etc.* during construction stage. The use of bentonite (a cementitious material) is typically required in the drilling fluid and to seal boreholes.

#### 4.2.2 Advanced Vegetation Clearance

The partial clearance of amenity grassland, scrub and parkland trees along the northern boundary was required to facilitate the construction of the new apartment complex Eden residential development.

Table 4.1 Extent of Works proposed under the Construction Stage

- 
- Removal and clearance of amenity grassland
  - Felling of max. 8 no. trees (subject to micro-siting of the design and retention where practically feasible)
  - Construction of 2 no. apartment blocks with 114 no. residential units, all associated car parking, internal vehicular and pedestrian access routes
  - SuDs based engineering solutions to surface water management including green roof and rain gardens
  - Connection to the existing public water main and foul water network
  - Piling (auguring) to install 140 no. CFA piles
  - Rock breaking approx. 20m<sup>3</sup>
  - Landscaping/amenity areas with mostly native tree and shrub species including approx. 84 no. trees and interplanting with native hedgerow species along the western and southern boundary
  - Installation of a permanent western boundary fence (permeable to small non-volant mammals) and bird/bat boxes within and adjacent to the site
  - All associated ancillary site works
- 

#### 4.3 Construction Stage

The main construction stage of the proposed housing development is considered major in terms of scale and of a short-term duration, given that the construction stage programme has an estimated overall duration of 22-months (see Table 4.1).

Subject to the planning process, works are likely to commence in October/November 2026, if granted.

The appointed Contractor will be required to prepare a Construction Environmental Management Plan (CEMP) prior to the commencement of the installation of the site compound and vegetation removal.

This stage of the proposed Project involves the construction of 114 no. residential apartment units split across 2 no. apartment blocks, which varies in height from three to five storeys over ground floor, together with all associated site development and ancillary works (see Section 4.1).

#### 4.3.1 Site Compound & Waste

Given the nature, duration and scale of the construction works, a site compound will be required onsite in respect of the proposed Project.

The construction site compound will be required for the provision of site welfare facilities for construction workers, car parking, site offices, and a temporary storage area.

Within the site compound a dedicated temporary storage area will be required to facilitate the storage of plant machinery, equipment, construction materials, waste product storage/collection, the delivery of concrete, concrete wash out areas for concrete skips etc., refueling areas and wheel wash facilities.

There will be a requirement for the use of water for the cleaning of plant machinery and equipment, the mixing of disinfectant, chemical herbicide and plaster/render/concrete, and dust suppression.

Any water required to facilitate the works will be accessed via a connection to the public mains water supply, the closest hydrant on Blackrock Avenue, or a bowser filled from a commercial source off site. It will not be sourced from any local watercourse or surface waterbody.

The temporary storage area will be set back at least 50m from a watercourse or waterbody.

The selection of a suitable location for the site compound will be predetermined in agreement with Cork City Council in order to minimise impacts on the scrub habitat and trees to be retained.

The management of waste arising from the construction stage of the proposed Project will follow best practice. The disposal of waste will be carried out by a permitted waste handler and taken to a licensed waste facility, or recycled, as appropriate.

There will be a requirement for the use of water and disposal of wastewater from the temporary on-site welfare facilities. The on-site toilet facilities will be provided by a permitted waste handler and will be chemical based. They will be regularly serviced by the permitted waste handler. No disposal of wastewater will occur on-site; all wastewater generated will be disposed of offsite at a licensed waste facility.

Refueling or maintenance of plant machinery and equipment is to take place within the temporary storage area setback at least 50m from surface water bodies.

There is a requirement for temporary site lighting at the site compound/temporary storage area.

#### 4.3.2 Vegetation Removal & Site Clearance

The majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland with scattered trees, and scrub habitat along the small escarpment on the southern boundary, with patches of scrub on the western boundary.

Site clearance will involve the removal of amenity grassland, and up to 8 no. trees. The scrub habitat on the escarpment on the southern end of the site and along the western boundary is to be retained (see Figure 4.3).

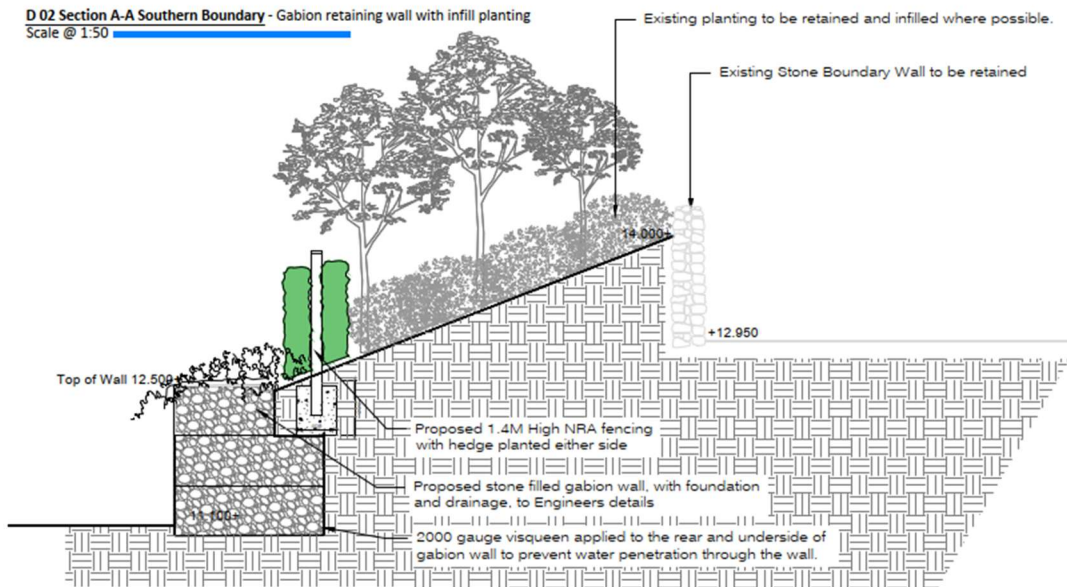


Figure 4.3 Cross section through southern boundary (Source: O’ Mahony Pike, 2025a)

Further to the completion of an Arboricultural Impact Assessment (AIA) some of the 8 no. trees may need to be removed, in any event, for health and safety reasons *i.e.*, are Category “U” = particularly poor quality, dangerous or diseased trees that offer no realistic sustainability. Micro-siting of the car park, hard landscaping and ancillary services *etc.* will be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible as part of the design where practically feasible.

Efforts will also be made to ensure that the trees (including the root protection zone) to be retained are not impacted during the construction stage. Trees and the scrub habitat to be retained will be separated or isolated from the construction works by way of a temporary structure *e.g.*, hoarding, or similar barrier for the duration of the construction stage, to ensure that no accidental ingress or egress occurs including to the root protection zone of the trees.

Several invasive (and potentially invasive) species were recorded within the site. However, the only ‘regulated’ species identified was Three-cornered garlic (*Allium triquetrum*), which was recorded outside the site along the southern stone wall boundary of Mahon Boreen Pathway. Three-cornered garlic is ‘regulated’ by National Legislation *i.e.* First Schedule: Part 1 of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024) and Third Schedule: Part 1 of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

None of the invasive species recorded require specialist intervention. Monitoring for Three-cornered garlic within the site will be undertaken during the construction stage.

Vegetation clearance will be undertaken outside of the bird nesting season and may require the felling of trees, and limb removal.

Site clearance works will not directly impinge on habitats considered to be greater than Higher Value Local Importance within the site (as per TII/NRA, 2008).

#### 4.3.3 Temporary Access & Haul Roads

The construction of a temporary haul road may be required to facilitate access to plant machinery due to the nature of the ground conditions.

#### 4.3.4 Construction Works

In terms of earthworks and the cut and fill balance, it is estimated that 4,516.6m<sup>3</sup> (7,226.6t with a conversion factor of 1.6t per m<sup>3</sup>) of made ground (*i.e.*, concrete, tarmac, paving, gravel) topsoil, subsoil and overburden material in the form of gravelly sand/clay/silt, will need to be removed during the construction stage to reach formation level in respect of the foundations of the proposed housing development, services, internal vehicular and pedestrian access routes and footpaths, car park and hard landscaping areas. There is potential for the recovery of contaminated soil during these works. Any contaminated soil will be disposed of offsite by a permitted waste handler and taken to a licensed waste facility. There will be a requirement to import up to 965.77m<sup>3</sup> of stone infill material.

Where required, any imported stone fill material will be sourced from a local quarry supplier and will be geochemically similar to the existing geological characteristics of the site following GSI/EPA guidance *i.e.*, Glennon et al. (2020) *Geochemical Characterisation & Geochemically Appropriate Levels (GALs) for Soil Recovery Facilities*.

There is no requirement for blasting or demolition activities under the proposed development.

Piling (auguring) activities may be required to install approx. 140 no. Continuous Flight Auger (CFA) piles to facilitate the construction of the apartment complex.

It is also envisaged that rock breaking activities (20m<sup>3</sup>) will be required in order to reach formation level for the foundations of the apartment complex.

The construction works will require the use of approx. 1500m<sup>3</sup> of ready-mix concrete for the CFA piles, ground beams, and ground floor slab (SISKs Design Team, pers. comm.).

Where required, a pre-earthworks drainage system will be installed prior to the commencement of construction.

A connection will be made to the public mains water supply and public foul water network.

A SuDs based system will be constructed comprising of green roofs, rain gardens, rainwater harvesting tanks, bio-retention tree pits, and an attenuation tank, along with green open spaces and the retention and enhancement of natural vegetation (Murphy Matson O' Sullivan, 2026 *Outline Civil & Structural Report*).

A bituminous and/or concrete surface will be laid to provide the internal vehicular and pedestrian access routes.

Other ancillary site works will include the installation of boundary treatments, native tree and shrub planting, and hard and soft landscaped areas.

As per the Landscape Design (Doyle O' Troitigh, 2026), it is proposed to retain trees where practically feasible, to interplant the scrub habitat on the southern boundary with native trees and shrubs, to interplant and create a native tree-lined hedgerow on the western

boundary, to plant mostly native trees and shrubs throughout the communal areas within the site, and to install bat and bird boxes both within the site and along the adjacent Passage Railway Greenway.

The temporary access and construction works for the proposed housing development will not directly impinge on any habitats considered to be greater than Higher Value Local Importance (as per TII/NRA, 2008) within the site.

The trees and scrub habitat to be retained will be separated from the works by way of a temporary structure *e.g.*, hoarding, or similar barrier for the duration of the construction stage, to ensure that no accidental ingress or egress occurs including to the root protection zone of the trees.

#### 4.3.5 Potential Contaminants

Aside from concrete, bentonite, bituminous materials, and hydrocarbons (fuel, oils, greases, or hydraulic fluids), no other potential contaminants will be utilised during the advanced contracts and main construction stage with the exception of sealants, chemical disinfectant and chemical herbicide (to treat invasive species and noxious weeds as required). There is potential for silt-laden overland flows and ponding surface water (from rainfall and groundwater) in required excavations which may contain a high suspended solids loading.

It is estimated that 4,516.6m<sup>3</sup> of made ground (*i.e.*, concrete, tarmac, paving, gravel, topsoil, subsoil) and overburden material in the form of gravelly sand/clay/silt will need to be removed during the construction stage to reach formation level and that there will be requirement to import up to 965.77m<sup>3</sup> of infill material.

Given the maximum depth of the excavations for the foundations of the proposed housing development (circa 1.1m), and drainage network (ave. 1.0m with localised depth of 1.4m at interceptors), and the findings of the site investigation works, completed to date, with regards to the presence of a relatively low groundwater table *i.e.* groundwater was not recorded within the 3 no. trial pits excavated to a depth of 2.9m-4.5m bgl as per Causeway Geotech (2026) *Trial Pit Logs*, it is unlikely likely that groundwater will be struck during general groundworks. However, the water table may be encountered when driving the 140 no. CFA piles to a depth of 15m (depth of the piles is subject to the finalisation of the design).

While further site investigation works are required during the construction stage, a minimum depth of 2.9m to 4.5m bgl of overburden to the bedrock aquifer and groundwater table was recorded by Causeway Geotech (2026). Under the precautionary principle, there is potential for contaminants to gain entry to the bedrock aquifer beneath the site given the karstic nature and 'vulnerability' of the aquifer (see Section 5.1.2). Where required, groundwater will be picked up by a pre-earthworks drainage system to be installed prior to the commencement of construction.

#### 4.3.6 Aquatic Environmental Protection System (AEPS)

In accordance with industry best practice and standard construction guidance an Aquatic Environmental Protection System (AEPS) is to be installed to protect the water quality of the River Lee/Tramore River/Lough Mahon/Cork Harbour located approx. 0.6km from the

site (at its closest point) prior to the commencement of vegetation removal, site clearance and construction works.

The protection system will include a pre-earthworks drainage system to be installed prior to the commencement of construction, sealed double shuttering, concrete wash out areas for concrete skips *etc.*, and silt control devices.

The pre-earthworks drainage will pick up overland flows and groundwater.

The silt control devices are to be installed around the works areas and existing gullies on the adjacent hard surfaces of Blackrock Avenue, Mahon Boreen Pathway and Passage Railway Greenway *etc.* to prevent loose soil and run-off of silt, and the accidental spillage of bentonite during the site investigation stage and concrete during the construction stage from reaching overland flows and/or existing gullies associated with the surface water drainage system which discharges to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor.

The sealed double timber shuttering/steel will strengthen the formwork for the various foundations including ground beams and ground floor slab, when pouring the concrete.

There is also potential for ponding surface water (from rainfall and to a lesser degree from groundwater) in the excavations. In the event of an accumulation of ponding surface water or groundwater baseflows/table is struck, a sump will be formed in one corner of the excavation, and a submersible pump will be utilised to divert water to the AEPS to ensure silt settlement prior to discharge.

All pump heads will be fitted with screens/cages, and silt bags (where suspended solids are present) to minimise the uptake of silt during the drawdown of water.

Under the AEPS there is potential for temporary surface water abstraction *i.e.* pumping of ponding rainfall and groundwater from excavations followed by discharge to the existing foul or surface water drainage network on Blackrock Avenue, where required, and with the necessary approvals).

Under the AEPS additional equipment shall be put in place by the Contractor, to ensure settlement of silt prior to the release of water to the existing surface water drainage system which discharges to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor, where required, and in agreement with the Site Ecologist.

The Contractor shall submit a method statement which will include details of the AEPS; allowing for consultation with IFI, it will be submitted at least two weeks prior to commencing work on-site. The AEPS is to be in place for the duration of vegetation removal, site clearance and construction works.

#### 4.3.7 Plant Machinery & Equipment

Geotechnical site investigation works typically involve the use of a drilling rig, dynamic probe rig and a 360-degree tracked excavator along with various types of survey equipment.

Based on the nature and scale of the proposed Project, the types of machinery which will be utilised during the construction stage of the proposed Project include 360-degree

tracked excavators, dozer, dump trucks, dumpers, a "Loadall", crane, concrete saw, pneumatic and hydraulic breakers, wacker plate compacter and a roller.

In terms of vegetation clearance cutting equipment will include chain saws, tree shears, tree shears with grab or a mulcher mounted on an excavator.

A piling rig in the form of a Continuous Flight Auger (CFA) will be deployed to install the CFA piles required to provide foundations beneath the apartment complex.

There is no requirement for specific heavy demolition machinery/equipment.

There may be a requirement for the use of concrete saws, pneumatic or hydraulic rock breaker mounted on an excavator to assist with rock breaking and construction activities.

A dump truck or lorry will deliver quarried local stone material for the site compound and foundations, while a lorry will be required to deliver ready-mix concrete.

Where ponding surface or groundwater is encountered, a silent dewatering pump with a built-in and external interceptor drip tray, and silt settlement tanks may be required as part of the Aquatic Environmental Protection System (AEPS).

#### 4.4 Operational & Maintenance Stage

The total footprint of the hard surfaces associated with the proposed housing development is approx. 4995.27m<sup>2</sup> or 0.5ha *i.e.*, with the housing development covering an area of 1885.75m<sup>2</sup> (Block A & B), while the car park spaces, footpaths, hard landscaping, play area and vehicular access routes total approx. 3109.52m<sup>2</sup>, with green open space totalling 2837.73m<sup>2</sup>.

The permanent structures and associated hard & soft landscaped areas proposed under the operational stage will not directly impinge on any habitats considered to be greater than Higher Value Local Importance (as per TII/NRA, 2008).

The development of the site will involve the removal of up to 8 no. trees. Further to the completion of an Arboricultural Impact Assessment (AIA) some of the 8 no. trees may need to be removed, in any event, for health and safety reasons *i.e.*, are Category "U" = particularly poor quality, dangerous or diseased trees that offer no realistic sustainability. Micro-siting of the car park, hard landscaping and ancillary services *etc.* will be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible as part of the design where practically feasible.

As per the Landscape Design, it is proposed to retain trees where practically feasible, to interplant the scrub habitat on the southern boundary with native trees and shrubs, to interplant and create a native tree-lined hedgerow on the western boundary, to plant native trees and shrubs throughout the communal areas within the site, to install bat and bird boxes both within the site and along the adjacent Passage Railway Greenway.

Research indicates that birds do not recognise glass as a barrier and are therefore vulnerable to collisions with the transparent and reflective glass that is ubiquitous in the built environment. In this regard the use of glass façades (presence of large windows) in the design of the proposed housing development has the potential to lead to bird mortality through collision. The risk of bird collisions shall be reduced by placing visual markers on

glass facades or the use of “bird-safe materials” such as etched, frosted or UV reflective glass in the design.

The proposed external lighting design for the housing development will incorporate directional or shielded LED luminaires to minimise light pollution and overspill.

There is limited potential for air pollution from the heating system to be installed in respect of the proposed housing development.

Where required, any imported stone fill material will be sourced from a local quarry supplier and will be geochemically similar to the existing geological characteristics of the site following GSI/EPA guidance *i.e.*, Glennon et al. (2020) Geochemical Characterisation & Geochemically Appropriate Levels (GALs) for Soil Recovery Facilities.

In terms of wastewater, all foul water from the proposed housing development will discharge to the public foul water network on Blackrock Avenue.

The site is located approximately 0.6km from the River Lee/Tramore River/Lough Mahon/Cork Harbour (at its closest point). The potential risks of tidal, fluvial, pluvial, groundwater and infrastructure flooding have been examined. Based on the assessment, the site is not at risk of tidal, fluvial, pluvial or groundwater flooding. Furthermore, it has been found that the proposed housing development will not increase flood risk elsewhere (Murphy Matson O’ Sullivan, 2026 *Outline Civil & Structural Report*).

A range of SuDs techniques are proposed, with the intention of managing surface water runoff within the site as close to source as possible. Where practically feasible, these SuDs features have been linked in a “Management Train” to facilitate the capture, conveyance, and storage of surface water runoff as close to source as possible whilst delivering interception and pollutant risk management. Surface water runoff will be intercepted and treated in a SuDS system comprising of green roofs, rain gardens, rainwater harvesting tanks, bio-retention tree pits, green open spaces and retention and enhancement of natural vegetation along with a conventional attenuation tank (Murphy Matson O’ Sullivan, 2026 *Outline Civil & Structural Report*) all offering a mix of interception, primary treatment, secondary treatment, and attenuation.

Excess surface water runoff from the SuDs system and attenuation tank will be released gradually to the existing surface water drainage network which discharges to the transitional/estuarine environment of River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor, subject to relevant permissions. The attenuation tank will be utilised to prevent flooding where other SuDS measures are not able to deal with peak water flows. In this regard, there will be an overflow from the attenuation tank to the existing surface water drainage network on Blackrock Avenue. Bypass interceptors designed to trap oil, fuel, and heavy silt from surface water runoff will be provided at all surface water discharge points of the development to prevent any deterioration of water quality in the downstream waterbodies (River Lee/Tramore River/Lough Mahon/Cork Harbour). Silt traps and sediment controls will also be included in the design of the SuDS system to prevent blockages, maintain infiltration efficiency and to ensure no silt discharge to the receiving transitional/estuarine environment (Murphy Matson O’ Sullivan, 2026 *Outline Civil & Structural Report*).

There will be an impact on groundwater recharge from precipitation, as a result of hard surfaces. The slow rate of recharge identified during the percolation tests (as per Causeway Geotech (2026) *Soakaway Logs*) has removed the possibility of incorporating more 'traditional' measures such as permeable paving and soakaways into the SuDS design, such that the SuDS system has been reduced to green roofs, rainwater harvesting tanks, rain gardens and bio-retention tree pits and a conventional attenuation tank. The attenuation tank will be utilised to prevent flooding where other SuDS measures are not able to deal with peak water flows.

Following the construction of the proposed housing development, maintenance may be necessary on an *ad hoc* basis going forward in terms of repairs. Regular maintenance of the gullies, silt traps and sediment controls, bypass interceptors, and SuDS measures will be required along with landscape maintenance of the hard and soft landscaped areas.

The disposal of hydrocarbons from the bypass interceptors will be carried out by a permitted waste handler and taken to a licensed waste facility.

The disposal of domestic waste from the proposed housing development will be carried out by a permitted waste handler and taken to a licensed waste facility.

It is not envisaged that substantial maintenance or repair works will be required within the next 15 years.

# 5.0 Environmental Setting of the Project

## 5.1 Study Site

The 0.91ha site, with a net development area (excluding Blackrock Avenue) totalling 7833m<sup>2</sup> or 0.78ha, is located on Blackrock Avenue and accessed off the regional road R852 or Skehard Road in the southeast suburbs of Mahon and Blackrock in Cork City, approximately 4.35km to the southeast of Cork City Centre in southwest of Ireland. The GPS coordinates at the approximate centre of the site are 51°53'29.60"N, 8°24'44.25"W (see Figure 5.1).

The site of the proposed housing development is bound to the south by Mahon Boreen Pathway (a raised pedestrian walkway) and green open space, to the west by the green corridor of Passage Railway Greenway on the former Cork to Passage West Railway Line, including a recently built access ramp, to the east by Blackrock Avenue and Blackrock Hall (a 4-storey mixed-use neighbourhood centre building), and a new apartment complex Eden residential development (with a 5-storey apartment/creche block, currently under construction to the north).

The boundaries of the site are dominated by an escarpment and stone wall on the southern boundary, an earth berm and railing along the greenway to the west, hoarding along the northern boundary due to the presence of an existing construction site, and the public footpath along Blackrock Avenue to the east.



Figure 5.1 Site boundary (Source: Google Earth Pro)

In terms of the overall topography, the site slopes from northwest to southeast (see Figure 5.1) with a small escarpment along the southern boundary.

The elevation levels slope from circa 14.21mO.D. at the northwest boundary to circa 9.64mO.D. at the southeast. Levels rise sharply ranging from 9.4mO.D. to 15.69mO.D. along a small escarpment on the southern boundary.

The site overlaps with the OS 10km grid square or hectad W77, the 2km grid square or tetrad W77A and 1km grid square W7171.

#### 5.1.1 Geology & Soils

According to the Geohive Mapviewer, the bedrock beneath the site of the proposed housing development consists of Carboniferous limestone *i.e.*, '*Massive and crinoidal fine limestone*' of the Little Island Formation from the Dinantian Series.

It is described as '*Massive calcilutite limestones (mudbank facies) and crinoidal calcilutites.*' There is no fault line traversing the site on contemporary mapping (Geohive Mapviewer).

No exposed bedrock outcrops were recorded within the site during the walkover survey.

During site investigation works in 2026, limestone bedrock was not encountered up to a depth of 4.5m bgl (Causeway Geotech, 2026 *Trial Pit Logs*).

#### Subsoils

In terms of the quaternary sediments, the site of the proposed housing development is dominated by '*Till derived from Devonian sandstones*' (Geohive Mapviewer).

According to the National Subsoils Map the site is dominated by '*Sandstone Till (Devonian)*' (EPA Mapviewer) with a groundwater subsoil permeability classified as '*Moderate*' and '*Not mapped*' (Geohive Mapviewer).

#### Soils

According to the SIS National Soils Map the site is dominated by '*Urban – soil concreted over*' while the National Soils Hydrology Map classified the soils as '*Well Drained*' (EPA Mapviewer).

#### 5.1.2 Ground Water Features

Further to the completion of site investigation works, groundwater was not encountered, with the deepest trial pit extending to 4.5m bgl (Causeway Geotech, 2026).

#### Groundwater Body

The site of the proposed housing development is underlain by the Ballinhassig Ground Water Body (IE\_SW\_G\_002).

#### Aquifer Classification

The bedrock aquifer beneath the site is described as a Regionally Important Aquifer - Karstified (diffuse).

#### Vulnerability

According to the Geohive Mapviewer the proposed housing development is underlain by an aquifer with '*H – High vulnerability*' and '*E – Extreme vulnerability.*'

While the site is underlain by limestone bedrock, there is no known karst features or landform (*e.g.*, springs, caves) indicated on contemporary mapping within the site of the proposed housing development. Karstified features or landforms were not recorded during the walkover survey.

The closest karst feature to the proposed housing development on contemporary mapping, is a Cave (IE\_GSI\_Karst\_40K\_1855) at Beaumont Park which is located 1.2km to the west (Geohive Webmapper).

There is no fault zone traversing the site (Geohive Mapviewer).

#### Groundwater Flow

Given the topography of the site the overall groundwater flow direction is inferred as being from northwest to southeast. This may deviate where karstic conduits are present.

##### 5.1.3 Surface Water Features

The site is located within Hydrometric Area 19, Water Framework Directive (WFD) Lee, Cork Harbour and Youghal Bay, Subcatchment Glasheen[Corkcity]\_SC\_010 and WFD River Sub Basin, GLASHEEN (Cork City)\_010.

There is no surface water feature within the site.

Given the topography of the site the overall direction of overland surface water flows is inferred as being from northwest to southeast.

The tidal River Lee and the Tramore River are located approx. 0.6km north and 1km south, respectively, from the site.

##### 5.1.4 Habitats

Habitats recorded within the study site include intensively managed Amenity grassland (GA2) with rank grassland on the margins, Scattered trees & parkland (WD5), Scrub (WS1), Ornamental/non-native shrub (WS3), Spoil & bare ground (ED2), Recolonising bare ground (ED3) and a temporary car park with a finished surface of imported stone fill and Blackrock Avenue categorised as Buildings and artificial surfaces (BL1).

The boundaries of the site consist of an escarpment dominated by Scrub (WS1) and a stone wall categorised as Stone walls and other stonework (BL1) on the southern boundary, an earth berm dominated by Amenity grassland (GA2) and small patches of Scrub (WS1) and railing along the greenway to the west, hoarding along the northern boundary due to the presence of an existing construction site, and the footpath along Blackrock Avenue to the east categorised as Buildings and artificial surfaces (BL1).

Native Hawthorn (*Crataegus monogyna*) and Ash (*Fraxinus excelsior*), and non-native invasive Sycamore (*Acer pseudoplatanus*) trees (8 no. in total) are present within the site. A planted row of non-native standard Lime (*Tilia cordata*) trees is located in the immediate roadside verge along the footpath of Blackrock Avenue.

Scrub (WS1) habitat was recorded along a small escarpment on the southern boundary of the site, and in patches along the western boundary.

A number of Ornamental/non-native shrubs (WS3) were recorded within the site. Of the non-native species recorded, 5 no. are considered invasive of which none are 'regulated' species under European or National Legislation.

The only 'regulated' species identified was Three-cornered garlic (*Allium triquetrum*), which was recorded outside the site along the southern stone wall boundary of Mahon Boreen Pathway. Three-cornered garlic is 'regulated' by National Legislation *i.e.* First Schedule: Part 1 of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024) and Third Schedule: Part 1 of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.



Figure 5.2 Wider Study Area (Source: Google Earth Pro)

In summary, the habitats within the site are considered to be of Lower Value Local Importance (as per NRA, 2008) with the exception of the Scrub habitat (WS1) on the southern boundary which is considered Higher Value Local Importance due to its potential to support local passerine bird and small mammal populations in the context of a suburban environment.

## 5.2 Wider Study Area

The study area consists of those land uses located in southwest of Ireland at Mahon and Blackrock, Cork City within the Zone of Influence (ZOI) of the proposed housing development.

In terms of the contextual framework, the surrounding landscape of the proposed housing development is dominated by the suburban environment of Mahon and Blackrock in Cork City which includes residential dwellings, healthcare facilities, retail outlets, a filling station, financial services along Blackrock Avenue, the R852 Skehard Road and adjoining roads. These urban areas are categorised as Buildings and artificial surfaces (BL3) with landscaped areas dominated by Amenity grassland (GA2) and Ornamental/non-native shrubs (WS3).

Habitats recorded within the wider study area include a Tidal river (CW2), Estuaries (MW4), Sea inlets and bays (MW2), Drainage ditches (FW4), Hedgerows (WL1), Scrub (WS1), Amenity grassland (GA2), Ornamental/non-native shrub (WS3), Dry meadows and grassy verges (GS2), and Improved agricultural grassland (GA1).

The Regional Road R852 and the National Road N40 Cork South Ring Road are located 0.5km and 1km, respectively, to the south of the proposed housing development. The lower stretches of the River Lee and Tramore River, both Tidal Rivers (CW2), flow west to east approximately 0.6km north and 1km south, respectively, from the proposed site. The River Lee becomes a transitional watercourse or Tidal river (CW2) at the 'Salmon Weir', while the Tramore River becomes tidal at the junction of Douglas Road with Douglas East Street on the Tramore River.

The River Lee and Tramore River both outflow into the Estuarine (MW4) environment of Lough Mahon, which forms the north-western inlet of Cork Harbour, located 1km to the east and south of the site.

The site at its closest point is located 1.1km and 5km by land, respectively, from the boundary of two Natura 2000 Sites *i.e.*, Cork Harbour SPA (Site Code: 004030) and Great Island Channel SAC (Site Code: 001058), and 1.1km from Cork Harbour Ramsar Site (Site Code: 000837).

The site at its closest point is located between 0.8km and 5km by land from the boundary of 6 no. (proposed) national designated areas *i.e.*, Douglas River Estuary pNHA (Site Code: 001046), Dunkettle Shore pNHA (Site Code: 001082), Glanmire Wood pNHA (Site Code: 001054), Rock Farm Quarry, Little Island pNHA (Site Code: 001074), Cork Lough pNHA (Site Code: 001081) and Great Island Channel pNHA (Site Code: 001058). Douglas Estuary Wildfowl Sanctuary (WFS-67) a designated conservation areas of regional importance is located 0.8km to the south.

The site at its closest point is located 0.6km from the transitional waterbody Lee (Cork) Estuary Lower (IE\_SW\_060\_0900), 1.1km from estuarine waterbody of Lough Mahon (IE\_SW\_060\_0750), and 7.4km from the coastal waterbody of Cork Harbour (IE\_SW\_060\_0000).

## 6.0 Potential Sources of Significant Effects

This step in the process involves a review of the various stages of the proposed Project to identify potential sources of impacts which could result in significant effects *e.g.*, direct mortalities, habitat loss or disturbance as a result of construction works or the footprint of permanent structures; water pollution as a result of discharges to the transitional/estuarine environment; air pollution from the importation of large quantities of quarried stone; or noise pollution induced by plant machinery, equipment or human activities.

This information is then utilised to assist with identifying the potential Zone of Influence for likely significant effects.

### 6.1 Advanced Contracts & Construction Stage

#### 6.1.1 Direct Impacts

There is a requirement for a site compound to facilitate the construction works. It will be installed within the site, utilising local quarried stone fill for a temporary foundation, and will include a temporary storage area set back at least 50m from watercourses and ponding surface waterbodies.

Site clearance will involve the removal of amenity grassland, up to 8 no. trees to facilitate the construction of the proposed housing development. Scrub habitat on the southern and western boundaries is to be retained.

In summary the advanced contract and construction stage of the proposed housing development will not directly impinge on any habitats considered to be greater than Higher Value Local Importance (as per TII/NRA, 2008) within the site. Therefore, any impacts identified are at the *geographical local scale of importance*. However, given the presence of amenity grassland, the potential for direct impacts on *ex-situ* supporting habitat of Special Conservation Interests for Cork Harbour SPA, within the site of the proposed Project, requires further investigation.

#### 6.1.2 Indirect & Secondary Impacts

##### 6.1.2.1 Disturbance: noise, vibration, light, visual & human activities

The geotechnical site investigation and construction work, required under the proposed Project, will have a combined 22-month duration (2-3 no. days and 22-months, respectively). The construction stage is considered to be major in terms of scale but of a short-term duration.

Site clearance and general groundworks will require the use of tree shears, chainsaws, mulchers, excavators, dumpers, loaders, telehandlers *etc.*, as required.

Other site preparation works such as blasting, demolition or piling activities which could result in vibration-related impacts are not required. While 140 no. CFA piles are to be installed there is limited risk of vibration-related impacts from this method of piling which involves auguring. There may be a requirement for the use of concrete saws, pneumatic breaker or mounted hydraulic breaker to assist with <2.0 days of rock breaking activities to remove 20m<sup>3</sup> of bedrock in order to reach formation level for the foundations of the apartment complex and other construction activities.

There is a requirement for temporary site lighting for security purposes at the site compound/temporary storage area for the duration of the construction stage. Given the presence of existing outdoor security lighting, public street lighting and indoor domestic lighting along Blackrock Avenue, there is limited potential for additional impacts arising from temporary site lighting. The construction works are to be undertaken during daylight hours and will not require lighting.

There is potential for localised temporary noise, visual disturbance, and human activity related impacts, arising within the site of the proposed housing development, for the duration of the site investigation and construction stage (combined 22-months).

In summary, given the nature, scale and 22-months duration of the site investigation and construction works, there is limited potential for vibration and light related impacts. There is potential for temporary localised disturbance related impacts from noise, visual and human activities to wildlife where present within or the immediate vicinity, of the site. In this regard, given the presence of amenity grassland, the potential for indirect impacts on Special Conservation Interests utilising *ex-situ* supporting habitat within the site of the proposed Project requires further investigation.

#### 6.1.2.2 Water Abstraction & Discharge

There will be no intended groundwater abstraction or discharge from the geotechnical site investigation or construction works.

It is estimated that 9,135m<sup>3</sup> of made ground (*i.e.*, concrete, tarmac, paving, gravel), topsoil, subsoil, and overburden material in the form of gravelly sand/clay/silt will need to be removed during the construction stage to reach formation level.

The maximum depth of excavation for the construction works is 1.4m.

Given the maximum depth of excavation (1.4m) and the findings of the site investigation works (water table >4.5m bgl), there is limited potential for groundwater to be struck during general groundworks. Groundwater baseflows/table may be encountered when driving the 140 no. CFA piles to a depth of 15m (depth of the piles is subject to the finalisation of the design).

Under the precautionary principle, there is potential for contaminants to gain entry to the bedrock aquifer beneath the site given the karstic nature and 'vulnerability' of the aquifer (see Section 5.1.2).

In accordance with industry best practice and standard construction guidance an Aquatic Environmental Protection System (AEPS) is to be put in place by the Contractor to prevent silt laden waters accessing overland flows during the construction works (see Section 6.1.2.3) and to manage ponding surface water (from rainfall and groundwater) in the excavations. Where required, groundwater will be picked up by a pre-earthworks drainage system to be installed prior to the commencement of construction.

Under the AEPS there is potential for temporary surface water abstraction *i.e.* pumping of ponding rainfall and groundwater from excavations followed by the controlled release of pumped water to the existing foul or surface water drainage network on Blackrock Avenue, where required, and with the necessary approvals.

#### Use of Water

There will be a requirement for the use of water for the cleaning of plant machinery and equipment and the mixing of disinfectant, chemical herbicide, and plaster/render/concrete. The

water will be accessed via a connection to the public mains water supply, the closest hydrant on Blackrock Avenue, or a bowser filled from a commercial source off site. It will not be sourced from any local watercourse or surface waterbody.

#### 6.1.2.3 Water Pollution

##### Suspended Solids

Given the maximum depth of excavation (1.4m) and the findings of the site investigation works (water table >4.5m bgl), there is limited potential for groundwater to be struck during general groundworks. However, groundwater baseflows/table may be encountered when driving the 140 no. CFA piles to a depth of 15m (depth of the piles is subject to the finalisation of the design).

Under the precautionary principle, there is potential for contaminants to gain entry to the bedrock aquifer beneath the site given the karstic nature and 'vulnerability' of the aquifer (see Section 5.1.2).

In accordance with industry best practice and standard construction guidance an Aquatic Environmental Protection System (AEPS) is to be installed prior to the commencement of vegetation removal and site clearance.

In the event that there is ponding surface or groundwater within the required excavations, the AEPS is to be deployed.

The protection system will include a pre-earthworks drainage system to be installed prior to the commencement of construction, sealed double shuttering, concrete washout areas for concrete skips *etc.*, and silt control devices.

The Contractor shall prepare a method statement which will include details of the AEPS. It will be submitted at least two weeks prior to commencing enabling and construction works. The AEPS will remain in place for the duration of the advanced contract and construction works as required.

The intended discharge of significant volumes of silt laden ponding surface or groundwater to the foul or surface water drainage network on Blackrock Avenue (subject to necessary approvals) is not planned during the construction works. There is, however, potential for the accidental release of suspended solids during the works.

##### Cementitious Materials

A total of 1500m<sup>3</sup> of ready-mix concrete will be delivered to site by a lorry in respect of the construction stages.

The use of bentonite (a cementitious material) is typically required in the drilling fluid and to seal boreholes.

See above in relation to suspended solids.

##### Chemical Herbicide & Disinfectant

The use of a disinfectant is required on projects where there is a risk to a surface watercourse or waterbody from an aquatic/estuarine/marine invasive species. In such circumstances works should adhere to Inland Fisheries Ireland (IFI, 2016) Biosecurity Protocol for Field Survey Work ([www.fisheriesireland.ie](http://www.fisheriesireland.ie)), Check-Clean-Dry protocols – National Biodiversity Data Centre

([www.biodiversityireland.ie](http://www.biodiversityireland.ie)) protocols and Check Clean Dry protocols – Invasive Species Ireland ([www.invasivespeciesireland.com](http://www.invasivespeciesireland.com)) to prevent the spread of invasive species.

There is limited potential for the accidental introduction and dispersal of invasive species to Cork Harbour including plants, fish viruses, bacteria, fungi and moulds such as Crayfish Plague (*Aphanomyces astaci*) on equipment and plant machinery, given that there is a limited pathway for dispersal and no receptor, given the absence of an aquatic/estuarine/marine habitat within the site.

Chemical herbicide will be required in the treatment of non-native invasive species and noxious weeds.

The chemical herbicide and disinfectant, where required, will be mixed in the temporary storage area set back at least 50m from watercourses and ponding surface waterbodies.

There is potential for the accidental spillage of sealants, chemical herbicide and disinfectant (where these chemicals are required) during the works.

#### Hydrocarbons & Bituminous Materials

Biodegradable products such as hydraulic fluids will be utilised where available. Fuels, oils, greases, and hydraulic fluids are to be stored within the temporary storage area which is to be setback at least 50m from watercourses and ponding surface waterbodies. All refuelling and maintenance of plant machinery and equipment is to take place within the temporary storage area.

There is potential for the release of hydrocarbons as a result of the accidental spillage or release of fuel, oils, greases, or hydraulic fluids during works.

There is also potential for the accidental release of hydrocarbons as a result of the laying of the bituminous surface material for the internal vehicular and pedestrian access routes.

#### Foul Water

Temporary site welfare facilities will be provided for site staff. These will be regularly serviced (see Section 4.3.1). As a result, there is limited potential for the accidental release of foul water during the enabling or construction stage.

#### 6.1.2.4 Waste

The management of resulting waste from the construction works will follow best practice. This will include all steel, cementitious and bituminous waste material etc. The disposal of waste will be carried out by a licensed waste handler and taken to a licensed waste facility or recycled, where deemed appropriate in accordance with relevant legislation. As a result, there is limited potential for the accumulation and/or illegal dumping of waste arising from the enabling or construction stage.

#### 6.1.2.5 Air Pollution

Given the nature and scale of the works *i.e.*, including the importation of up to 965.77m<sup>3</sup> of infill material in the form of quarried local stone, there is potential for dust pollution arising from the works.

A bituminous surface will be laid to provide the internal access road and car park spaces. Given the extent of bituminous surface proposed there is limited potential for the migration of vapours or fumes from the construction site.

#### 6.1.2.6 Invasive Alien Plant Species (IAPS)

##### Terrestrial

There is potential for the dispersal of existing invasive species within the site, and the introduction of invasive alien plant species, due to natural dispersal mechanisms, and the accidental importation of viable plant material in local quarried stone material or on equipment and plant machinery. Invasive species could also be accidentally introduced or incidentally acquired for planting under landscape planting schemes.

None of the existing species recorded within the site require specialist intervention to achieve eradication.

Particular focus should be given to monitoring for the potential introduction of Three-cornered garlic to the site, during construction stage, as a result of natural dispersal mechanisms.

##### Aquatic/Estuarine/Marine

There is limited potential for the accidental introduction and dispersal of invasive species to Cork Harbour including plants, fish viruses, bacteria, fungi and moulds such as Crayfish Plague (*Aphanomyces astaci*) on equipment and plant machinery, given that there is a limited pathway for dispersal and no receptor, given the absence of aquatic/estuarine/marine habitat within the site.

#### 6.1.2.7 Fragmentation

Refer to Section 6.1.2.1 and 10.3.

### 6.2 Operational Stage

The total footprint of the hard surfaces associated with the proposed housing development is approx. 4995.27m<sup>2</sup> or 0.5ha *i.e.*, with the housing development covering an area of 1885.75m<sup>2</sup> (Block A & B), while the car park spaces, footpaths, hard landscaping, play area and vehicular access routes total approx. 3109.52m<sup>2</sup>, with green open space totalling 2837.73m<sup>2</sup>.

It is not envisaged that substantial maintenance or repair works to the proposed housing development will be required within the next 15 years under the operational stage.

#### 6.2.1 Direct Impacts

The majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland with scattered trees, and scrub habitat along a small escarpment on the southern boundary, with patches of scrub on the western boundary.

There is limited potential for loss of nesting/foraging habitat for wildlife as the scrub habitat on the western and southern boundaries is to be retained.

The use of glass façades (presence of large windows) in the design of the proposed housing development has the potential to lead to bird mortality through collision.

There is limited potential for direct impacts on habitats with an ecological value greater than Higher Value Local Importance (as per TII/NRA, 2008) as a result of proposed permanent structures and associated hard & soft landscaped areas.

In summary, the operational stage of the proposed housing development will not directly impinge on any habitats considered to be greater than Higher Value Local Importance within the site (as per TII/NRA, 2008). Therefore, any impacts identified are at the *geographical local scale of importance*. However, given the presence of amenity grassland, the potential for direct

impacts on *ex-situ* supporting habitat within the site of the proposed Project requires further investigation.

## 6.2.2 Indirect or Secondary Impacts

### 6.2.2.1 Disturbance: noise, vibration, light, visual & human activities

There is potential for light, noise & visual disturbance regimes, and impacts from human activities/interaction during the operational stage of the proposed housing development once construction works are completed and typical day-to-day activities commence.

In particular, there will be a requirement for outdoor security, public street lighting, and indoor domestic lighting, however, no additional impacts are foreseen in the context of the extent of existing artificial light in the surrounding suburban landscape. In accordance with best practice, directional or shield street lighting is proposed under the design to minimise light pollution and overspill.

Following the construction of the proposed housing development, maintenance may be necessary on an *ad hoc* basis going forward in terms of repairs. Regular maintenance of the gullies, silt traps and sediment controls, bypass interceptors, and SuDS measures will be required along with landscape maintenance of the hard and soft landscaped areas.

It is not envisaged that substantial maintenance or repair works will be required within the next 15 years.

In summary, there is potential for localised disturbance related impacts from noise, light visual and human activities to wildlife where present within or the immediate vicinity, of the apartment complex. In this regard, given the presence of amenity grassland, the potential for indirect impacts on Special Conservation Interests utilising *ex-situ* supporting habitat within the site of the proposed Project requires further investigation.

### 6.2.2.2 Water Abstraction, Discharge & Groundwater Recharge

There is no requirement for surface or groundwater abstraction with respect to a domestic drinking water supply. A connection will be made to the public mains water supply.

All foul water will discharge to the existing public foul water network on Blackrock Avenue.

The slow rate of recharge identified during the percolation tests (as per Causeway Geotech (2026) *Soakaway Logs*) has been reduced the SuDS system to green roofs, rain gardens, rainwater harvesting tanks and bio-retention tree pits and a conventional attenuation tank. The attenuation tank will be utilised to prevent flooding where other SuDS measures are not able to deal with peak water flows. In this regard, there will be an overflow of excess surface water from the attenuation tank to the existing surface water drainage network on Blackrock Avenue. However, the site layout and landscape design of the proposed housing development has allowed for the retention of 2837.73m<sup>2</sup> of green open space along with the retention and enhancement of natural vegetation which will continue to facilitate groundwater recharge *i.e.* permit percolation of rainwater through the overburden into the groundwater table in these areas. In light of the above, there will be a slight localised impact on groundwater recharge from precipitation, as a result of the proposed permanent structure and associated hard surfaces (given the absence of groundwater dependent ecosystems in the wider study area).

In summary, there will be no impact on supporting wetland habitat of Special Conservation Interests for Cork Harbour SPA, as a result of water abstraction, discharge, or changes in

groundwater recharge. Any excess surface water runoff from the SuDS system and attenuation tank will be directed to the existing surface water drainage network on Blackrock Avenue.

#### 6.2.2.3 Water Pollution

A range of SuDs techniques are proposed, with the intention of managing surface water runoff within the site as close to source as possible. Where practically feasible, these SuDs features have been linked in a 'Management Train' to facilitate the capture, conveyance, and storage of surface water runoff as close to source as possible whilst delivering interception and pollutant risk management.

There is limited potential for water pollution events arising from surface water runoff or accidental release of foul water during the operational stage, given that any excess surface water runoff will be picked up by the SuDs system (and a conventional attenuation tank during peak flows). Any excess surface water from the SuDS system and attenuation tank will discharge via onsite silt traps and sediment controls and a bypass interceptor, to the existing surface water drainage system on Blackrock Avenue which in turn discharges to the transitional/estuarine environment of the River Lee/Lough Mahon/Cork Harbour via a hydrocarbon interceptor. All foul water will discharge to the public foul water network. Regular maintenance of the gullies, silt traps and sediment controls, bypass interceptors, and SuDS measures will be required.

#### 6.2.2.4 Waste

The management of resulting waste from the operational stage of the proposed housing development will follow relevant waste legislation. The disposal of domestic waste from the proposed housing development once operational will be carried out by a licensed waste handler and taken to a licensed waste/recycling facility.

#### 6.2.2.5 Air Pollution

There is limited potential for air pollution from the heating system to be installed in respect of the proposed housing development.

#### 6.2.2.6 Invasive Alien Plant Species (IAPS)

Refer to Section 6.1.2.6 in relation to risks of introducing and dispersing IAPS.

#### 6.2.2.7 Fragmentation

Refer to Sections 6.2.1, 6.2.2.1 and 11.3.

# 7.0 Zone of Influence & Pathways

## 7.1 Sensitivity of Receptors

An initial preliminary review of the Special Conservation Interests and the Qualifying Interests for the Natura 2000 Sites, within 15km of the proposed Project as per Scott Wilson *et al.* (2006), confirmed the absence of sensitive receptors; in particular, the absence of an SAC designated for Freshwater pearl mussel (*Margaritifera margaritifera*) within the lower river lee catchment. The review of the NPWS webmapper also confirmed that the proposed Project is not located within a Margaritifera Sensitive Area (NPWS, 2017).

As the proposed Project is located upgradient of the transitional/estuarine/marine waters of the River Lee/Tramore River/Lough Mahon/Cork Harbour, with reverse tidal flows on the River Lee limited by the presence of the 'Salmon Weir' at Lee Road and ceasing at the junction of Douglas Road with Douglas East Street on the Tramore River, there are no surface or groundwater pathways for potential impacts on freshwater environments within Natura 2000 Sites.

### Advanced Contract & Construction Stage

Potential sources of significant effects which may arise from the construction stage of a project of this nature, scale and duration include direct impacts on remnant semi-natural vegetation in a suburban environment which may provide nesting/commuting/foraging habitat or corridor for wildlife, reduction in species density as a result of the removal of semi-natural vegetation during the nesting/breeding period and indirect and secondary impacts as a result of water pollution, and from disturbance regimes (light, noise and visual) and human activities which are likely to be confined to the site boundary or localised within a few hundred metres of the site depending on the sensitivity of the receptors and existing background disturbance levels.

With respect to sources of water pollution, there is potential for the accidental release or spillage of contaminants within the site during the advanced contract and construction stage. In terms of surface and ground water pathways, contaminants may percolate through the overburden to the groundwater table or be carried by overland flows to existing road gullies on adjacent roads, connected to the existing surface water drainage network, which ultimately discharge to the transitional waters of the River Lee/Tramore River and Lough Mahon.

Table 7.1 Location of Natura 2000 Sites within 15km of the Proposed Project

Natura 2000 Site	Site Code	Direction	Land	Surface water	Ground Water
Cork Harbour SPA	004030	East	1.1km	1.1km d/s	1.1km d/g
Great Island Channel SAC	001058	East	5km	5km via ground and surface water	

Note: u/s = upstream, d/s = downstream, u/g = upgradient, d/g = downgradient, l/c = local tidal currents

Depending on the magnitude and frequency of the pollution event(s), the Zone of Influence of contaminants (in terms of water pollution) from the advanced contract and construction stage would typically extend to a few kilometres downstream or downgradient from the proposed Project for surface water and groundwater dependent habitats and species, and will depend on

the sensitivity of the receptors, nature of the receiving environment including dilution effects and tidal currents, amongst other factors.

### Operational Stage

Potential sources of significant effects which may arise from the operational stage of a project of this nature, scale and duration include permanent loss of remnant semi-natural vegetation in a suburban environment which may provide nesting/commuting/foraging habitat or corridor for wildlife, reduction in species density as a result of (bird) window collisions and indirect and secondary impacts as a result of water pollution, and from disturbance regimes (light, noise and visual) and human activities which are likely to be confined to the site boundary or localised within a few hundred metres of the site depending on the sensitivity of the receptors and existing background disturbance levels.

There is limited potential for impacts on water quality from the operational stage, given that surface water runoff will ultimately discharge to the surface water drainage network via a hydrocarbon interceptor, while foul water will discharge to the existing public foul water network on Blackrock Avenue.

### 7.2 Buffer Zone

Given the nature and scale of the proposed Project and the likely significant effects identified in Section 6.0, the sensitivity of the receptors and the nature of the receiving environment (urban), the initial preliminary review indicated that the radius of 15km as per Scott Wilson *et al.* (2006) was too large an area. A radius of 5km was adopted as a more appropriate buffer zone around the proposed housing development, for the purposes of determining likely significant effects on Natura 2000 Sites, within the Zone of Influence of the proposed Project (see Figure 7.1).

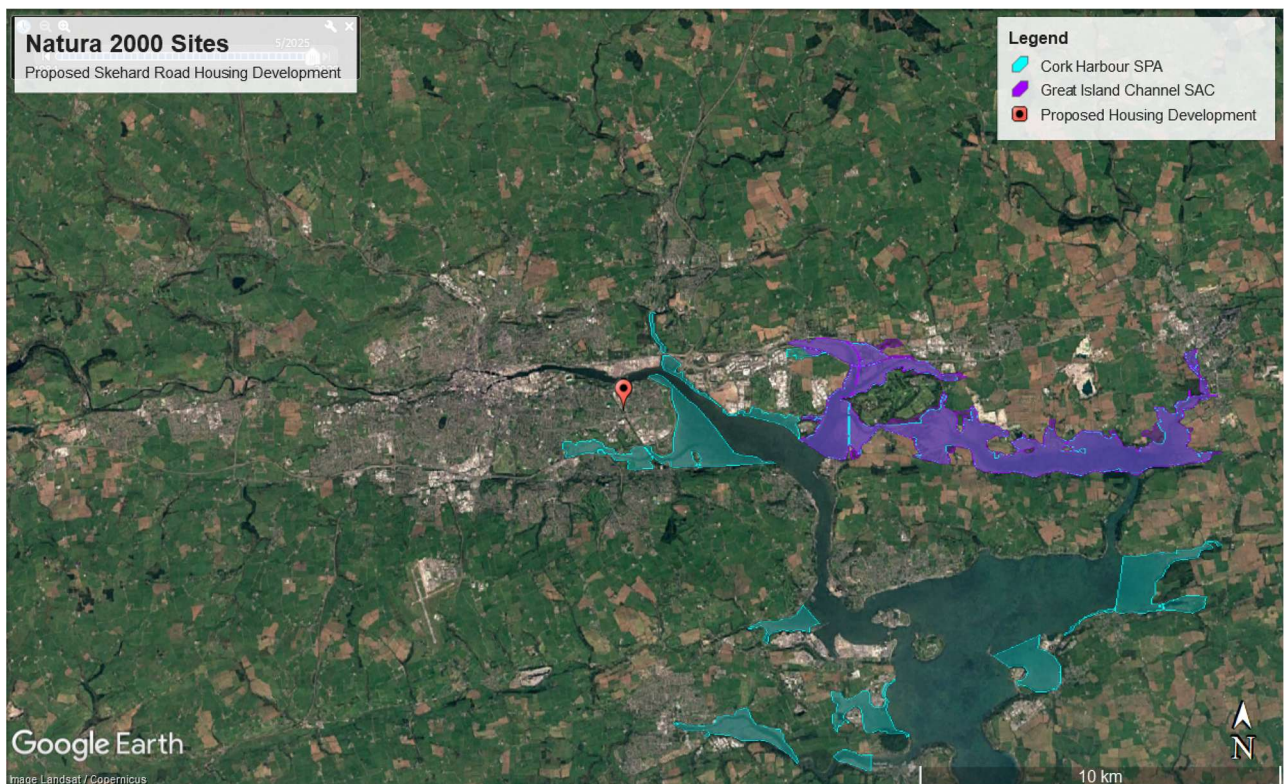


Figure 7.1 Natura 2000 Sites within the Zone of Influence (Source: Google Earth Pro)

### 7.3 Identification of Natura 2000 Sites

There are 2 no. Natura 2000 Sites located within 5km of the proposed Project (see Table 7.1). Cork Harbour SPA and Great Island Channel SAC are located within 1.1km and 5km of the proposed housing development, respectively. The screening process will proceed with respect to Cork Harbour SPA and Great Island Channel SAC.

### 7.4 Pathways

#### 7.4.1 Pathways on Land & Air

The review of potential sources of likely significant effects (see Section 6.0) identified that the proposed Project is not located within a Natura 2000 Site.

The proposed Project is located 1.1km and 5km from the boundary of Cork Harbour SPA and Great Island Channel SAC.

Given the distance from the sites, there are no potential for direct impacts on Cork Harbour SPA or Great Island Channel SAC.

However, given the presence of amenity grassland, there is potential for direct impacts on *ex-situ* supporting habitat where confirmed present within the site of the proposed Project.

There is also potential for direct impacts on Special Conservation Interests where they occur outside of the SPA boundary, and within the site of the proposed Project, due to (bird) window collisions.

There is limited potential for direct impacts on the habitats of Qualifying Interests outside of the SAC boundary given their absence within the site.

Given the distance there is limited risk of introducing to and/or dispersing IAPS within the SPA or SAC boundary, as a result of the proposed Project.

There is potential for indirect or secondary impacts arising from light, noise and visual disturbance regimes and human activities/interaction during the advanced contract, construction and operational stage of the proposed Project, on Special Conservation Interests for Cork Harbour SPA, which may use *ex-situ* supporting habitat, where confirmed present within or adjacent to the site. There is no potential for indirect or secondary impacts arising from light, noise and visual disturbance regimes and human activities/interaction on Cork Harbour SAC, given the nature of the Qualifying Interests.

There are limited sources of air pollution in the form of vapour/fumes. There is a low risk of dust from rock breaking activities given the scale and duration of the works (see Sections 6.1.2.1 and 6.1.2.5). While there is potential for dust related impacts, due to the volume of imported infill material (965.77m<sup>3</sup>) required under the proposed Project, given the distance there is limited potential for dust particulates to reach Cork Harbour SPA (1.1km) or Great Island Channel SAC (5km).

#### 7.4.2 Surface & Groundwater Pathways

The main potential source of likely significant effects from surface water or groundwater pathways is the accidental spillage or release of contaminants within the site during the advanced contract and construction stage.

There is limited potential for impacts on water quality from the operational stage, given that surface water runoff will ultimately discharge to the surface water drainage network via onsite

silt traps and sediment controls and a bypass interceptor, and an offsite hydrocarbon interceptor, while foul water will discharge to the existing public foul water network on Blackrock Avenue.

The following is a summary of the potential contaminants which may be transported via surface or groundwater pathways to Cork Harbour SPA and Great Island Channel SAC as per Section 6.0:

- Suspended solids
- Fuels, oils, greases, hydraulic fluids, and bituminous material
- Cementitious materials
- Foul water
- Chemicals including herbicide

#### Source-Pathway-Receptor Analyses

The Source-Pathway-Receptor Analyses has identified the following potential chain(s) for likely significant effects:

- Source – accidental spillage or release of a contaminant in the works area
- Pathway - a surface water or groundwater feature connecting the works area to Cork Harbour SPA and Great Island Channel SAC *i.e.*, surface water drainage network>>transitional waters of the River Lee>>transitional/estuarine/marine habitats of Lough Mahon/Cork Harbour
- Receptor – supporting wetland habitat and Special Conservation Interests for Cork Harbour SPA, and habitats and species of Qualifying Interest for Great Island Channel SAC

#### 7.4.2.1 Groundwater Pathways

Potential groundwater pathways between the Project and the transitional/estuarine/marine habitats of Cork Harbour SPA and Great Island Channel SAC could take the form of karstified features which provide conduits; landforms such as fault zones; bedrock at or near surface, and percolation or infiltration of contaminants through the overburden to the groundwater table.

There are no mapped karstified features or fault zones within or in the vicinity of the proposed Project.

The site is underlain by an aquifer with groundwater vulnerability classified as 'High' and 'Extreme' consisting of limestone bedrock overlain by a subsoil overburden of 'Till derived from Devonian sandstones' and made ground with a 'Moderate' and 'Not mapped' groundwater subsoil permeability and upper soil layers dominated by 'Urban – soil concreted over' and a groundwater table >4.5m bgl.

Exposed bedrock was not recorded during the site visit.

Excavation works are required during the construction stage (to a max. depth of 1.4m) to facilitate the foundations of the proposed housing development and ancillary services.

Given the maximum depth of the excavations for the proposed housing development (1.4m), and the findings of the site investigation works with regards to the groundwater table (>4.5m bgl) as per as per Causeway Geotech (2026), it is unlikely that groundwater will be struck

during general groundworks. However, the groundwater baseflows/table may be encountered when driving the 140 no. CFA piles to a depth of 15m (depth of the piles is subject to the finalisation of the design).

In terms of groundwater pathways there is limited potential for the percolation of contaminants through the 2.9m to 4.5m minimum depth of overburden to the groundwater table (limestone bedrock).

Given the topography of the site the overall groundwater flow direction is inferred as being from northwest to southeast. This may deviate where karstic conduits are present.

There is potential for the accidental release or spillage of contaminants within the site during the construction stage. Given the nature and scale of the construction works under the proposed Project, any impact associated with the accidental release of suspended solids is likely to be of a slight to moderate magnitude and occasional.

Approx. 1500m<sup>3</sup> of ready-mix concrete is to be delivered to the site during the construction stage, while small volumes of bentonite are required for drilling fluid and to seal the boreholes during site investigation works.

Any impact arising from the accidental release of cementitious materials is likely to be of a moderate magnitude and frequency of occurrence rare. While the magnitude of the impact could be even greater, the frequency of occurrence in terms of releasing hydrocarbons is considerably lower.

Despite the presence of a karst aquifer, the S-P-R Analyses found that there is limited potential for contaminants to gain entry to the bedrock aquifer given the presence of a 2.9 to 4.5m minimum depth of overburden to the groundwater table (limestone bedrock) and the minimum depth of 4.5m bgl to the water table beneath the site.

During the operational stage there is limited risk in terms of the accidental release of hydrocarbons or suspended solids to the transitional/estuarine/marine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour via the surface water drainage network, given that any excess surface water runoff will be picked by the SuDs system (and a conventional attenuation tank during peak flows). All excess surface water from the SuDS system and attenuation tank will discharge via onsite silt traps and sediment controls and a bypass interceptor, to the existing surface water drainage system on Blackrock Avenue which in turn discharges to the estuarine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor. All foul water will discharge to the public foul water network on Blackrock Avenue.

Given the distance and dilution effects there is limited potential for high levels of contamination to reach the transitional/estuarine/marine waters of Cork Harbour SPA located 1.1km downgradient via this pathway. Nonetheless, these findings suggest the potential presence of a complete S-P-R chain which will be considered further under the precautionary principle.

#### 7.4.2.2 Surface Water Pathways

Potential surface water pathways between the Project and the transitional/estuarine/marine habitats of Cork Harbour SPA and Great Island Channel SAC could take the form of overland flows reaching gullies on adjoining roads which are connected to the surface water drainage network which discharges to the transitional/estuarine/marine environment.

The proposed Project at its closest point is located a minimum distance of 1.1km by surface water (*i.e.* via the surface water drainage network) from the boundary of the transitional/estuarine/marine habitats of Cork Harbour SPA and Great Island Channel SAC.

There is potential for the accidental release or spillage of contaminants within the site during advanced contract and construction works which could be carried via overland flows to the gullies on the adjoining roads. However, given the nature and scale of the construction works under the proposed Project, any impact arising from the accidental release of suspended solids is likely to be of a slight to moderate magnitude and occasional.

Approx. 1500m<sup>3</sup> of ready-mix concrete is to be delivered to the site during the construction stage, while small volumes of bentonite are required for drilling fluid and to seal the boreholes during site investigation works. Any impact arising from the accidental release of cementitious materials is likely to be of a moderate magnitude and rare. While the magnitude of the impact could be even greater, the frequency of occurrence in terms of releasing hydrocarbons is considerably lower.

During the operational stage there is limited risk in terms of the accidental release of hydrocarbons or suspended solids to the transitional/estuarine/marine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour via the surface water drainage network, given that any excess surface water runoff will be picked by the SuDs system (and a conventional attenuation tank during peak flows). All excess surface water from the SuDS system and attenuation tank will discharge via onsite silt traps and sediment controls and a bypass interceptor, to the existing surface water drainage system on Blackrock Avenue which in turn discharges to the estuarine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor. Similarly, there is little or no risk in terms of the release of untreated foul water to surface waters during the operational stage given that all foul water will ultimately discharge to the public foul water network on Blackrock Avenue.

Given the distance and dilution effects there is limited potential for high levels of contamination to reach the transitional/estuarine/marine waters of Cork Harbour SPA located 1.1km 'downstream' via this pathway. Nonetheless, these findings suggest the potential presence of a complete S-P-R chain which will be considered further under the precautionary principle.

## 8.0 Natura 2000 Sites in the Zone of Influence

### 8.1 Cork Harbour SPA

#### 8.1.1 Conservation Objectives for Cork Harbour SPA

The Conservation Objectives for Cork Harbour SPA are as follows:

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA (see Table 8.1)
- To maintain the favourable conservation condition of the wetland habitat in Cork Harbour SPA as a resource for the regularly occurring migratory waterbirds that utilise it.

The following sections provide details of the bird species (and their habitats) listed as Special Conservation Interests for Cork Harbour SPA, which may be affected by the proposed Project.

#### 8.1.2 Supporting Wetland Habitat

Cork Harbour SPA is located 1.1km from the proposed Project (see Figure 7.1; Table 8.1).

It is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poul nabibe inlets.

Cork Harbour is of major ornithological significance, considered an internationally important wetland site, both for the total numbers of wintering birds (*i.e.*, > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, it supports nationally important wintering populations of 22 no. species, as well as a nationally important breeding colony of Common tern.

In terms of the internationally important populations of waterbirds, it supports Black-tailed Godwit (1,896) and Redshank (2,149) - all figures given are five-year mean peaks for the period 1995/96 to 1999/2000.

Nationally important populations of the following 19 species occur: Little Grebe (57), Great Crested Grebe (253), Cormorant (521), Grey Heron (80), Shelduck (2,009), Wigeon (1,791), Teal (1,065), Mallard (513), Pintail (57), Shoveler (103), Red-breasted merganser (121), Oystercatcher (1,809), Golden plover (3,342), Grey plover (95), Lapwing (7,569), Dunlin (9,621), Bar-tailed godwit (233), Curlew (2,237) and Greenshank (46). The Shelduck population is the largest in the country (over 10% of national total). Other species using the site include Mute swan (38), Whooper swan (5), Pochard (72), Gadwall (6), Tufted duck (64), Goldeneye (21), Coot (53), Ringed plover (73), Knot (26), and Turnstone (113). Cork Harbour is an important site for gulls in winter and autumn, especially Black-headed gull (3,640), Common gull (1,562), and Lesser black-backed gull (783), all of which occur in numbers of national importance. Little egret and Mediterranean gull, two species which have recently colonised Ireland, also occur at this site.

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10), Spotted redshank (1-5), and Green sandpiper (1-5). Numbers vary between years and usually a few of each of these species' over-winter.

Cork Harbour has a nationally important breeding colony of Common tern (102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges, and the roof of a Martello Tower. The birds are monitored annually, and the chicks are ringed.

Several of the species which occur regularly are listed on Annex I of the EU Birds Directive, *i.e.*, Whooper swan, Little egret, Golden plover, Bar-tailed godwit, Ruff, Mediterranean gull, and Common tern. The site provides both feeding and roosting sites for the various bird species. Cork Harbour is also a Ramsar Convention site, while Douglas Estuary is a Wildfowl Sanctuary.

Owing to the sheltered conditions, the intertidal flats of Cork Harbour SPA are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva* spp. and Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site, and these provide high tide roosts for the birds. Some shallow bay water is also included in the site. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds (NPWS, 2015).

Table 8.1 Birds listed as Special Conservation Interests for Cork Harbour SPA

Special Conservation Interests		
NPWS Conservation Objectives Document		
Code	Common name	Scientific name
A004	Little Grebe	<i>Tachybaptus ruficollis</i>
A005	Great Crested Grebe	<i>Podiceps cristatus</i>
A017	Cormorant	<i>Phalacrocorax carbo</i>
A028	Grey Heron	<i>Ardea cinerea</i>
A048	Shelduck	<i>Tadorna tadorna</i>
A050	Wigeon	<i>Anas penelope</i>
A052	Teal	<i>Anas crecca</i>
A054	Pintail	<i>Anas acuta</i>
A056	Shoveler	<i>Anas clypeata</i>
A069	Red-breasted Merganser	<i>Mergus serrator</i>
A130	Oystercatcher	<i>Haematopus ostralegus</i>
A140	*Golden Plover	<i>Pluvialis apricaria</i>
A141	Grey Plover	<i>Pluvialis squatarola</i>

Special Conservation Interests		
NPWS Conservation Objectives Document		
Code	Common name	Scientific name
A142	Lapwing	<i>Vanellus vanellus</i>
A149	*Dunlin	<i>Calidris alpina alpina</i>
A156	Black-tailed Godwit	<i>Limosa limosa</i>
A157	*Bar-tailed Godwit	<i>Limosa lapponica</i>
A160	Curlew	<i>Numenius arquata</i>
A162	Redshank	<i>Tringa totanus</i>
A179	Black-headed Gull	<i>Chroicocephalus ridibundus</i>
A182	Common Gull	<i>Larus canus</i>
A183	Lesser Black-backed Gull	<i>Larus fuscus</i>
A193	*Common Tern	<i>Sterna hirundo</i>
A999	Wetlands	

\* Denotes Annex I species

### 8.1.3 Special Conservation Interests

There are 23 no. Special Conservation Interests for Cork Harbour SPA (see Table 8.1), of which 4 no. are Annex I species.

#### 8.1.3.1 Grey Heron

Across its range, the Grey heron can be found within any habitat type that can provide a food supply. A water body needs to be either shallow enough, or have a shelving margin, on which it can wade. Although most common in the lowlands, Grey heron also occurs in mountain lakes, reservoirs, large and small rivers, marshes, ponds, ditches, flooded areas, coastal lagoons, estuaries, and the seashore. It sometimes forages away from water in pasture. Grey herons are also known to forage in urban environments including ponds in garden and parks. Such habitat types were not recorded within the site of the proposed housing development.

#### 8.1.3.2 Cormorant

Cormorants - are typically associated with lakes, larger rivers, estuaries, and marine habitats. Cormorants may roost on piers and rocks and are often seen with wings out-stretched drying. They breed in colonies mainly around the coast of Ireland, with some birds breeding inland. Most of the larger coastal colonies in Ireland are on the south and northwest coasts with big colonies also in Co. Dublin. Birds on the coast breed on cliffs whilst those inland, in trees. Such habitat types were not recorded within the site of the proposed Housing development.

#### 8.1.3.3 Ducks and Grebes

Shelduck, Wigeon, Teal, Pintail, Shoveler, Red-breasted merganser, and grebes (Little grebe, Great crested grebe) are typically associated with lakes, larger rivers, estuaries, and marine

habitats. Such habitat types were not recorded within the site of the proposed housing development.

#### 8.1.3.4 Waders

Oystercatcher, Golden plover, Lapwing, Dunlin, Black-tailed godwit, Bar-tailed godwit, Curlew, Redshank) are typically associated with lakes, larger rivers, suitable wet-grasslands, estuaries, marine adjacent habitats, intertidal habitats, and marine habitats.

Black-tailed godwit typically wades in shallow water on tidal mudflats – favouring the inner, more silty parts of estuaries and inlets. They can occur in large flocks of several hundred birds. Black-tailed godwits winters in a variety of habitats, both inland (particularly grassland and river deltas) and coastal (particularly estuaries), though seldom seen along non-estuarine coast. They typically breed in lowland wet grassland and marshes. Nine breeding sites were identified in Ireland during the last breeding atlas.

Redshank nest on the ground in grassy tussock, in wet, marshy areas and occasionally heather. This species breeds mainly in the midlands (especially Shannon Callows) and the northern half of the country, but not commonly anywhere in Ireland. Redshank winter all around the coast of Ireland and favour mudflats, large estuaries and inlets; smaller numbers occur at inland lakes and large rivers. They are found on wet grassland which holds shallow surface water or damp soil and feed on insects at the edges of pools and ditches.

Curlews nest on the ground in rough pastures, meadows and heather, and breed in most parts of the country, although they are not common. They winter in a wide range of wetland habitats (coastal and inland) and damp fields.

Northern lapwing breed on open farmland and appear to prefer nesting in fields that are relatively bare (particularly when cultivated in the spring) and adjacent to grass. Wintering distribution in Ireland is widespread. Large flocks are regularly recorded in a variety of habitats, including wetlands, pasture and rough grassland adjacent to bogs. Such habitat types were not recorded within the site of the proposed housing development.

#### 8.1.3.5 Gulls & Terns

Terns (Common Tern) are typically associated with lakes, larger rivers and marine habitats. Common tern feed on fish caught by diving from flight. Gulls (Black-headed Gull, Common Gull, Lesser Black-backed Gull) are typically associated with lakes, rivers, larger rivers, grasslands, marine adjacent habitats, intertidal habitats, and marine habitats. Such habitat types were not recorded within the site of the proposed housing development.

#### 8.1.4 Survey Results

A walkover survey of the site of the proposed housing development was carried out on 9<sup>th</sup> April 2026 to determine the presence/absence of Special Conservation Interests, and to determine the presence/absence of suitable *ex-situ* supporting habitat.

The majority of the Special Conservation Interests for Cork Harbour SPA (grebes, Cormorant, ducks, waders, gulls and terns) would have a preference for the estuarine environment containing large open waterbodies, mudflats and adjacent improved grasslands of an optimal sward height for foraging with sufficient sightlines to facilitate Flight-initiation Distances (FIDs) in terms of 'fight or flight' responses to disturbance regimes including predators. The site of the proposed housing development is considered unsuitable for Special Conservation Interests due to the absence of adjacent (and distance from) suitable supporting wetland habitat, the

extent to which the land is enclosed by tall buildings and vegetation, the existing levels of disturbance, and the contextual framework of the surrounding suburban environment.

## 8.2 Great Island Channel SAC

### 8.2.1 Conservation Objectives for Great Island Channel SAC

The following sections provide a summary of the Conservation Objectives for Great Island Channel SAC which may be affected by the proposed Project.

A summary of the Conservation Objectives for Great Island Channel SAC are as follows:

- To maintain or restore the favourable conservation condition of the Qualifying Interests for Special Area of Conservation (SAC) (see Table 8.2)

The following sections provide details on the Qualifying Interests for Great Island Channel SAC, which may be affected by the proposed Project.

### 8.2.2 Qualifying Interests

Great Island Channel SAC is located 5km from the proposed Project (see Figure 7.1; Table 8.1).

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest.

Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel.

The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algal species occur on the flats, especially *Ulva lactuca* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly.

The saltmarshes are scattered throughout the SAC and are all of the estuarine type on mud substrate. Species present include Sea purslane (*Halimione portulacoides*), Sea aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common saltmarsh-grass (*Puccinellia maritima*), Sea plantain (*Plantago maritima*), Greater sea-spurrey (*Spergularia media*), Lax-flowered sea-lavender (*Limonium humile*), Sea arrowgrass (*Triglochin maritimum*), Sea mayweed (*Matricaria maritima*) and Red fescue (*Festuca rubra*).

The site is extremely important for wintering waterfowl and is considered to contain three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point.

Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end.

Waders occur in the greatest density north of Rosslare, with Dunlin, Godwit, Curlew and Golden Plover the commonest species. A population of about 80 Grey Plover is a notable feature of the area. All the mudflats support feeding birds; the main roost sites are at Weir Island and Brown Island, and to the north of Fota at Killacloyne and Harper’s Island. Ahanesk supports a roost also but is subject to disturbance. The numbers of Grey Plover and Shelduck, as given above, are of national importance.

The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. Overall, Cork Harbour regularly holds over 20,000 waterfowl and contains internationally important numbers of Black-tailed godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site overlaps with Cork Harbour SPA.

While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows, and possible marina developments.

Table 8.2 Qualifying Interests for the Great Island Channel SAC

Code	Qualifying Interests
	<b>NPWS Conservation Objectives Document</b>
[1140]	Mudflats and sandflats not covered by seawater at low tide
[1330]	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )

The site is of major importance for the 2 no. habitats listed on Annex I of the EU Habitats Directive (see Table 4.5), as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna (NPWS, 2013).

### 8.2.3 Survey Results

Neither of the 2 no. habitats of Qualifying Interest for Great Island Channel SAC were recorded within the site of the proposed housing development during the walkover surveys.

### 8.4 Summary

Given the nature, scale and duration of the works, distance and dilution effects, there is limited potential for likely significant effects on Cork Harbour SPA and Great Island Channel SAC arising from the proposed Project (see Sections 6.0 and 7.0 for further details).

The following is a summary of the potential impacts which have been identified:

- Direct impacts on Special Conservation Interests where they occur outside of the SPA boundary, and within the site of the proposed Project, due to (bird) window collisions during the operational stage.
- Indirect or secondary impacts on Special Conservation Interests for the SPA and Qualifying Interests for the SAC arising from the accidental spillage or release of contaminants during the construction and operational stage via surface and groundwater pathways under the precautionary principle

- Indirect or secondary impacts on nesting/roosting/foraging Special Conservation Interests for the SPA from noise, visual disturbance, and human activities/interaction, where they occur outside of the SPA boundary, during the construction and operational stage
- Indirect or secondary impacts on nesting/roosting/foraging Special Conservation Interests for the SPA, where they occur outside of the SPA boundary, from light during the operational stage
- Indirect or secondary impacts on the foraging resources of Special Conservation Interests arising from the accidental spillage or release of contaminants (including dust) during the construction stage
- Introduction and dispersal of invasive species resulting in impacts on Natura 2000 Sites during the construction and operational stage

Given the nature and scale of the works, absence of habitats of Qualifying Interests within the site, distance, and dilution effects there is limited risk of impacts on Great Island Channel SAC located 5km from the proposed Project. In addition, any assessment of the potential for likely significant indirect effects from water pollution on Cork Harbour SPA will also serve to protect Great Island Channel SAC. In light of the above, the Stage 1 – Screening for Appropriate Assessment report shall proceed with regards to Cork Harbour SPA.

## *9.0 Assessment of likely Significant Effects*

The assessment of likely significant effects is discussed in Section 10.0 and 11.0 for the advanced contract, construction, and operational stages.

## 10.0 Advanced Contracts & Construction Stage

### 10.1 Direct Impacts

#### 10.1.1 Reduction of Habitat Area

The proposed Project is located a minimum distance of 1.1km from the boundary of Cork Harbour SPA.

The Special Conservation Interests for Cork Harbour SPA may utilise suitable habitats outside of the SPA boundary for nesting, roosting, and foraging. As per the findings of the walkover survey *ex-situ* nesting/roosting/foraging supporting habitat, for Special Conservation Interests, was not recorded within the site of the proposed housing development.

Considering the above, a likely significant effect, *i.e.*, a reduction of habitat area for the Special Conservation Interests for Cork Harbour SPA is not anticipated.

#### 10.1.2 Reduction in Species Density

Given the absence of suitable nesting/foraging/roosting habitat within the site, direct impacts resulting in mortalities of Special Conservation Interests, are not anticipated during the construction stage.

Considering the above, likely significant effects on Special Conservation Interests for Cork Harbour SPA, as a result of a reduction in species density, are not anticipated.

### 10.2 Indirect or Secondary Impacts

#### 10.2.1 Disturbance of Key Species

It is known that certain breeding, roosting or foraging birds, may temporarily avoid suitable habitat for certain hours of the day, or permanently avoid habitat, due to the presence of light, noise & visual disturbances, and certain human activities associated with enabling and construction works.

Disturbance leading to a 'fight-or-flight' response can cause birds to abandon their nests or young, use valuable energy reserves for defence, instead of incubating eggs and feeding their young. While getting too close to nests may prevent adult birds from returning to protect and feed their young which can expose eggs or young to predation, and to the lethal effects of heat, cold, and rain.

Similarly with respect to foraging habitat, exposure to higher disturbance levels could influence suitability for Special Conservation Interests resulting in birds seeking alternative foraging sites. Less suitable sites could impact on a birds' energy intake and lead to an increase in energy expenditure. The alternative foraging site may be inferior in various ways such as energetic costs in commuting there, forage quality, increased competition for food resources, proximity of retreat zones, intensity of agricultural activities and real or perceived safety threats such as increased risk of predation. These threats and costs could constitute a deterioration in habitat quality and potentially adversely affect the SPA populations.

The proposed housing development is located in a suburban environment which tolerates moderate to high traffic volumes at daily peak travel times.

Typical urban background light, noise & visual disturbances and human activities are associated with urban roads and traffic, residential dwellings, healthcare facilities, and retail outlets. These

urban land uses include artificial lighting from outdoor security, public street lighting and indoor domestic and commercial uses, and vehicle head lamps, and a high pedestrian footfall. The extent of existing urban activities at Blackrock and Mahon accords a certain level of acceptance of noise, light and visual and human activity related disturbances by the existing wildlife which is present.

The advanced contract and construction works required under the proposed Project will have a combined 22-month duration and are considered to be of a short-term duration.

In terms of noise, current understanding of construction related noise disturbance suggests that at a distance of c.300m from a site, typical noise levels associated with construction activity (BS 5228 - Code of practice for noise and vibration control on construction and open sites) are generally below 60dB or, in most cases, are approaching the 50dB threshold.

Under the precautionary principle at a distance of c.300m, the potential for construction related noise disturbance should be acknowledged and warrants a thorough examination in environmental assessment reports. This is because scientific studies on waterbirds and construction related noise disturbance indicates that regular noise above 50dB provides a response from waterbirds. Current understanding of construction related noise disturbance in relation to waterbirds suggests that regular noise between 50dB and 70dB would provoke a moderate effect/level of response from waterbirds, *i.e.*, birds becoming alert and some behavioural changes (*e.g.*, reduced feeding activity), but waterbirds would be expected to habituate to noise levels within this range. However, noise levels above 70dB would likely result in birds moving out of the affected zone or leaving the site altogether. Sudden loud noises (or impulsive noises) tend to have the most significant impact as waterbirds cannot habituate to irregular noise in the same way as regular or background ambient noise. The effects from noise on waterbirds will depend on the distance between the source of the noise and the waterbirds, ambient noise levels, the ability of the species to habituate, body size of the bird, atmospheric/meteorological conditions (*e.g.*, wind direction) *etc.* Environmental assessments should take all of the foregoing into account including the potential flight-initiation distance (FID) or flush distance for the species in question – which is defined as the distance at which waterbirds take flight to determine whether noise will induce a flight or fright response *i.e.*, energetically expensive alarm or fleeing behaviour.

As per the findings of the walkover survey, *ex-situ* nesting/roosting/foraging habitat for Special Conservation Interests was not recorded within or in the vicinity the site of the proposed housing development.

Considering the above, a likely significant effect, *i.e.*, the disturbance of Special Conservation Interests for Cork Harbour SPA, is not anticipated.

#### 10.2.2 Reduction in Water Quality

There is a potential surface water pathway between the proposed Project and Cork Harbour SPA via overland flows. A combined 22-month programme for advanced contract and construction works for the proposed housing development, could result in the release of contaminants to surface waters via overland flows.

There is also a limited potential groundwater pathway between the proposed Project and Cork Harbour SPA, via the percolation of contaminants through the overburden, which could gain access to the groundwater table beneath the works area (see Section 7.3.3 for further details).

## Transitional/Estuarine Environment – Suspended Solids

The release or spillage of silt laden waters (via overland flows to gullies on the adjoining roads connected to the existing surface water drainage network) from advanced contract and construction works, could lead to the temporary suspension of disturbed silt particles or suspended solids in the water column which could affect water quality and clarity locally, as well as travelling according to local tidal currents, causing impacts on the food resources *i.e.* prey items of waterbirds in the transitional/estuarine/marine habitats of the River Lee/Tramore River/Lough Mahon/Cork Harbour.

Based on the nature, scale and duration of the construction works the potential for the large scale, regular or chronic release or spillage of silt laden waters (via overland flows) is considered unlikely.

Under the precautionary principle, and in the unlikely event that high volumes of suspended solids managed to gain entry to the River Lee/Tramore River/Lough Mahon/Cork Harbour on a continual basis, a large scale, regular or chronic, pollution event has the potential to impact on invertebrates and fish species (prey items), altering community structure where natural background levels of turbidity are continuously exceeded.

High volumes of silt can cause direct impacts on fish by blocking their respiratory organs (*i.e.*, gills), and the breathing apparatus of filter feeders, thus reducing food resources in particular the diversity/abundances of fish species and macro-invertebrate communities, which form part of the food chain for waterbirds.

A reduction in the diversity/abundances of fish species and macro-invertebrate communities, could therefore have a knock-on effect on the foraging and feeding opportunities (prey items) for the Special Conservation Interests.

The food resources of Special Conservation Interests and the ability of estuarine/marine macrophytes in the photic zone to photosynthesise, could also be significantly impacted by a reduction in water quality, as a result of an acute point source of suspended solids.

Given the nature and scale of the site investigation and construction works proposed under the Project, any release of suspended solids is likely to be of a slight to moderate magnitude and occasional. The potential volume of suspended solids released from the site, as a result of a chronic or acute event, is unlikely to exceed that of a short duration natural flood event. Prey items of the Special Conservation Interests in the estuarine/marine environment of the Cork Harbour, downstream of the proposed Project, are typically considered less sensitive to suspended solids than those of freshwater environments given the naturally high background levels of turbidity and dilution effects.

In summary, based on the nature and scale of the works, the turbid nature of the estuarine environment/dilution factors and low sensitivity of prey items, significant effects on the prey items of Special Conservation Interests for Cork Harbour SPA, are considered unlikely.

Considering the above, a likely significant effect, *i.e.*, a reduction in water quality of the supporting wetland habitats in Cork Harbour SPA from the release of suspended solids, is also not anticipated.

Furthermore, as per industry best practice and standard construction guidance, it is a requirement that the Contractor adheres to best practice in terms of preventing contaminants

such as suspended solids from entering overland flows, and gullies connected to the existing surface water drainage network during construction works.

#### Hydrocarbons & Cementitious Materials

The accidental release or spillage of hydrocarbons or cementitious materials during the construction stage will have a localised impact in terms of the contamination of soil, at the location of the spill zone, within the site of the proposed housing development.

Hydrocarbons or cementitious materials which manage to access the transitional/estuarine environment via surface water (*i.e.* overland flows and gullies connected to the surface water drainage network) or groundwater pathways (*i.e.* percolation through the overburden), will be carried by winds and local currents.

The accidental spillage or release of hydrocarbons or concrete to the transitional/estuarine environment could result in a severe impact such as a reduction in foraging resources and opportunities - where reductions in water quality affects macro-invertebrate diversity and abundance and fish and/or temporarily displaces fish and waterbirds from the local transitional/estuarine environment.

In the transitional/estuarine/marine environment contaminants can coat rocks and macrophytes and even penetrate small burrows created by benthic invertebrates, in exposed mudflats, resulting in a loss of available micro-habitat *e.g.* shade, shelter, and a food source for an array of invertebrate species.

Hydrocarbons and cementitious materials may also cause skin irritation, ulceration and fatalities in local fish populations or temporarily displace fish from the local environment.

Impacts on invertebrate and fish diversity and abundance could have a knock-on effect higher up the food chain on the feeding opportunities for waterbirds, through a reduction in prey items/foraging resources leading to temporary displacement, while an uptake of 'contaminated' prey items could lead to bioaccumulation and poisoning. Contact with hydrocarbons can also cause damage to the plumage of waterbirds.

Hydrocarbons may 'strand' on the high tide line, coating rocks, marine macrophytes and mudflats, and may even penetrate the exposed surface. On waterlogged sediments such as on mudflats, hydrocarbons will remain on the surface if undisturbed, and will be lifted again on the next tide. Sun, wind, and waves will gradually weather 'globs' of hydrocarbons that remain on the shoreline (causing them to change physically and chemically), forming a hard asphalt-like substance, and eventually causing them to break apart and disappear. In sheltered areas, hydrocarbons may remain for a long time.

On this basis, a chronic, acute, or large-scale pollution event arising from hydrocarbons or cementitious materials has the potential to alter the community structure of the receiving transitional/estuarine/marine environment.

Approx. 1500m<sup>3</sup> of ready-mix concrete is to be delivered to the site during the construction stage, while bentonite is utilised in drilling fluid and to seal the boreholes. Any impact arising from the accidental release of cementitious materials is likely to be of a slight to moderate magnitude given the distance and dilution effects while the frequency of occurrence would be considered rare. While the magnitude of the impact could be even greater, based on the scale and type of plant machinery and equipment required under the proposed Project, the frequency of occurrence in terms of releasing hydrocarbons is considerably lower.

In summary, based on the nature and scale of the works, type of plant machinery and equipment, distance and dilution effects, and frequency of occurrence, significant effects on Cork Harbour SPA arising from hydrocarbons and cementitious materials are considered unlikely.

Furthermore, industry best practice and standard construction guidance will be implemented and adhered to with respect to the use of hydrocarbons and cementitious materials. Sealed double shuttering and steel will be utilised to strengthen formwork prior to a concrete pour and a dedicated washed out for concrete skips *etc.* will be established in the temporary storage area, such that the risk of a cementitious pollution event is considered rare. Biodegradable products such as hydraulic fluids will be utilised where available. Fuels, oils, greases, and hydraulic fluids will be kept within the temporary storage area at least 50m from a watercourse or ponding surface water body and the manufacturers guidance on the Product Labels for hydrocarbons will be adhered to. All refueling and maintenance of plant machinery and equipment is to take place within the temporary storage area setback at least 50m from watercourses and ponding surface waterbodies, and all machinery and equipment will be regularly maintained, such that the risk of a malfunction and/or the accidental release of hydrocarbons is unlikely.

#### Foul Water

Impacts on water quality can also occur during the construction stage, as a result of the inappropriate disposal of foul water from temporary site welfare facilities and surface water run-off from hard standing and wash down areas. Given the scale and duration of the works, and the provision of regularly serviced temporary site welfare facilities, the potential for the accidental release of foul water is considered low.

#### 10.2.3 Air Pollution

While there is potential for dust-related impacts, due to the volume of imported infill material (965.77m<sup>3</sup>) required under the proposed Project, there is limited potential for dust particulates to reach Cork Harbour SPA (1.1km).

A bituminous surface will be laid to provide the internal access road and car park spaces. Given that the works are to take place in an outdoor open space there is limited potential for the migration of concentrated vapours or fumes from the construction site.

Based on the nature and scale of the works, and distance, significant effects on the Special Conservation Interests for Cork Harbour SPA are considered unlikely.

#### 10.2.4 Invasive Species

##### Terrestrial

There is potential for the dispersal of existing invasive species within the site, and the introduction of invasive alien plant species, due to natural dispersal mechanisms, and the accidental importation of viable plant material in soil or local quarried stone material, or on equipment and plant machinery. Invasive species could also be accidentally introduced or incidentally acquired for planting under landscape planting schemes. The magnitude of the impact would depend on the invasive qualities of the 'regulated' plant species in question.

None of the existing plant species recorded within the site require specialist intervention to achieve eradication. Particular focus should be given to monitoring for the potential introduction

of Three-cornered garlic to the site, during construction stage, as a result of natural dispersal mechanisms.

An Invasive Species Management Plan shall be prepared where Three-cornered garlic or another 'regulated' invasive species is identified within the site. Industry best practice and standard construction guidance should be deployed by the Contractor with respect to the control and management of invasive species during the advanced contract and construction stage of the proposed Project.

#### Transitional/Estuarine

There is limited potential for the accidental introduction and dispersal of invasive species to Cork Harbour including plants, fish viruses, bacteria, fungi and moulds such as Crayfish Plague (*Aphanomyces astaci*) on equipment and plant machinery, given that there is a limited pathway for dispersal and no receptor, given the absence of transitional/estuarine habitat within the site.

#### 10.3 Fragmentation

The advanced contract and construction stage of the proposed housing development will not result in impacts on ecological corridors or result in the creation of bottlenecks which could lead to habitat fragmentation or isolation. There is, however, potential for temporary indirect effects or secondary impacts arising from noise visual disturbance and human activities which could impact on species commuting/foraging along wildlife corridors *i.e.* the adjacent Passage Railway Greenway.

It is likely that the foraging range of bats extends beyond the optimal habitat for the species, especially where artificial lighting attracts an abundance of prey items. In contrast the presence of artificial lighting impacts on suitability of trees for roosting. There is a requirement for temporary site lighting in terms of security at the site compound/temporary storage area. Given the presence of existing public street and outdoor security lighting, there is limited potential for additional impacts arising from temporary site lighting at night-time for security purposes. The construction works are to be undertaken during daylight hours and will not require lighting.

Given the nature, scale and duration of the advanced contract and construction stage, significant effects on ecological corridors connecting Cork Harbour SPA to other Natura 2000 Sites in the wider study area are not anticipated.

#### 10.4 Changes in Other Key Indicators of Conservation Value

Refer to Section 10.1 and 10.2 for details in relation to other key indicators.

#### 10.5 Other Annex Listed Habitat or Species

Aside from the Special Conservation Interests for Cork Harbour SPA, the site of the proposed housing development may also support Annex listed habitats and/or provide nesting/foraging/commuting habitat for other Annex listed species moving to and from Natura 2000 Sites in the wider landscape.

Other Annexed Listed Species include:

- Article 4(2) and Article 12 species (including Annex I species of Special Conservation Interest for SPAs and regularly occurring migratory species) *e.g.*, Hen harrier, Kingfisher, Corncrake *etc.*

- Annex II species (about 900): species whose core areas of habitat are designated as SACs
- Annex IV species (over 400, including many Annex II species): species which are protected across their entire natural range within the EU, both within and outside Natura 2000 Sites.
- Annex V species (over 90): Member States must ensure that their exploitation and taking in the wild is compatible with maintaining them in a favourable conservation status.

A brief conclusion on the potential for likely significant effects on these species is discussed in the following sections.

#### 10.5.1 Other Annex I Species

Suitable habitat for Annex I bird species was not recorded within the site. Likely significant impacts on these species are not anticipated.

#### 10.5.2 Other Annex I Habitats

No Annex I habitats were recorded within the site of the proposed Project.

Likely significant effects on Annex I habitats, as a result of the proposed Project, are considered unlikely.

Refer to Section 10.2.2 in relation to water quality.

#### 10.5.3 Annex II Species

##### Atlantic Salmon

Refer to Section 10.2.2 in relation to water quality.

##### Sea, River & Brook Lamprey

Refer to Section 10.2.2 in relation to water quality.

##### Otter

Suitable habitat for Otter an Annex II and IV species, was not recorded within the site. Likely significant effects on this species are not anticipated.

Refer to Section 10.2.1 for further details.

#### 10.5.4 Annex IV Species

Annex IV species include all bat species, Otter, Slender naiad, Marsh saxifrage, Killarney fern, Kerry slug, Natterjack toad, all cetaceans (whales and dolphins) and 4 no. turtle species.

##### Bats

All bat species are listed on Annex IV, while Lesser Horseshoe Bat is also listed on Annex II. Refer to Section 11.3 for details. Likely significant effects on bat species are not anticipated.

##### Slender Naiad

Slender naiad (*Najas flexilis*) is a submerged aquatic plant, which occurs mainly in western lakes in Ireland. Likely significant effects on this species are not anticipated.

### Marsh Saxifrage

The only known records of Marsh saxifrage (*Saxifraga hirculus*) are restricted to mineral flushes in blanket bog with extant records in Co.s Mayo and Co.s Antrim. Likely significant effects on this species are not anticipated.

### Killarney Fern

There are no records for Killarney fern (*Trichomanes speciosum*) held by the NBDC online database for the 10km grid square or hectad W77. Suitable habitat for Killarney fern *i.e.*, woodland habitat with specific micro-habitat requirements is not present within or adjacent to the proposed Project. Likely significant effects on this species are not anticipated.

### Cetaceans & Turtles

Refer to Section 10.2.2 in relation to water quality. Likely significant effects on these species are not anticipated.

### 10.5.5 Annex V Species

Annex V species include Atlantic salmon, Twaite shad, Common frog, Irish hare, Pine marten, Reindeer moss, and Large white moss.

#### Twaite Shad

Twaite shad have been reported from marine locations around the entire coast of Ireland, but spawning is only known to occur in a small number of Irish rivers (King & Roche, 2008) including the River Suir, River Slaney, River Barrow and River Blackwater. Likely significant effects on this species are not anticipated.

#### Common Frog

Suitable habitat for Common frog (*Rana temporaria*) was not observed within the site. Likely significant effects on this species are not anticipated.

#### Irish Hare

Suitable habitat for Irish hare (*Lepus timidus hibernicus*) was not recorded within the site. Likely significant effects on this species are not anticipated.

#### Pine Marten

Suitable habitat for Pine marten (*Martes martes*) was not recorded within the site. There are 3 no. record for Pine marten within the 10km grid square W77 in the NBDC online database including 1 no. record for Blackrock, 100m to the north of the site. This record is likely to have been an individual Pine marten which was foraging and commuted along the urban corridor of Passage Railway Greenway. Likely significant effects on this species are not anticipated.

#### Reindeer Moss

As Reindeer moss (*Cladonia portentosa*) is typical of heaths, peaty moorland and dunes, suitable habitat was not recorded present within the site. Likely significant effects on this species are not anticipated.

#### Large White Moss

This species typically forms hummocks on the ground in wet and dry acid woodlands, as well as bogs, heaths, and fen. Suitable habitat was not recorded present within the site. Likely significant effects on this species are not anticipated.

#### 10.5.6 European Eel

The European eel has a 'protected' status under the European Eel Regulation EC No. 1100/2007 to facilitate the recovery of eel stocks since the large decline in the 1980's. European Eel does not spawn in freshwater; they utilise river networks for feeding/adult holding habitat and as a migration route to the Sargasso Sea.

Refer to Section 10.2.2 in relation to water quality.

## 11.0 Operational Stage

It is not envisaged that substantial maintenance or repair works to the proposed housing development will be required within the next 15 years under the operational stage.

### 11.1 Direct Impacts

#### 11.1.1 Reduction of Habitat Area

The site is located a minimum distance of 1.1km from the boundary of Cork Harbour SPA.

The gross area of the site (including Blackrock Avenue) is 0.91ha, while the net development area (excluding Blackrock Avenue) totals 7833m<sup>2</sup> or 0.78ha.

The total footprint of the hard surfaces associated with the proposed housing development is approx. 4995.27m<sup>2</sup> or 0.5ha *i.e.*, with the housing development covering an area of 1885.75m<sup>2</sup> (Block A & B), while the car park spaces, footpaths, hard landscaping, play area and vehicular access routes total approx. 3109.52m<sup>2</sup>, with green open space totalling 2837.73m<sup>2</sup>.

The partial clearance of amenity grassland, scrub and parkland trees was undertaken along the northern boundary of the site to facilitate the construction of the new adjacent apartment complex Eden residential development. The area is now dominated by a finished surface of imported stone fill, with the exception of a retained Sycamore tree which is supporting an active corvid bird nest. The remainder and majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland with scattered trees, and scrub habitat along the small escarpment on the southern boundary, with patches of scrub on the western boundary.

The development of the site will require the removal of intensively managed amenity grassland, up to 8 no. trees.

As per the findings of the walkover survey, *ex-situ* nesting/roosting/foraging habitat for Special Conservation Interests was not recorded within or in the vicinity the site of the proposed housing development.

Considering the above, a likely significant effect, *i.e.*, a reduction of habitat area for Special Conservation Interests for Cork Harbour SPA is not anticipated.

#### 11.1.2 Reduction in Species Density

Direct mortality of birds from anthropogenic causes may arise as a result of domestic pets, building and automobile collisions, power line collisions, power line electrocutions, communication tower or wind turbine collisions and poisoning.

Research indicates that birds do not recognise glass as a barrier and are therefore vulnerable to collisions with the transparent and reflective glass that is ubiquitous in the built environment. Birds "cannot discriminate between clear glass and unobstructed airspace" (Klem 1990) and either attempt to fly to habitat visible through clear glass panes or attempt to fly to reflections of sky and vegetation. Among the greatest predictors of window collision rates at a building are the percentage coverage of glass on a building façade, coupled with reflections of vegetation (Klem et al., 2009; Gelb & Delacretaz, 2006; Cusa *et al.*, 2015).



Figure 11.1 Proposed housing development elevation (indicative)

In this regard, the use of glass façades (presence of large windows) in the design of the proposed housing development (see Figure 11.1) has the potential to lead to bird mortality through collision. Under the proposed design, there will be approximately 795.85m<sup>2</sup> of glass or 32.22% cover associated with Block A and 1013.64m<sup>2</sup> or 33.915% associated with Block B (see Tables 11.1-11.2).

Table 11.1 Results of Glazing Assessment for Block A

Elevation	Façade (m <sup>2</sup> )	Glazing (m <sup>2</sup> )	Glazing %
North	448.19	106.92	23.86
South	441.17	94.48	21.42
East	715.13	282.42	39.5
West	707.65	312.03	44.1
<b>TOTAL</b>	<b>2312.14</b>	<b>795.85</b>	<b>Ave. 32.22%</b>

Table 11.2 Results of Glazing Assessment for Block B

Elevation	Façade (m <sup>2</sup> )	Glazing (m <sup>2</sup> )	Glazing %
North	581.15	137.4	23.65
South	588.18	164.66	28
East	852.05	312.66	36.7
West	843.31	398.92	47.31
<b>TOTAL</b>	<b>2864.69</b>	<b>1013.64</b>	<b>Ave. 33.915%</b>

Of this glazing 961.09m<sup>2</sup> is associated with the southern and western and façades of the proposed housing development, which face scrub and linear woody habitat along Passage Railway Greenway (see Figure 11.1).

Given the relatively high percentage cover and the scale of glazing on the façades of the proposed housing development, in particular the southern and western façades, and the presence of vegetation to create reflections, there is potential for impacts due to collisions (bird strikes). The scale of the impact will be mitigated by the inclusion of measures in the glazing design to reduce the risk of bird collisions.

As the native trees and shrubs proposed under the landscape design mature over time, an increase in the extent of vegetation reflected in the glazing is anticipated. As this will be a gradual process it is unlikely to increase the magnitude or significance of the *i.e.*, to result in terms of an increase in bird collisions.

However, given the contextual framework of the surrounding suburban landscape, existing levels of disturbance, the extent to which the land is enclosed *i.e.* the fact that the proposed housing development will sit amongst existing tall buildings (to the north and east), the extent of green open space (0.28ha) around the new apartment blocks, of which 1,701.5m<sup>2</sup> is centrally located public open space and 697.8m<sup>2</sup> of communal open spaces, and minimum Flight-initiation Distances (FIDs) in terms of 'fight or flight' responses to disturbance regimes by waterbirds, along with the absence of adjacent (and distance from) suitable supporting wetland habitat, the site of the proposed housing development is considered unsuitable for Special Conservation Interests. The extent of glazing on the façades of the proposed housing development is therefore unlikely to have a significant effect in terms of collisions (bird strikes) involving Special Conservation Interests flying to and from *ex-situ* inland foraging sites and Cork Harbour SPA.

## 11.2 Indirect or Secondary Impacts

### 11.2.1 Disturbance of Key Species

There is potential for light, noise & visual disturbance related impacts, and impacts from human activities/interaction once the proposed housing development is operational.

Waterbirds nesting or foraging may temporarily avoid suitable habitat for certain hours of the day, or permanently avoid habitat, as a result of noise, light, visual disturbances, and human activities associated with certain types of development projects.

Specific operational aspects of the proposed housing development such as outdoor security and indoor domestic lighting, daily activities including deliveries, regular landscape maintenance of hard and soft landscaped areas, maintenance and repairs to the complex, high pedestrian footfall, daily chores, recreational activities, and presence of domestic pets can lead to noise, light and visual disturbances potentially resulting in a 'fight-or-flight' response.

Refer to Section 10.2.1 for further details.

Following the construction of the proposed housing development, maintenance may be necessary on an *ad hoc* basis going forward in terms of repairs. Regular maintenance of the gullies, silt traps and sediment controls, bypass interceptors, and SuDS measures will be required along with landscape maintenance of the hard and soft landscaped areas. However, it is not envisaged that substantial maintenance or repair works will be required within the next 15 years.

Artificial light can impact on biological processes *e.g.*, circadian rhythms and result in phototactic responses (movements in response to a light stimulus) by certain species. The installation of inappropriate permanent outdoor security lighting, in an urban setting, can

contribute to sky glow, causing phototactic responses or disrupt the biological processes of certain species. The proximity of the existing urban roads, residential dwellings, healthcare facilities, retail outlets and a filling station with street and security lighting is noted.

In accordance with best practice, directional or shielded street lighting is proposed in respect of the proposed housing development to minimise any additional light pollution and overspill, therefore, significant effects from light pollution are considered unlikely.

In summary, given the distance from the SPA, the contextual framework of the surrounding suburban landscape, the planting of native trees, and the use of directional or shielded lighting it is considered unlikely that the proposed housing development once occupied, will result in significant disturbance related impacts on nesting/foraging/roosting habitats for Special Conservation Interests for Cork Harbour SPA as a result of light pollution.

Considering the above, a likely significant effect, *i.e.*, the disturbance of Special Conservation Interest for Cork Harbour SPA, is not anticipated.

#### 11.2.2 Water Abstraction, Discharge & Groundwater Recharge

There is no requirement for surface or groundwater abstraction with respect to a domestic drinking water supply. A connection will be made to the public mains water supply.

All foul water will discharge to the existing public foul water network on Blackrock Avenue.

The slow rate of recharge identified during the percolation tests (as per Causeway Geotech (2026) *Soakaway Logs*) has removed the possibility of incorporating 'traditional' measures such as permeable paving and soakaways into the SuDs design, such that the SuDs systems has been reduce to green roofs, rain gardens, rainwater harvesting tanks and bio-retention tree pits and a conventional attenuation tank. The attenuation tank will be utilised to prevent flooding where other SuDS measures are not able to deal with peak water flows. In this regard, there will be an overflow of excess surface water from the attenuation tank to the existing surface water drainage network on Blackrock Avenue. However, the site layout and landscape design of the proposed housing development has allowed for the retention of 2837.73m<sup>2</sup> of green open space along with the retention and enhancement of natural vegetation which will continue to facilitate groundwater recharge *i.e.* permit percolation of rainwater through the overburden into the groundwater table in these areas. In light of the above, there will be a slight localised impact on groundwater recharge from precipitation, as a result of the proposed permanent structure and associated hard surfaces.

In summary, there will be no impact on supporting wetland habitat of Special Conservation Interests for Cork Harbour SPA, as a result of water abstraction, discharge, or changes in groundwater recharge.

#### 11.2.3 Reduction in Water Quality

Given that foul water will discharge to the existing public foul water network, no risk to the transitional/estuarine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour is foreseen from the discharge of foul water.

Given that any excess surface water runoff will discharge via onsite silt traps and sediment controls, and bypass interceptors to the existing surface water drainage system which in turn discharges to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor, no risk to the transitional/estuarine environment is foreseen from the discharge of surface water.

Maintenance of gullies, silt traps and sediment controls, bypass interceptors and various SuDS measures is, however, essential to avoid future risk.

Where required, any imported stone fill material will be sourced from a local quarry supplier and will be geochemically similar to the existing geological characteristics of the site following GSI/EPA guidance *i.e.* Glennon et al. (2020) Geochemical Characterisation & Geochemically Appropriate Levels (GALs) for Soil Recovery Facilities. This will ensure that there are limited changes to soil and groundwater chemistry.

In light of the above, there is limited potential for a reduction in water quality as a result of the operational stage.

In summary, a likely significant effect on the supporting wetland habitats of Special Conservation Interests for Cork Harbour SPA, as a result of changes in water quality, is not anticipated.

#### 11.2.4 Invasive Species

There is potential for the dispersal of existing invasive species within the site, and the introduction of invasive alien plant species, due to natural dispersal mechanisms, and the accidental importation of viable plant material in local quarried stone material or on equipment and plant machinery. Invasive species could also be accidentally introduced or incidentally acquired for planting under landscape planting schemes. There may also be a requirement to import small volumes of locally quarried stone, mulch, compost, or soil for landscaping maintenance activities which could act as a vector for terrestrial invasive plant species.

The significance of the impact from the introduction of a 'regulated' invasive species would depend on the invasive qualities of the plant species in question.

None of the existing species recorded within the site require specialist intervention to achieve eradication. Industry best practice and standard construction guidance should be deployed by Cork City Council with respect to the control and management of invasive species during the operational stage of the proposed Project.

Particular focus should be given to monitoring for the potential introduction of Three-cornered garlic to the site, during the operational stage, as a result of natural dispersal mechanisms. An Invasive Species Management Plan shall be prepared where Three-cornered garlic or another 'regulated' invasive species is identified within the site.

#### 11.3 Fragmentation

Article 10 of the EU Habitats Directive recognises the importance of ecological networks as corridors and stepping-stones for wildlife, including for migration, dispersal, and the genetic exchange of species of flora and fauna. The Habitats Directive requires that ecological connectivity and areas of ecological value, outside the Natura 2000 Network of designated conservation areas, are maintained and it recognises the need for the management of these areas through land-use planning and development policies.

Ecological corridors can link habitat patches or islands in the wider landscape which are important for the dispersal of wildlife and gene flow to designated conservation areas. Where corridors are absent or impacted, habitat isolation and bottlenecks to wildlife dispersal and gene flow can occur.

In the context of the Irish landscape, ecological corridors include linear features such as treelines, hedgerows, roadside verges, railway lines, riparian vegetation, linear woodland,

watercourses including rivers, streams, ditches, and canals which act as stepping stones for wildlife moving between patches of habitats within their range. They are particularly important as commuting/foraging corridors for mammals, especially bats, and small birds and also provide opportunities for roosting/nesting.

The nearest wildlife corridor to the proposed housing development is the north to south trending corridor of Passage Railway Greenway adjacent to the western boundary of the site. This urban corridor is likely to provide nesting/roosting/foraging habitat and a commuting route for bats, passerine birds, Pine marten (*Martes martes*), Hedgehog (*Erinaceus europaeus*), Pygmy shrew (*Sorex minutus*), and Wood mouse (*Apodemus sylvaticus*). Urban Foxes (*Vulpes vulpes*) are also likely to occur.

#### Bats

The greenway corridor provides roosting/commuting/foraging habitat for bats within an urban environment with connectivity to Hedgerows (WL1), Tree-lines, and woodlands in the wider agricultural landscape.

According to the Bat Landscape GIS Layer (Lundy *et al.*, 2011) which examines the relative importance of the landscape, and habitat associations for bats across Ireland, the surrounding landscape has an overall moderate to high bat suitability index of 43.44; with 0 being least favourable and 100 most favourable for bats. The landscape was found to be most suitable for Brown long-eared bat, Soprano pipistrelle, Leisler's bat, Common pipistrelle, and Whiskered bat.

Trees within the site of the proposed housing development were found to display limited Potential Roost Features (PRFs) as per Collins (2016). Further bat survey work will be undertaken on completion of the Arboricultural Impact Assessment (AIA) and the micro-siting process by the Arborist.

According to the JNCC (2001) gaps created in a corridor greater than 10m in length can impact on the dispersal of bats through the landscape.

The development of the site may involve the removal of up to 8 no. trees. Further to the completion of an Arboricultural Impact Assessment (AIA) some of the 8 no. trees may need to be removed, in any event, for health and safety reasons *i.e.*, are Category "U" = particularly poor quality, dangerous or diseased trees that offer no realistic sustainability. The potential presence of Ash die back disease has been observed within the site. Micro-siting of the car park, hard landscaping and ancillary services *etc.* will be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible as part of the design where practically feasible.

The proposed external lighting design for the housing development will incorporate directional or shielded LED luminaires to minimise light pollution and overspill. Final lighting positions will be determined following further design development and completion of detailed lighting calculations.

While there is limited potential for the fragmentation of habitats as a result of the proposed housing development, it is proposed under the design to establish a permanent fence boundary (permeable to small non-volant mammals) and to interplant and create a native hedgerow on the western boundary of the site in order to minimise disturbance related impacts and to ensure the integrity of the adjacent wildlife corridor is maintained. It is noted that the hedgerow planting will not take effect (mature) until Year 15 post planting. It is also proposed to retain

trees where it is practically feasible, to interplant the scrub habitat on the southern boundary with native trees and shrubs, to plant native trees and shrubs throughout the site, and to install bat and bird boxes both within the site and along the adjacent greenway (see Doyle O' Troitigh, 2026).

In summary, the operational stage of the proposed housing development will not result in significant effects on ecological corridors connecting Cork Harbour SPA to other Natura 2000 Sites in the wider study area.

#### 11.4 Changes in Key Indicators of Conservation Value

Refer to Sections 11.1 and 11.2 in relation to changes in key indicators of conservation value.

#### 11.5 Other Annex Listed Habitats & Species

The operational stage of the proposed Housing development is unlikely to have significant effects on other Annex listed habitats and species for the same reasons outlined in Sections 10.5 and 11.1 to 11.4.

## 12.0 Likely Significant Effects Determination

### 12.1 Determination

A summary of the findings, including the S-P-R Analyses, in relation to the presence of likely significant effects arising from the advanced contract, construction and operation of the proposed housing development are summarised in Table 12.1-12.2. Based on the findings of the screening process likely significant effects on Cork Harbour SPA and Great Island Channel SAC as a result of the proposed Project, are not anticipated (see Appendix III).

### 12.2 Cumulative Impacts & In-combination Effects with Other Plans or Projects

Appropriate Assessment also requires consideration of the enabling works, and the construction and operation of the proposed housing development in conjunction with other plans or projects, which may give rise to cumulative impacts or in-combination effects on a Natura 2000 Site(s).

Cumulative Impacts and in-combination effects are more likely, in circumstances where the physical footprint, the Zone of Influence and the timing (temporal aspects) of the various stages (advanced contracts, construction or operational) of existing, ongoing, and proposed projects overlap (see Table 12.2).

Typically, all (proposed) plans and projects have or will be screened for Appropriate Assessment under Stage 1, and where required, site specific mitigation measures will be put in place to avoid or minimise adverse effects under Stage 2.

Given that industry best practice and standard construction guidance, and site-specific mitigation measures (where required) are deployed to avoid or minimise adverse effects arising from a plan or project, the potential risk of cumulative impacts and in-combination effects is low, even if construction programmes for projects were to overlap. However, in certain circumstances a Stage 1 – Screening for Appropriate Assessment report may identify new significant cumulative impacts and in-combination effects, which have not already been foreseen, and which may need to be addressed.

### 12.3 Other Strategies, Plans or Projects

#### Cork City and County Development Plan 2022

The Cork City Development Plan 2022-2028 (CCDP, 2022) sets out the hierarchal network of settlements throughout Cork City.

Under the CCDP (2022), the site is zoned ZO 01 – Sustainable Residential Neighbourhoods, with the objective of providing residential development supported by appropriate services, amenities, and sustainable transport infrastructure. The zoning also supports a range of complementary uses that serve residents' daily needs.

The site is located within an established suburban area characterised primarily by residential development, with a mix of commercial and community uses in the wider study area.

Table 12.1 Summary of Pathways for Likely Significant Effects on Cork Harbour SPA

Special Conservation Interests for Cork Harbour SPA		Potential Sources	Sources	Pathway	Receptors	Significant Effects
		<b>Direct Impacts</b>				
A004	Little Grebe	Reduction of habitat area				Unlikely
A005	Great Crested Grebe					
A017	Cormorant	Reduction in species density				Unlikely
A028	Grey Heron					
A048	Shelduck					
A050	Wigeon					
A052	Teal	<b>Indirect or Secondary Impacts</b>				
A054	Pintail	Noise related disturbance				Unlikely
A056	Shoveler					
A069	Red-breasted Merganser	Vibration related disturbance				Unlikely
A130	Oystercatcher					
A140	Golden Plover	Light Pollution			Bats only	Unlikely
A141	Grey Plover					
A142	Lapwing	Air Pollution (dust, vapour/fume)				Unlikely
A149	Dunlin					
A156	Black-tailed Godwit	Visual related disturbance				Unlikely
A157	Bar-tailed Godwit					
A160	Curlew	Human interaction/activities				Unlikely
A162	Redshank					
A179	Black-headed Gull	Reduction in water quality				Unlikely
A182	Common Gull					
A183	Lesser Black-backed Gull	Habitat or species fragmentation				Unlikely
A193	Common Tern					
A999	Wetlands					

Table 12.2 Summary of Pathways for Likely Significant Effects on Great Island Channel SAC

Qualifying Interests for Great Island Channel SAC	Potential Sources	Sources	Pathway	Receptors	Significant Effects
[1140] Mudflats and sandflats not covered by seawater at low tide	<b>Direct Impacts</b>				
	Reduction of habitat area				Unlikely
[1330] Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	<b>Indirect or Secondary Impacts</b>				
	Air Pollution (dust, vapour/fume)				Unlikely
	Reduction in water quality				Unlikely
	Habitat or species fragmentation				Unlikely

## 12.4 Summary

If granted there is potential for the advanced contracts, construction, and operational stage of the proposed housing development to overlap with any of the granted and proposed developments listed above, in terms of the zone of influence, and temporal aspects. There is no overlap in terms of the physical footprint of the proposed site and the site boundary of other granted and proposed developments.

In terms of temporal aspects, the proposed projects may be constructed or operated concurrently, contiguously, or consecutively with the proposed housing development, thus resulting in potential cumulative impacts *e.g.*, from habitat loss; noise, light and visual, and human activity related disturbances on existing wildlife, water pollution arising from contaminants *etc.*

The extent of existing suburban disturbance at Mahon and Blackrock accords a certain level of acceptance of urban noise, light, and visual and human activity related disturbances by wildlife. Given the nature, scale and location of the proposed housing development and the other granted developments, and the proposals to implement industry best practice design and standards, there is limited potential for cumulative impacts or in-combination effects arising from the advanced contracts, construction and operational stage of the proposed housing in conjunction with other proposed projects.

Further to a review of the Cork City Council's planning viewer, there are no other known strategies, plans or projects on-going or proposed (at the time of this study) which in combination with the proposed Project may give rise to any form of significant cumulative impacts or in-combination effects on Cork Harbour SPA and/or Great Island Channel SAC.

Table 12.3 Planning Applications in the Wider Study Area

Planning Ref No.	Development Description	Decision Date	Address	Distance
21/40196 (ABP-3144310-22)	Demolition of existing geodesic dome and the construction of 204 apartments across three blocks. The development also consists of the construction of a creche facility, ancillary rooms and facilities, car/bike parking, and associated site development works. The proposed development would be a material contravention of the development plan.	21/12/23	Site adjacent to Telus International, Loughmahon Link Road, Mahon, Cork City.	c.450m

Planning Ref No.	Development Description	Decision Date	Address	Distance
24/42822	Permission for development at City Gate Plaza, Loughmahon Link Road, Mahon, Cork, comprising 2 no. four-storey over ground floor office buildings (Blocks A1 and A2) replacing a previously permitted office block, including rooftop plant enclosures, terraces, signage, and associated site development, drainage, and landscaping works.	09/09/24	Site known as City Gate Plaza, (former Ma/Comm site), Loughmahon Link Road, Mahon Cork	c.300m
Part 8	The construction of 22 no. new residential units, comprising of 4 no. 2 storey townhouses and 18 apartments in a 3 and 4 storey building, and all associated ancillary site and landscape	18/07/2025 (Submitted)	Ballinure Avenue, Mahon, Cork	c.800m

## 13.0 Conclusion

The potential for likely significant effects on Natura 2000 Sites, arising from the advanced contract, construction and operation of the proposed housing development have been considered in this Stage 1 – Screening for Appropriate Assessment report.

The Stage 1 – Screening for Appropriate Assessment process has identified that 2 No. Natura 2000 Sites, namely Cork Harbour SPA and Great Island Channel SAC, lie within the potential Zone of Influence of the proposed Project.

Following a review of the relevant information, including, the nature, scale and duration of the proposed Project, the Conservation Objectives, an S-P-R Analyses, consideration of likely effects, in-combination effects and cumulative impacts arising from other plans and projects, and applying the precautionary principle, the potential for likely significant effects on Cork Harbour SPA and Great Island Channel have been ruled out (see Appendix III).

### 13.1 Direct Impacts

In terms of direct impacts, the Special Conservation Interests for Cork Harbour SPA and Qualifying Interests for Great Island Channel SAC are not deemed to be at risk of likely significant effects from the advanced contract, construction, or operational stage of the proposed Project for the following reasons:

- The site (at its closest point) is located 1.1km Cork Harbour SPA.
- The site does not contain *ex-situ* supporting habitat of Special Conservation Interest for Cork Harbour SPA.
- The site at its closest point is located 5km from Great Island Channel SAC
- The site does not contain/support habitats of Qualifying Interest for Great Island Channel SAC.

### 13.2 Indirect or Secondary Impacts

#### Advanced Contract & Construction Stage

- Given the nature, scale and duration (22-months) of the advanced contract and construction works required under the Project, the contextual framework of the surrounding suburban landscape (existing residential dwellings, healthcare facilities, a filling station, financial services, retail facilities, roads) and the absence of supporting habitat within or adjacent to the site of the proposed housing development, there is limited potential for a 'fight-or-flight' response by Special Conservation Interests utilising *ex-situ* inland foraging sites.
- There is a potential surface water pathway between the proposed housing development and Cork Harbour SPA/Great Island Channel SAC in the form of contaminants gaining entry to overland flows and accessing existing gullies on adjacent roads, connected to the existing surface water drainage network, which ultimately discharges to the transitional/estuarine environment of the River Lee, Lough Mahon and Cork Harbour via a hydrocarbon interceptor.
- There is also a limited potential groundwater pathway between the proposed housing development and Cork Harbour SPA/Great Island Channel SAC via the percolation of

contaminants through the overburden to the groundwater table which discharges to the River Lee, Lough Mahon, and Cork Harbour.

- Given the nature, scale and duration of the advanced contract and construction works any impacts associated within the accidental release of suspended solids is likely to be of a slight to moderate magnitude and occasional. Any impact arising from the accidental release of cementitious materials is likely to be of a moderate magnitude and rare. While the magnitude of the impact could be even greater, the frequency of occurrence in terms of releasing hydrocarbons is considerably lower.
- Given minimum distance of 1.1km from the Project, the lower sensitivity of prey items to suspended solids, and dilution effects, significant impacts on Cork Harbour SPA and Great Island Channel SAC from water pollution are considered unlikely.
- Furthermore, industry best practice and standard construction guidance will be applied or adhered to, for the duration of advanced contract and construction works stage. It should be noted that while industry best practice and standard construction guidance are referenced in this Stage 1- Screening for Appropriate Assessment, these are not required to avoid or reduce any effects on a Natura 2000 Site. These measures were not relied upon to reach a conclusion of no likely significant effects on a Natura 2000 Site.

#### Operational Stage

- Given the nature and scale of day-to-day activities during the operational stage of the proposed housing development, within the contextual framework of the surrounding suburban landscape (existing residential dwellings, healthcare facilities, a filling station, financial services, retail facilities, roads) and the absence of supporting habitat within or adjacent to the site of the proposed housing development, there is limited potential for a 'fight-or-flight' response by Special Conservation Interests utilising *ex-situ* inland foraging sites to light, noise, visual disturbance and human activity related impacts in the context of existing urban background levels. Any disturbance related impacts arising from the operational stage are considered unlikely.
- Given the absence of *ex-situ* inland foraging habitat within the site, and the fact that the proposed housing development will sit amongst existing tall buildings (to the north and east), the extent of glazing on the façades of the proposed housing development is unlikely to have a significant effect in terms of collisions (bird strikes) involving Special Conservation Interests flying to and from *ex-situ* inland foraging sites and Cork Harbour SPA.
- There is limited potential for water pollution events arising from surface water runoff, given that any excess surface water from the SuDs System and attenuation tank will discharge via onsite silt traps and sediment controls and a bypass interceptor, to the existing surface water drainage network on Blackrock Avenue which in turn discharges to the transitional/estuarine waters of the River Lee/Lough Mahon/Cork Harbour via a hydrocarbon interceptor, subject to relevant permissions.
- There is limited potential for water pollution events as a result of foul water, as all foul water will discharge to the existing public foul water network on Blackrock Avenue.
- It is not envisaged that substantial maintenance or repair works to the proposed housing development will be required within the next 15 years. There is no requirement to screen

any future maintenance works in respect of the potential for likely significant effects (*i.e.*, the requirement for Appropriate Assessment) given that the scale of the maintenance and repair works will be less than that required during the construction stage of the proposed Project.

### 13.3 Summary

In accordance with Article 6(3) of the EU Habitats Directive, established best practice, relevant case law and the precautionary principle, an Appropriate Assessment (AA) Screening has been carried out on the proposed Project to assess the potential for impacts on Natura 2000 Sites within 15km of the development site *i.e.* on Cork Harbour SPA (Site Code: 004030) and Great Island SAC (Site Code: 001058).

Having regard to the nature, scale and location of the proposed Project within a suburban environment, the distance or the degree of separation from the closest Natura 2000 Site, this AA screening has concluded that there is no potential for the proposed Project to result in significant direct, indirect or secondary, cumulative or in-combination effects on any Natura 2000 Site or indeed the Natura 2000 Network of sites (see Appendix III).

It is the opinion of the author that a Stage 2 – Appropriate Assessment or NIS for the proposed development is not required as it can be excluded, on the basis of objective information provided in this AA Screening report, that the proposed development, individually or in combination with other plans or projects, will not have a significant effect on any Natura 2000 Site.

At this stage of the process, it is for the competent authority *i.e.* Cork City Council to carry out the Stage 1 – Screening for Appropriate Assessment process and to reach one of the following determinations:

- 1) Stage 2 - Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed Project, individually or in combination with other plans or projects, will not have a significant effect on any Natura 2000 Sites.
- 2) Stage 2 - Appropriate Assessment is not required if it can be excluded, on the basis of objective information, that the proposed Project, individually or in combination with other plans or projects, will have a significant effect on any Natura 2000 Sites.

## 14.0 References

### Guideline Documents

The detailed methodology used to complete this Stage 1: Screening for Appropriate Assessment report is based on best practice guidance, including the following: -

- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland. Version 1.2 (Updated April 2022.) Chartered Institute of Ecology and Environmental Management.
- European Commission (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC
- European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC
- European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/49/EEC; clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory Measures, Overall Coherence, Opinion of the Commission
- DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Revision, February 2010. Department of the Environment, Heritage, and Local Government.
- EPA (2022) Guidelines for preparing Environmental Impact Assessment Reports (EIARs). Environmental Protection Agency.
- OPR (2021) Practice Note PN01: Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin Ireland.
- DoEHLG Circular L8/08
- Scott Wilson *et al.* (2006) Appropriate Assessment of Plans.

### Other References

Bowers Marriott, B. (1997) Practical Guide to Environmental Impact Assessment: A Practical Guide. Published by McGraw-Hill Professional, 1997, 320 pp.

Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed.). The Bat Conservation Trust, London.

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive 79/409/EEC as amended) (Birds Directive) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011).

DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. DEHLG, Dublin.

Dodd *et al.* (2007) The Appropriate Assessment of Spatial Plans in England: a guide to why, when and how to do it.

DOE (1994) Planning Policy Guidance: Nature Conservation (PPG 9), H.M.S.O.

DOMNR (1998) Fishery guidelines for Local Authority works. Department of the Marine and Natural Resources, Dublin.

EC (2000) 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 (2001) Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC.

EC (2002) Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission.

EC (2006) Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg.

EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission, DG Environment.

EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements. Environmental Protection Agency.

EPA (2003) Advice Notes on current practice in the preparation of Environmental Impact Statements. Environmental Protection Agency.

Fossitt, J. A. (2000). A Guide to Habitats in Ireland. Dublin: The Heritage Council.

Kelly & King (2001) A review of the ecology and distribution of three lamprey species, *Lampetra fluviatilis* (L.), *Lampetra planeri* (Bloch), and *Petromyzon marinus* (L.): A context for conservation and biodiversity considerations in Ireland. *Biology and the Environment*. 101B(3):165-185.

Kilfeather, P.J., (2007) Maintenance and protection of the inland fisheries resource during road construction and improvement works. Southern Regional Fisheries Board, Clonmel, Co. Tipperary.

King J.J., Hanna G. And Wightman G.D. 2008 Ecological Impact Assessment (EcIA) of The Effects of Statutory Arterial Drainage Maintenance Activities on Three Lamprey species (*Lampetra planeri* Bloch, *Lampetra fluviatilis* L., and *Petromyzon marinus* L.). Series of Ecological Assessments on Arterial Drainage Maintenance No 9 Environment Section.

Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N., (2011) Landscape conservation for Irish bats & species-specific roosting characteristics. Bat Conservation Ireland.

Murphy, D.F. (2004) Requirements for the Protection of Fisheries Habitat During Construction and Development Works at River Sites. Eastern Regional Fisheries Board, Dublin.

Natural England (2007) Draft Guidance: The Assessment of Regional Spatial Strategies and Sub-Regional Strategies Under the Provisions of the Habitats Regulations.

TII/NRA (2005) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes. Dublin: National Roads Authority.

TII/NRA (2006) A Guide to Landscape Treatments for National Road Schemes in Ireland. Dublin: National Roads Authority.

TII/NRA (2006) Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes. Dublin: National Roads Authority.

TII/NRA (2006) Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post-Construction of National Road Schemes. Dublin: National Roads Authority.

TII/NRA (2006) Guidelines for the Treatment of Bats during the Construction of National Road Schemes. Dublin: National Roads Authority.

TII/NRA (2008). The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads. Dublin: National Roads Authority.

TII/NRA (2008) Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan. Dublin: National Roads Authority.

TII/NRA (2008) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes. Dublin: National Roads Authority.

TII/NRA (2008) Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. Dublin: National Roads Authority.

TII/NRA (2009a) Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2. Dublin: National Roads Authority.

TII/NRA (2009b). Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. Dublin: National Roads Authority.

NPWS (2014) Conservation Objectives for Great Island Channel SAC [001058]. 06.06.2014. Department of Arts, Heritage and the Gaeltacht.

NPWS (2015) Site Synopsis for Cork Harbour SPA [004030]. Version Date 21.01.2015. Department of Arts, Heritage and the Gaeltacht.

NPWS (2013) Site Synopsis for the Great Island Channel SAC [001058]. Version Date 24.09.2013. Department of Arts, Heritage and the Gaeltacht.

NPWS (2014) Conservation Objectives for Cork Harbour SPA [004030]. Generic Version 9.0. Department of Housing, Local Government and Heritage. 16.12.2014.

Ryan Hanley (2012) Office of Public Works Arterial Drainage Maintenance Activities 2012. Moy Arterial Drainage Scheme Natura Impact Statement.

Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants (2006). Appropriate Assessment of Plans. Scott Wilson, Basingstoke.

Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants (2006). Appropriate Assessment of the Draft South East Plan. South East England Regional Assembly.

Therivel R. (2009) Workshop Material on the Habitats Directive Assessment of Plans Levett-Therivel Sustainability Consultants on behalf of the Heritage Council, Kilkenny.

Therivel, R. (2009) 'Appropriate assessment of plans in England', *Environmental Impact Assessment Review* 29(4), pp. 261-272.

# Appendix 1

## SITE LAYOUT



**Proposed Site Layout Plan**

- Application site outlined in red
- Wayleave

Note: Refer to Landscape Architect's drawings & reports for landscape proposals & boundary treatments and to Civil & Structural Engineer's drawings & reports for roads & services information

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All dimensions in millimeters.  
 All levels (in metres) are related to Malin Head datum.

Revision Description	Date	Rev. No.	Issued by
Planning issue (Draft)	13-05-2026	A3-C01	AR
Planning issue	26-06-2026	A3-C02	EON



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Project Code:	-
Project Lead:	CK
Drawn By:	AR
Job No.:	25040
Purpose:	Planning
Scale:	A1: 1:250
Date Printed:	26-06-2026
Current Rev.:	A3-C02
Status:	A3

Project: Residential Development  
 Location: Blackrock Avenue, Eden, Blackrock, Cork  
 Client: John Sisk & Son (Holdings) Ltd.

Drawing Title: Proposed Site Layout Plan  
 Drawing No.: 25040-OMP-01-00-DR-A-1000

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# Appendix II

## SITE SYNOPSES

## SITE SYNOPSIS

**SITE NAME: CORK HARBOUR SPA**

**SITE CODE: 004030**

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poul nabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Some shallow bay water is included in the site. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (1,896) and Redshank (2,149) - all figures given are five year mean peaks for the period 1995/96 to 1999/2000. Nationally important populations of the following 19 species occur: Little Grebe (57), Great Crested Grebe (253), Cormorant (521), Grey Heron (80), Shelduck (2,009), Wigeon (1,791), Teal (1,065), Mallard (513), Pintail (57), Shoveler (103), Red-breasted Merganser (121), Oystercatcher (1,809), Golden Plover (3,342), Grey Plover (95), Lapwing (7,569), Dunlin (9,621), Bar-tailed Godwit (233), Curlew (2,237) and Greenshank (46). The Shelduck population is the largest in the country (over 10% of national total). Other species using the site include Mute Swan (38), Whooper Swan (5), Pochard (72), Gadwall

(6), Tufted Duck (64), Goldeneye (21), Coot (53), Ringed Plover (73), Knot (26) and Turnstone (113). Cork Harbour is an important site for gulls in winter and autumn, especially Black-headed Gull (3,640), Common Gull (1,562) and Lesser Black-backed Gull (783), all of which occur in numbers of national importance. Little Egret and Mediterranean Gull, two species which have recently colonised Ireland, also occur at this site.

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.

Cork Harbour has a nationally important breeding colony of Common Tern (102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, it supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Little Egret, Golden Plover, Bar-tailed Godwit, Ruff, Mediterranean Gull and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it. Cork Harbour is also a Ramsar Convention site and part of Cork Harbour SPA is a Wildfowl Sanctuary.



**Site Name: Great Island Channel SAC**

**Site Code: 001058**

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and, compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (\* = priority; numbers in brackets are Natura 2000 codes):

[1140] Tidal Mudflats and Sandflats [1330] Atlantic Salt Meadows
---

The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algal species occur on the flats, especially *Ulva lactuca* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly.

The saltmarshes are scattered through the site and are all of the estuarine type on mud substrate. Species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Greater Sea-spurrey (*Spergularia media*), Lax-flowered Sea-lavender (*Limonium humile*), Sea Arrowgrass (*Triglochin maritimum*), Sea Mayweed (*Matricaria maritima*) and Red Fescue (*Festuca rubra*).

The site is extremely important for wintering waterfowl and is considered to contain three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point. Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end. Waders occur in the greatest density

north of Rosslare, with Dunlin, Godwit, Curlew and Golden Plover the commonest species. A population of about 80 Grey Plover is a notable feature of the area. All the mudflats support feeding birds; the main roost sites are at Weir Island and Brown Island, and to the north of Fota at Killacloyne and Harper's Island. Ahanesk supports a roost also but is subject to disturbance. The numbers of Grey Plover and Shelduck, as given above, are of national importance.

The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. Overall, Cork Harbour regularly holds over 20,000 waterfowl and contains internationally important numbers of Black-tailed Godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive.

While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments.

The site is of major importance for the two habitats listed on Annex I of the E.U. Habitats Directive, as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna.

## Appendix III

FINDING OF NO SIGNIFICANT EFFECTS

## FINDING OF NO SIGNIFICANT EFFECTS

1. DETAILS OF PROPOSED DEVELOPMENT	
Project Name	Skehard Road Housing Development
Development location	Blackrock Avenue, Eden, Blackrock, Cork City
Description of proposed development	The proposed housing development comprises of 114 no. residential apartment units (consisting of a mix of 1-bed and 2-bed units) split across 2 no. apartment blocks, which varies in height from three to five storeys over ground floor, together with all associated site development works including 56 no. car parking, 231 no. bicycle parking spaces, private amenity spaces in the form of balconies and patios, and communal open spaces.
Objective of the proposed development	The construction and operation of a housing development to include 114 no. residential apartment units in the southeast suburbs of Mahon and Blackrock in Cork City in order to meet with the current demand for social and affordable housing.
Name and location of Natura 2000 Sites (potentially impacted by the proposed development)	<p>There are 2 no. Natura 2000 sites within 15km of the proposed development.</p> <p>The closest Natura 2000 Site is Cork Harbour SPA located 1.1km to the east of the proposed development. The development site does not contain <i>ex-situ</i> supporting habitat for waterbirds of Special Conservation Interest for Cork Harbour SPA.</p> <p>Great Island Channel SAC is located 5km to the east of the proposed development. The development site does not contain/support habitats of Qualifying Interest for Great Island Channel SAC.</p>

2. DESCRIPTION OF NATURA 2000 SITES			
. Cork Harbour SPA (Site Code: 004030)			
Conservation Objectives	<ul style="list-style-type: none"> <li>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA</li> <li>To maintain the favourable conservation condition of the wetland habitat in Cork Harbour SPA as a resource for the regularly occurring migratory waterbirds that utilise it.</li> </ul>		
Special Conservation Interests	Code	Common Name	Scientific Name
	A004	Little Grebe	<i>Tachybaptus ruficollis</i>
	A005	Great Crested Grebe	<i>Podiceps cristatus</i>
	A017	Cormorant	<i>Phalacrocorax carbo</i>

	A028	Grey Heron	<i>Ardea cinerea</i>
	A048	Shelduck	<i>Tadorna tadorna</i>
	A050	Wigeon	<i>Anas penelope</i>
	A052	Teal	<i>Anas crecca</i>
	A054	Pintail	<i>Anas acuta</i>
	A056	Shoveler	<i>Anas clypeata</i>
	A069	Red-breasted Merganser	<i>Mergus serrator</i>
	A130	Oystercatcher	<i>Haematopus ostralegus</i>
	A140	*Golden Plover	<i>Pluvialis apricaria</i>
	A141	Grey Plover	<i>Pluvialis squatarola</i>
	A142	Lapwing	<i>Vanellus vanellus</i>
	A149	*Dunlin	<i>Calidris alpina alpina</i>
	A156	Black-tailed Godwit	<i>Limosa limosa</i>
	A157	*Bar-tailed Godwit	<i>Limosa lapponica</i>
	A160	Curlew	<i>Numenius arquata</i>
	A162	Redshank	<i>Tringa totanus</i>
	A179	Black-headed Gull	<i>Chroicocephalus ridibundus</i>
	A182	Common Gull	<i>Larus canus</i>
	A183	Lesser Black-backed Gull	<i>Larus fuscus</i>
	A193	*Common Tern	<i>Sterna hirundo</i>
	A999	Wetlands	

**Great Island Channel SAC (Site Code: 001058)**

Conservation Objectives	<ul style="list-style-type: none"> <li>To maintain or restore the favourable conservation condition of the Qualifying Interests for this Special Area of Conservation (SAC)</li> </ul>	
Qualifying Interests	<b>Code</b>	<b>Habitat Type</b>
	1140	Mudflats and sandflats not covered by seawater at low tide
	1330	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )

**3. NATURE CONSERVATION DETERMINATION**

Is the proposed development directly connected to or necessary for the nature conservation management of a Natura 2000 Site?	No. Based on a review of the main objective of the proposed Project, it has been determined that the development is not connected with and/or necessary to the management of nature conservation within a Natura 2000 Site.
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Determination	As it has been determined that the proposed Project is not directly connected to or necessary for the management of nature conservation, the Stage 1 - Screening process will proceed to determine if the project, alone or in combination with other plans or projects, is likely to have significant effects on a Natura 2000 Site.
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#### 4. CUMULATIVE IMPACTS & IN-COMBINATION EFFECTS

Are there any relevant plans or projects that, in combination with the proposed development, are likely to give rise to cumulative effects?	No.
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#### 5. ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS (YES/NO)

Is the proposed development located within or adjacent to a SAC or SPA?	No
Will the proposed development result in a reduction of habitat area (habitat loss) within a SAC or SPA?	No
*Will the proposed development impact on <i>ex-situ</i> inland foraging habitat for waterbirds of Special Conservation Interest for an SPA?	No
Will the proposed development result in a reduction of habitat area of Annex I habitats or for Annex II species of Qualifying Interest for an SAC?	No
Will the proposed development result in a reduction in species density of Special Conservation Interests or Annex II species of Qualifying Interest for an SPA?	No
Is the proposed development located within 300m of a SAC or SPA?	No
Is there a requirement for piling, blasting or rock breaking to facilitate the construction of the proposed development?	
Will the proposed development result in the disturbance of key species, as a result of displacement from noise, light, vibration or visual disturbances/human interactions?	No
Are there surface water or groundwater pathways between the proposed development and a SAC or SPA?	Yes
Is there potential for the release of contaminants to the aquatic, transitional, estuarine or marine receiving environment within the zone of influence of a SAC or SPA?	Yes
Will the construction stage of the proposed development result in a reduction in water quality within a SAC or SPA?	No

Does the existing surface water and foul water drainage network (incl. wastewater treatment system) have the capacity to treat any additional loading from the operational stage of the proposed development?	Yes
Will the proposed development result in the release of contaminants to the receiving environment such as dust, fumes or vapours?	Yes
Will the proposed development result in air pollution?	No
Will the proposed development result in a change in flood risk or climate change factors?	No
Will the proposed development result in changes in local hydrology or hydrogeology due to water abstraction or groundwater recharge rates?	No
Will surface water or groundwater dependent ecosystems be impacted as a result of the proposed development?	No
Will the proposed development result in habitat fragmentation including the loss of ecological connectivity between Natura 2000 Sites?	No
Will the proposed development result in changes in key indicators of conservation concern?	No
Will the proposed development interfere with the key elements/relationships that define the structure or function of any Natura 2000 Site.	No
*Note: Ex-situ refers to inland foraging habitat, located adjacent to an SPA boundary, which is utilised by waterbirds.	

## 6. COMMENTS

The proposed Project does not overlap with any Natura 2000 Site.

At the closest points, Cork Harbour SPA and Great Island Channel SAC are located 1.km and 5km to the east of proposed development site, respectively.

Given the minimum distance of 1.1km, there is no potential for direct impacts on any Natura 2000 Site from a reduction of habitat area or species density.

The development site does not support *ex-situ* foraging habitat for waterbirds of Special Conservation Interest for Cork Harbour SPA, nor does the site contain/support habitats of Qualifying Interest for Great Island Channel SAC. As a result, there is no potential for direct impacts on Special Conservation Interests or habitats of Qualifying Interest where they occur outside of a Natura 2000 Site.

There is no potential for indirect or secondary impacts on waterbirds i.e. the disturbance of key species as a result of noise, light, vibration or visual/human interactions.

Given the nature, scale and duration of the works, distance and dilution effects, there is limited potential for a reduction in water quality within Cork Harbour SPA and Great Island Channel SAC, as a result of the construction stage of the proposed Project.

There is limited potential for impacts on water quality from the operational stage, given that surface water runoff will be picked up by the SuDs system, and any excess surface water will ultimately discharge to the surface water drainage network via onsite silt traps and

sediment controls and a bypass interceptor, and an offsite hydrocarbon interceptor, while foul water will discharge to the existing public foul water network on Blackrock Avenue.

The proposed development will not result in changes in local hydrology or hydrogeology as there is no requirement for surface or groundwater water abstraction to acquire a drinking water supply (as a connection will be made to the mains water supply); while the SuDs system, designed to manage surface water runoff, will reduce impacts on groundwater recharge rates.

There is no potential for changes in key indicators of conservation concern, flood risk or climate change factors/actions. There is no potential for interference with the key elements/relationships that define the structure or function of any Natura 2000 Site.

Following a review of the relevant information, including, the nature, scale and duration of the proposed Project, the Conservation Objectives, an S-P-R Analyses, consideration of impacts including in-combination effects and cumulative impacts arising from other plans and projects, and applying the precautionary principle, the potential for likely significant effects on Cork Harbour SPA and Great Island Channel have been ruled out.

For further details please refer to

- ESIP Ltd. (2026) Proposed Skehard Road Housing Development, Blackrock Avenue, Eden, Blackrock, Cork City. Stage 1: Screening for Appropriate Assessment. Prepared on behalf of John Sisk & Son Ltd. June 2026

## 7. SCREENING CONCLUSION STATEMENT

In accordance with Article 6(3) of the EU Habitats Directive, established best practice, relevant case law and the precautionary principle, an Appropriate Assessment (AA) Screening has been carried out on the proposed Project to assess the potential for impacts on Natura 2000 Sites within 15km of the development site i.e. on Cork Harbour SPA (Site Code: 004030) and Great Island SAC (Site Code: 001058).

Having regard to the nature, scale and location of the proposed Project within a suburban environment, the distance or the degree of separation from the closest Natura 2000 Site, the AA screening concluded that there is no potential for the proposed Project to result in significant direct, indirect or secondary, cumulative or in-combination effects on any Natura 2000 Site or indeed the Natura 2000 Network of sites.

The author of the AA Screening report found that a Stage 2 – Appropriate Assessment or NIS for the proposed development was not required as it can be excluded, on the basis of objective information provided in the AA Screening report, that the proposed development, individually or in combination with other plans or projects, will not have a significant effect on any Natura 2000 Site.

At this stage of the process, it is for the competent authority i.e. Cork City Council to carry out the Stage 1 – Screening for Appropriate Assessment process and to reach one of the following determinations:

1) Stage 2 - Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed Project, individually or in combination with other plans or projects, will not have a significant effect on any Natura 2000 Sites.

2) Stage 2 - Appropriate Assessment is not required if it can be excluded, on the basis of objective information, that the proposed Project, individually or in combination with other plans or projects, will have a significant effect on any Natura 2000 Sites.

Name of Person (who carried out the assessment)	Lisa Dolan BSc Earth Science in Applied Ecology, MIEEM
Date	30/06/2026
Sources of Information	See below
Level of Assessment Completed	Stage 1: Screening for Appropriate Assessment
Overall Conclusion	Screened out

## 8. SOURCES OF INFORMATION

- Cork City Development Plan 2022-28
- Cork City Heritage & Biodiversity Plan 2021-2026
- ESIP Ltd. (2026) Proposed Skehard Road Housing Development, Blackrock Avenue, Eden, Blackrock, Cork City. Stage 1: Screening for Appropriate Assessment. Prepared on behalf of John Sisk & Son Ltd. June 2026
- NPWS (2014) Conservation Objectives for Cork Harbour SPA [004030]. 16.12.2014. Department of Housing, Local Government and Heritage.
- NPWS (2015) Site Synopsis for Cork Harbour SPA [004030]. 21.01.2015. Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Conservation Objectives for Great Island Channel SAC [001058]. 06.06.2014. Department of Arts, Heritage and the Gaeltacht.
- NPWS (2013) Site Synopsis for the Great Island Channel SAC [001058]. 24.09.2013. Department of Arts, Heritage and the Gaeltacht.
- EU Habitats and Birds Directives
- EC (Birds and Natural Habitats) Regulations 2021
- Planning & Development Regulations 2021
- [www.npws.ie](http://www.npws.ie)
- [www.nbdc.ie](http://www.nbdc.ie)
- [www.geohive.ie](http://www.geohive.ie) (Geohive Mapviewer)
- <https://gis.epa.ie/EPAMaps/AAGeoTool>