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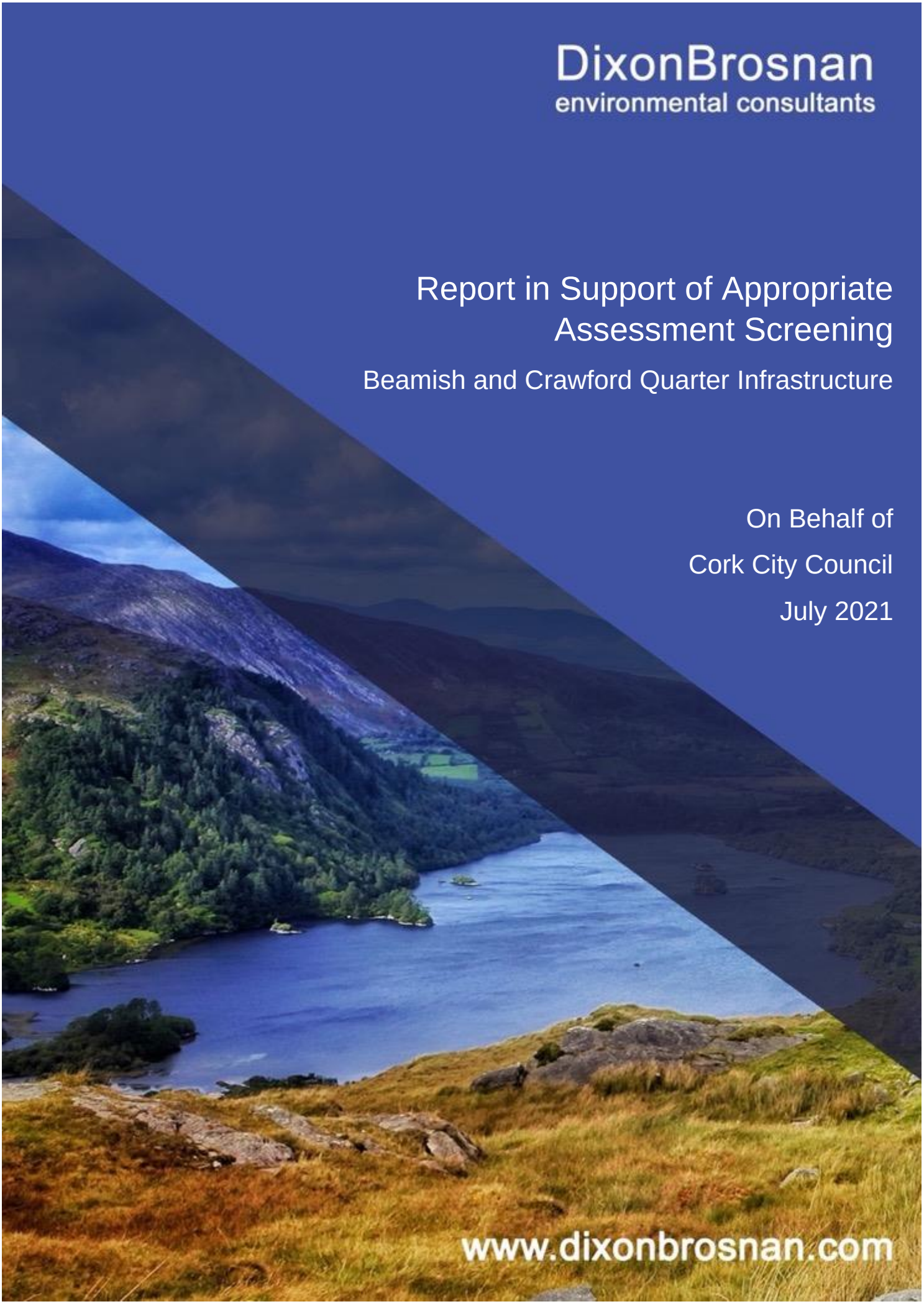
Report in Support of Appropriate Assessment Screening

Beamish and Crawford Quarter Infrastructure

On Behalf of

Cork City Council

July 2021



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09/04/21	1st Draft	Sorcha Sheehy BSc PhD
02/07/21	Issue to client	Carl Dixon BSc MSc

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1. Introduction

1.1 Background

The information in this report has been compiled by DixonBrosnan Environmental Consultants, on behalf of Cork City Council. It provides information on and assesses the potential for the proposed development in Cork City, to impact on any Natura 2000 sites within its zone of influence. The information in this report forms part of and should be read in conjunction with the Part 8 documentation in connection with the proposed development.

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species across the EU. In Ireland, the Natura 2000 network of European sites comprises Special Areas of Conservation (SACs, including candidate SACs) and Special Protection Areas (SPAs, including proposed SPAs). SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites and from these the conservation objectives of the site are derived. The Birds and Habitats Directives set out various procedures and obligations in relation to nature conservation management in Member States in general, and of the Natura 2000 sites and their habitats and species in particular. A key protection mechanism is the requirement to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed. Not only is every new plan or project captured by this requirement but each plan or project, when being considered for approval at any stage, must take into consideration the possible effects it may have in combination with other plans and projects when going through the process known as Appropriate Assessment (AA).

The obligation to undertake Appropriate Assessment (AA) derives from Article 6(3) and 6(4) of the Habitats Directive, and both involve a number of steps and tests that need to be applied in sequential order. Article 6(3) is concerned with the strict protection of sites, while Article 6(4) is the procedure for allowing derogation from this strict protection in certain restricted circumstances. As set out in Section 177U of the Planning and Development Act 2000 as amended, a Screening for Appropriate Assessment of an application for consent for the proposed development must be carried out by the competent authority to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on any European site. Each step in the assessment process precedes and provides a basis for other steps. The results at each step must be documented and recorded carefully so there is full traceability and transparency of the decisions made.

1.2 Aim of Report

The purpose of this report is to inform the AA process as required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant impacts on a Natura 2000 site. This report aims to inform the Appropriate Assessment process in determining whether the development, both alone and in combination with other plans or

projects, are likely to have a significant impact on the Natura 2000 sites in the study area, in the context of their conservation objectives and specifically on the habitats and species for which the sites have been designated.

This report has been prepared with regard to the following guidance documents, where relevant.

- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* (European Commission (EC), 2018);
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission (EC), 2001);
- *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC* (European Commission, (EC) 2007);
- *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10* (Department of Environment, Heritage and Local Government, 2010);
- *Guidelines for Good Practice Appropriate Assessment of Plans under Article 6(3) Habitats Directive* (International Workshop on Assessment of Plans under the Habitats Directive, 2011);
- *Commission notice Guidance document on wind energy developments and EU nature legislation*, (EC 2020);
- *Communication from the Commission on the precautionary principle. European Commission* (2000) and
- CJEU Case C 164/17 Edel Grace Peter Sweetman v An Bord Pleanála

1.3 Authors of Report

This report was prepared by Carl Dixon MSc. (Ecological Monitoring) and Sorcha Sheehy PhD (Ecology/Ornithology).

Carl Dixon MSc (Ecology) is a senior ecologist who has over 20 years' experience in ecological and water quality assessments with particular expertise in freshwater ecology. He also has experience in mammal surveys, invasive species surveys and ecological supervision of large-scale projects. Projects in recent years include the Waste to Energy Facility Ringaskiddy, Shannon LNG Project, supervision of the Fermoy Flood Relief Scheme, Skibbereen Flood Relief Scheme, Upgrade of Mallow WWTP Scheme, Douglas Flood Relief Scheme, Great Island Gas Pipeline etc. He has carried out ecological surveys and prepared AA/NIS reports for a range of projects.

Sorcha Sheehy PhD (ecology/ornithology) is an experienced ecological consultant with over ten years' experience. She has worked on Screening/NIS's for a range of small and large-scale projects with particular expertise in assessing impacts on birds. Recent projects include bird risk assessments for Dublin and Cork Airports, Waste to Energy Facility Ringaskiddy and Water Storage Schemes for Irish Water.

2. Regulatory Context and Appropriate Assessment Procedure

2.1 Regulatory Context

The Habitats Directive (Council Directive 92/43/EEC on the *Conservation of Natural Habitats and of Wild Fauna and Flora*) aims to maintain or restore the favourable conservation status of habitats and species of community interest across Europe. The requirements of these directives are transposed into Irish law through the European Communities (Birds and Natural Habitats Regulations; S.I. No. 477 of 2011).

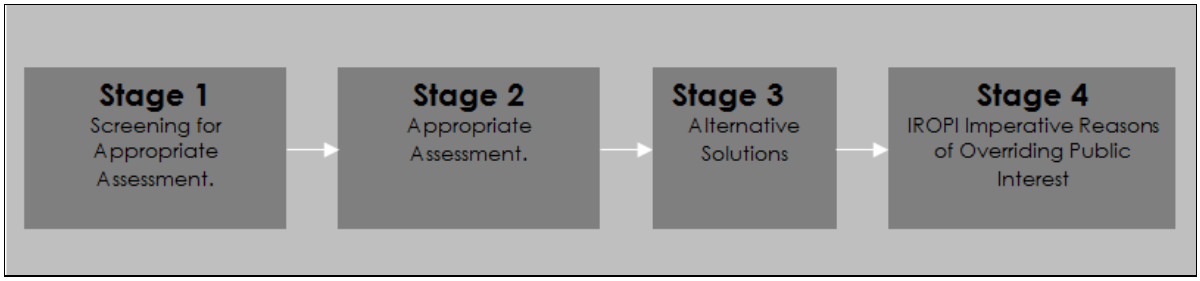
Under the Directive a network of sites of nature conservation importance have been identified by each Member State as containing specified habitats or species requiring to be maintained or returned to favourable conservation status. In Ireland the network consists of SACs and SPAs, and also candidate sites, which form the Natura 2000 network.

Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the *Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated 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. A competent authority (e.g. the EPA or Local Authority) can only agree to a plan or project after having determined that it will not adversely affect the integrity of the site concerned.

The possibility of a significant effect on a designated or "European" site has generated the need for an Appropriate Assessment to be carried out by the competent authority for the purposes of Article 6(3). A Stage Two Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site. The first (Screening) Stage for Appropriate Assessment operates merely to determine whether a (Stage Two) Appropriate Assessment must be undertaken on the implications of the plan or project for the conservation objectives of relevant European sites.

2.2 Appropriate Assessment Procedure

The assessment requirements of Article 6(3) establish a stage-by-stage approach. This assessment follows the stages outlined in the 2001 European Commission publications "Assessment of plans and projects significantly affecting Natura 2000 sites: methodological guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC" (2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (Draft) Office for Official Publications of the European Communities, Luxembourg (EC, 2015);



The stages are as follows:

Stage One: Screening — the process which identifies any appreciable impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

Stage Two: Appropriate assessment — the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

Stage Three: Assessment of alternative solutions: The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site. It is confirmed that no reliance is placed by the developer on Stage Three in the context of this application for development consent;

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of imperative reasons of overriding public interest). Again, for the avoidance of doubt, it is confirmed that no reliance is placed by the developer on Stage Four in the context of this application for development consent.

It is the responsibility of the competent authority, in this instance Cork City Council, to make a decision on whether or not the proposed development should be approved, taking into consideration any potential impact upon any Natura 2000 site within its zone of influence.

3. Proposed Development

3.1 Scheme Objectives

The overall objective of the proposed development is to provide public realm improvements to the streets and existing bridges within the proposed development area.

The proposed development comprises the removal of the existing pavement, public lighting, trees and street furniture and upgrading and installing new pavement, public lighting, trees and street furniture.

The proposed development will provide:

- High quality and high capacity access to, and around, the Beamish and Crawford site

- Better conditions for private investment in the area thereby underpinning commercial and recreational activity within the City Centre
- Enhancement to Cork City's reputation as a key tourist destination stimulating new business and employment opportunities
- Conditions to support increased retail, catering and tourism offerings in South Main Street, Barrack Street, Proby's Quay and City Centre
- A high-quality sense of place which reflects the urban setting and identity which connects all elements of the wider urban realm - linking pedestrian, residential, economic, civic, community and recreation networks
- Protection and enhancement of the existing built and natural heritage of the area
- Protection and enhancement of the existing and future community and residential population in the area

Figure 1: Beamish and Crawford Quarter Infrastructure development location (Source: Google Maps) (not to scale)

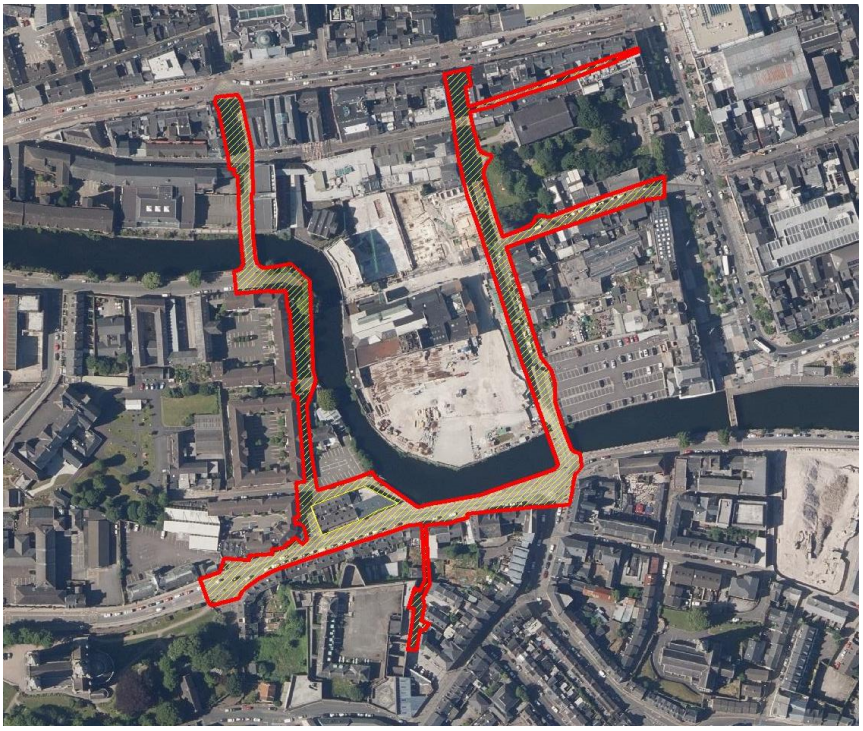


Figure 2: Beamish and Crawford Quarter Infrastructure development Aerial Site Location (Source: Google Earth)

3.2 Description of the Proposed Development

The proposed development once completed will consist of the following changes from the existing scenario in the following areas:

- Public realm improvements to South Main Street, Tobin Street, Tuckey Street, Proby's Quay, French's Quay, Keyser's Hill, Crosses Green, Wandesford Quay and Hanover Place/Hanover Street including increasing public domain and footpath widths, trees, planting, street furniture and ancillary infrastructure;
- Improved public lighting in the area;
- Realignment of Crosses Green and South Main street in some areas;
- Reduction of parking spaces on Crosses Green, French's Quay and South Main Street, Tuckey Street (Disabled Spaces), and a minimal number on Proby's Quay;
- Traffic calming measures at the junction of Hanover Street/South Main Street to protect cyclists;
- Reduction of road lanes from three lanes to two lanes at Hanover Place;
- Bike Channel on Keyser's Hill (to be used to facilitate cyclists travelling up/down the hill by using a shallow groove to allow the bike wheel to ride over the steps);
- A new traffic table pedestrian crossing at the junction of Tuckey Street and South Main Street; and at Proby's Quay;

- Traffic table outside Counting House plaza area as well as French's Quay and Proby's Quay; and
- Increased access link between Crosses Green and Cork City.

Following construction, there will be improved facilities for pedestrians and cyclists, higher modal shares for walking and cycling, increased safety for vulnerable road users, improved public realm including trees, planting, street furniture and less dependence on the private motor car, promoting the amenities of the area and economic benefits to residents and business owners. The installation of new public lighting will increase visibility in poorly lit areas of the existing area.

It will provide a network for the optimum movement of all modes of transportation between Crosses Green and the City Centre and provide a high-quality public realm consistent with the overall ambition for the Beamish and Crawford Quarter as a vibrant, innovative, mixed use, sustainable, and socially inclusive urban quarter.

During the operational phase, there will be no change in traffic along some routes where there will be a reconfiguration of the road layout.

The method by which surface water will be managed during operation is largely unchanged and will continue to use road gullies as well as Arbor systems for trees and planting areas.

3.3 Overview of Construction Strategy

Construction works within the proposed development area will include excavation of the street surfacing and sub base, removal of existing surface materials, installation of new utilities and deconstruction/burying of existing utilities, build-up of the street, repaving the street to include installation of new high quality public realm and kerbing, planting trees and other decorative plants, and installation of new street furniture, street lighting and wayfaring signs. These types of works are very straightforward, well understood, are carried out in the city on a regular basis and can be easily undertaken.

It is expected that construction will commence in Q1 2022, subject to approval. The expected duration of the construction works will be approximately 12 months.

Given that most of the streets that are due to be improved (South Main Street, Proby's/French's Quay etc.) as part of the proposed development are heavily trafficked roads and that existing traffic will need to be facilitated during the works, the Contractor will be required to develop and implement a detailed Construction Traffic Management Plan (CTMP) at the outset to ensure that traffic disruption is kept to a minimum. The increase in construction traffic in the area will be low in comparison to the already busy existing streets the work will take place on. The overall area to be developed is large but it is envisaged that the contractor will only work in small sections at any given time. Therefore, the works are not likely to be disruptive to pedestrians and car users in the area of the development.

The envisaged types of vehicles used for the construction of the development will be for the delivery and disposal of materials used for construction, removal of existing pavement and installation of new pavement and for the excavation of materials and trenches.

The use of plant and machinery such as excavators with rock breakers, concrete trucks, loaders, road planers, generators and personnel with pneumatic drills and concrete saws are likely to generate some localised dust, surface-water, waste and noise emissions during the construction works.

However, these will not be significant due to the duration of the works, the low level of construction vehicles/plant and construction staff required to carry out the works, the nature of the works proposed and the narrow construction footprint along busy trafficked roads. It is expected that the noisier activities will need to be phased and planned to ensure that the nearest noise sensitive receptors (such as the residential buildings on Crosses Greene) do not experience significant disturbance. The noisier construction activities are likely to take place at the start of the construction stage i.e. when demolishing/removing the existing pavement and surfaces so it is unlikely that intense construction noise will be ongoing throughout the entire construction period.

Surface water run-off will be managed as is currently the norm. The extent of the works within a highly urbanised area are relatively small. Excavations will not be significant with a maximum depth of 1,200mm required for the burying of utilities and drainage systems (which are only required within a small area of the proposed development). The type of construction works proposed involves standard routine construction methodologies and are not complex in nature.

An overview of the construction works in each area of the proposed development is outlined below in accordance with the design drawings. The estimate duration of works in each area will be subject to review once a contractor has been appointed. Construction of some of these areas could run concurrently. Site drawings are included in **Appendix 2**.

Tobin Street (Drawing 302)

This street has recently been repaved and no further alterations are proposed to the pavement on this street. It is proposed to install catenary lighting as well as to replace existing wall mounted light fixtures which will be attached to the buildings at points along either side of the street. The plans also include some modest greening of the area with planters and installation of new street furniture. The construction works in this area are estimated to be approximately 3 weeks.

Tuckey Street (Drawing 302)

The general description of construction works described above will be applicable for this area. The new paving materials used will allow integration of Tuckey Street with the Bishop Lucey Park area (which is due to be upgraded) as well as Grand Parade.

It is proposed to install catenary lighting and to replace existing wall mounted light fixtures which will involve minor works to the existing buildings at attachment points of the fixtures.

The new layout of this street is to reflect that this street has recently been pedestrianised which will allow the installation of new trees, planting and street furniture as well as stone benches. The pedestrianisation also requires the removal of parking spaces and tactile hazard paving at the crossing of Grand Parade. This will allow for the installation of electronic bollards at the

entrance of Tuckey St. at the intersection with Grand Parade. The street will be pedestrianised between the hours of 11 a.m. and 2 a.m., 7 days a week.

There are several sensitive and protected structures on Tuckey Street which will require monitoring throughout the works including the historic Berwick Fountain and Canon Bollard at the intersection of Tuckey Street and Grand Parade.

Vibration and crack monitoring will be utilised on all sensitive and protected structures and will be monitored throughout the works. Limitations to the amount of vibrations and widths of crack will be put in place and in the case where these limits are reached then works will stop immediately. An alternative method of construction will be implemented if necessary.

The construction of this area is estimated to be approximately 6 weeks.

South Main Street (North) (Drawing 301)

The general description of construction works described above will be applicable for this area. The entire area will be repaved including a small section that connects into Hanover St and extends into Bishop Lucey Park. On side street entrances such as this, a bevelled kerb will be required to maintain footpath levels and meet cycle lane/roadway elevations.

The existing boundary walls at the entrance to Bishop Lucey Park at South Main St will be demolished. The demolition of these walls will require personnel with power tools and possibly machinery to demolish the wall. There will be a localised increase of noise and generation of dust while these activities take place. The demolition of the wall will take approximately 1 week to complete. The waste generated will be removed off site and disposed of responsibly.

There are several sensitive and protected structures on South Main Street which will require monitoring throughout the works. Vibration and crack monitoring will be utilised on all these structures and will be monitored throughout the works. Limitations to the amount of vibrations and widths of crack will be put in place and in the case where these limits are reached then works will stop immediately. The construction of all South Main Street works is estimated to be approximately 20 weeks.

South Main Street (South) (Drawing 303)

The general description of works described above will be applicable for this area.

Construction of a traffic table in the area outside the Counting House plaza will be the significant construction activity in this area.

Figure 3: Traffic Table | Source: Google Images

The construction methodology for this table will be the same as the general works but more building up of materials will be required in the range of approximately 100-200mm. A stone seat wall will also be required in this area to marry in the existing building levels and proposed traffic table level.

The construction of all South Main Street works is estimated to be approximately 20 weeks.

Frenches Quay and Keyser Hill (Drawing 304)

The general description of works described above will be applicable for this area.

There are a number of overhead utilities in this area which will be moved underground. The construction activities associated with burying of utilities will include the decommissioning of the existing services, dismantling existing infrastructure, installation of ducting or pipework as required and burying of the ductwork/pipework.

The existing pavement on Keyser's Hill will be replaced as per the general description of works above with the exception of an alternating coloured paving pattern to visually warn pedestrians of the step hazard. Some of the works will require additional care around historic areas when constructing the pavement i.e. near Elizabeth's Fort. The concrete cast replica of the historic bollard at the entrance to Keyser's Hill at the Proby's Quay end to be replaced with an enhanced cut limestone replica.

There is proposed wall mounted and catenary lighting in this lane also. A bike channel will be installed on this lane which will be constructed in textured limestone stone to match steps.

The construction of this area is estimated to be approximately 10 weeks.

Proby's Quay (Drawing 305)

The general description of works described above will be applicable for this area.

The area of St Fin Barre's plaza will be the focal point of this area and will include installation of better pavement, public lighting as well as planting of new trees. Some existing signage elements will be relocated.

The construction of this area is estimated to be approximately 8 weeks.

Crosses Green (Drawing 306)

The general description of works described above will be applicable for this area.

There are a number of lime trees located to the north of Crosse's green that are proposed to be removed. There is a large Lime Tree located on Crosses Green that is to be retained.

There will be heavier civils and concrete works in the form of ramps and stairs in some areas on Crosses Green. The installation of the concrete elements will require concrete ancillary equipment (such as a concrete mixer truck and pump).

Accommodation works for landowners will need to be made in the form of repositioning of an existing car park entrance, construction of a retaining wall around a portion of the Funeral Home and removal of an existing entrance to the Funeral Home building. These tasks will involve dismantling of existing infrastructure and installation of new fencing and walls, including planting areas contained by stone walls constructed to match existing quay walls.

The construction of this area is estimated to be approximately 8 weeks

Hanover Place and Wandesford Quay (Drawing 307)

The general description of works described above will be applicable for this area.

Existing public lighting will be upgraded and new lighting installed. There will be new trees planted in these areas and the pavement improvement will continue over Clarke's Bridge. A new loading bay/taxi rank will be created on Hanover Place.

The construction of this area is estimated to be approximately 6 weeks

Works in areas close to of River (South Gate Bridge, Clarkes Bridge, French's Quay, Crosses Green)

The proposed development includes works that will occur in areas that are close to the River Lee. These include the areas of the development which are next to quay walls, namely South Gate Bridge, Clarkes Bridge, Frenches Quay and Proby's Quay. The proposed works in these areas are shown in Drawings 303 to 306. The works encompass the continuation of the public realm improvements over the existing bridges (Clarke's Bridge and South Gate Bridge) and quayside roads which include the removal of existing pavement and street lighting and installation of new and improved pavement and lighting.

There will be trenching required when burying existing utilities. Due to the heavy traffic congestion and widths of the roads, the excavated material will be moved from the excavated area soon after it is excavated to either be reused or disposed of. The length of the excavations will also be relative short and completed in small sections for the same reason. Therefore, infiltration of any material into the ground is not expected to be any more significant than it would be usually.

As mentioned previously, concrete works on Crosses Green will require the use of concrete mixers and pumps in the areas close to the quay walls. The amount of concrete envisaged for the construction of ramps and stairs in these areas is small and unlikely to have a significant effect if it should somehow enter the River Lee. With that the risk of any concrete entering the river is low due to the existence of the quay wall.

There are areas of the proposed development which will require raising of footpaths and road levels near existing quay walls. Due to the changes in levels, this may cause a substandard height for pedestrians using the footpaths near these walls. It is proposed that a new handrail be installed on the existing quay walls in areas that the quay walls are not of the required height. The height of these handrails is not envisaged to be significant.

Construction of these handrails will involve the boring of holes into the top of the quay wall for the baseplate of a handrail. The holes will be bored by a single person with a handheld drill. It is envisaged that this will produce a small amount of dust, which will be insignificant in the wider context of the urban area.

The handrail will then be attached by inserting bolts into the newly made holes and grouted to secure the handrail. The grouting will be done by one person using a bucket of grout and a trowel. Therefore, the risk of a large spillage into the neighbouring water causing a significant pollution event is negligible. The handrail is envisaged to be of a metal construction and of an open design and so will not retain water.

4. Screening

4.1 Introduction

This section contains the information required for the competent authority (in this case Cork City Council) to undertake screening for AA for the proposed development.

The aims of this section are to:

- Determine whether the proposed development is directly connected with, or necessary to, the conservation management of any Natura 2000 Sites;
- Provide information on, and assess the potential for the proposed development to significantly effect on Natura 2000 Sites (also known as European sites); and
- Determine whether the proposed development, alone or in combination with other projects, is likely to have significant effects on Natura 2000 sites in view of their conservation objectives.

The proposed development is not directly connected with, or necessary to the conservation management of any Natura 2000 sites.

4.2 Study Area and Scope of Appraisal

Natura 2000 sites (European sites) are only at risk from significant effects where a source-pathway-receptor link exists between a proposed development and a Natura 2000 site(s). This can take the form of a direct impact (e.g. where the proposed development and/or associated construction works are located within the boundary of the Natura 2000 site(s) or an indirect

impact where impacts outside of the Natura 2000 site(s) affect ecological receptors within (e.g. impacts to water quality which can affect riparian habitats at a distance from the impact source).

Considering the Natura 2000 sites present in the region, their Qualifying Interests (Qis) and conservation objectives, and any potential impact pathways that could link those sites to the proposed development area, a distance of 15km was considered appropriate to encompass all Natura 2000 sites potentially within the Zone of Influence (ZoI) of the proposed development.

Thus, any appreciable direct, indirect or cumulative impacts which could arise from the proposed development in relation to the designated sites within this zone were considered.

4.3 Field Study

Site visits were carried out on the 22nd of June, 1st of July and 25th of August 2020 to identify the habitats, flora and fauna present at the site. The surveys assessed the potential for all Qualifying Interests (Qis)/ Special Conservation Interests (SCIs) of European sites and third schedule invasive species to occur within the proposed site.

4.4 Source-Pathway-Receptor Model

The likely effects of the proposed development on any European site has been assessed using a source-pathway-receptor model, where:

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

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

4.5 Likely Significant Effect

The threshold for a Likely Significant Effect (LSE) is treated in the screening exercise as being above a de minimis level. The opinion of the Advocate General in CJEU case C-258/11 outlines:

“the requirement that the effect in question be ‘significant’ exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European site are thereby excluded.

If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."

In this report, therefore, 'relevant' European sites are those within the potential ZoI of activities associated with the construction and operation of the proposed development, where LSE pathways to European sites were identified through the source-pathway-receptor model.

4.6 Screening Process

The Screening for Appropriate Assessment will incorporate the following steps:

Definition of the zone of influence for the proposed works;

- Identification of the European sites that are situated (in their entirety or partially or downstream) within the zone of influence of the proposed works;
- Identification of the most up-to-date Qis and SCIs for each European site within the zone of influence;
- Identification of the environmental conditions that maintain the Qis/SCIs at the desired target of Favourable Conservation Status;
- Identification of the threats/impacts – actual or potential that could negatively impact the environmental conditions of the Qis/SCIs within the European sites;
- Highlighting the activities of the proposed works that could give rise to significant negative impacts; and
- Identification of other plans or projects, for which in-combination impacts would likely have significant effects.

4.7 Desktop Review

A desktop review facilitates the identification of the baseline ecological conditions and key ecological issues relating to Natura 2000 sites and facilitates an evaluation assessment of potential in-combination impacts. Sources of information used for this report include reports prepared for the Cork City area and information from statutory and non-statutory bodies. The following sources of information and relevant documentation were utilised:

- National Parks & Wildlife Service (NPWS) – www.npws.ie
- Environmental Protection Agency (EPA) – www.epa.ie
- National Biodiversity Data Centre – www.biodiversityireland.ie
- Birdwatch Ireland – http://www.birdwatchireland.ie/
- Invasive Species Ireland – http://www.invasivespeciesireland.com/
- *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011)
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority, 2009) and
- *Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)* European Union, 2017.

5. Natura 2000 Sites

5.1 Designated sites within a 15km Radius

In accordance with the European Commission Methodological Guidance (EC 2018), a list of Natura 2000 sites that can be potentially affected by the proposed development has been compiled. All candidate SAC (cSAC) and SPA sites within a 15km radius of the proposed development have been identified in **Table 1** and shown in **Figure 4** (Cork Harbour SPA and Great Island Channel SAC*)*. It is noted that use of a 15km radius is a precautionary measure, as impacts at this distance from the proposed development are highly unlikely in the absence of significant aqueous or air emissions.

Cork Harbour SPA is of conservation significance for the occurrence of good examples of habitats and species that are listed on Annex I of the Birds Directive. Further information on the Cork Harbour SPA is provided below and a full site synopsis included **Appendix 1**.

The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. The site is extremely important for wintering waterfowl.

Cork Harbour SPA is located approximately 3.1km southwest of the proposed development site at its closest point. The closest downstream location is approximately 5.3km northeast. The River Lee, which flows through the proposed development site, is hydrologically connected to the Cork Harbour SPA. Qualifying species and habitats within this site could therefore potentially be impacted via a reduction in water quality and/or increased noise and disturbance.

Given the distance from the works area, small scale of the proposed development, the dilution capacity available within Cork Harbour and the River Lee and the robust nature of the estuarine habitats which are qualifying interests for the site, no potential impact on the Great Island Channel SAC has been identified.

Therefore, a source-pathway-receptor link has been identified between the source (proposed development) and the receptor (Cork Harbour SPA) via a potential pathway (surface water run-off, disturbance and the spread of invasive species during construction and/or operational phases).

Table 1. Natura 2000 sites and their location relative to the proposed development site

Natura 2000 sites within the Zone of Influence (ZoI)	Site Code	Distance at the closest point	Qualifying Interests/Special Conservation Interests
Special Area of Conservation (SAC)			
Great Island Channel	001058	9.2 km northeast (11.1km downstream). Given the dilution capacity available within Cork Harbour and the River Lee and the robust nature of the estuarine habitats which are qualifying interests for the site, no potential	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide

Natura 2000 sites within the Zone of Influence (ZoI)	Site Code	Distance at the closest point	Qualifying Interests/Special Conservation Interests
		impact on the Great Island Channel SAC has been identified	1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
Special Protection Area (SPA)			
Cork Harbour SPA	004030	3.1km southwest (5.3km downstream). A source-pathway-receptor link has been identified between the source (proposed housing development) and the receptor (Cork Harbour SPA) via a potential pathway (surface water run-off, disturbance and the spread of invasive species during construction and/or operational phases).	**Birds** A056 Shoveler (*Anas clypeata*) A149 Dunlin (*Calidris alpina*) A140 Golden Plover (*Pluvialis apricaria*) A050 Wigeon (*Anas penelope*) A028 Grey Heron (*Ardea cinerea*) A069 Red-breasted Merganser (*Mergus serrator*) A142 Lapwing (*Vanellus vanellus*) A130 Oystercatcher (*Haematopus ostralegus*) A141 Grey Plover (*Pluvialis squatarola)* A052 Teal (*Anas crecca*) A054 Pintail (*Anas acuta*) A157 Bar-tailed Godwit (*Limosa lapponica*) A162 Redshank (*Tringa totanus*) A183 Lesser Black-backed Gull (Larus fuscus) A179 Black-headed Gull (*Chroicocephalus ridibundus*) A004 Little Grebe (*Tachybaptus ruficollis*) A160 Curlew (*Numenius arquata*) A182 Common Gull (*Larus canus*) A048 Shelduck (*Tadorna tadorna)*

Natura 2000 sites within the Zone of Influence (ZoI)	Site Code	Distance at the closest point	Qualifying Interests/Special Conservation Interests
			A017 Cormorant (*Phalacrocorax carbo*) A193 Common Tern (*Sterna hirundo*) A005 Great Crested Grebe (*Podiceps cristatus*) A156 Black-tailed Godwit (*Limosa limosa*) **Habitats** Wetlands

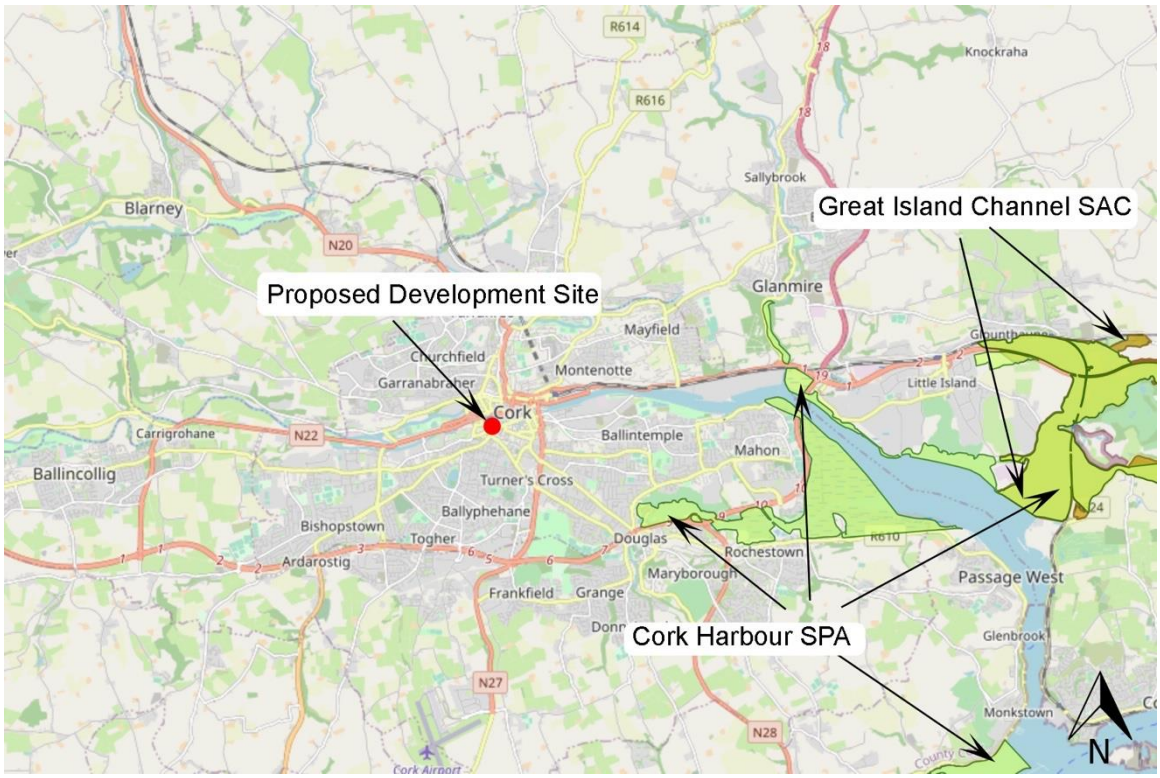


Figure 4. Natura 2000 sites within 15km radius of the proposed development site | Source EPA Envision Mapping | Not to scale

5.2 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 Poulnabibe 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, Nepthys hombergi, Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva* sp. Cordgrass (*Spartina* sp.) 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, Redbreasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Blackheaded 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), Bartailed 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.

A full site synopsis for the Cork Harbour SPA is included as **Appendix 1** of this report.

5.3 Natura 2000 sites – Features of interests and conservation objectives.

The EU Habitats Directive contains a list of habitats (Annex I) and species (Annex II) for which SACs must be established by Member States. Similarly, the EU Birds Directive contains lists of important bird species (Annex I) and other migratory bird species for which SPAs must be established. Those that are known to occur at a site are referred to as 'qualifying interests' and are listed in the Natura 2000 forms which are lodged with the EU Commission by each Member State. A 'qualifying interest' is one of the factors (such as the species or habitat that is present) for which the site merits designation. The National Parks and Wildlife Service (NPWS) are responsible for the designation of SACs and SPAs in Ireland.

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network. European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status sites designated as Special Areas of Conservation and Special Protection Areas. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation objectives for Cork Harbour SPA are included in *Cork Harbour Special Protection Area (Site Code 4030) Conservation Objectives Supporting Document version 1* (NPWS 2014). The species listed as Special Conservation Interests (SCIs) for the Cork are listed in **Table 2**.

Table 2. Special Conservation Interests (SCIs) for the Cork Harbour SPA

Species code	Species	Scientific name	Conservation objective
A004	Little Grebe	*Tachybaptus ruficollis*	Maintain
A005	Great Crested Grebe	*Podiceps cristatus*	Maintain
A017	Cormorant	*Phalacrocorax carbo*	Maintain
A028	Grey Heron	*Ardea cinereal*	Maintain
A048	Shelduck	*Tadorna tadorna*	Maintain
A050	Wigeon	*Anas Penelope*	Maintain
A052	Teal	*Anas crecca*	Maintain
A054	Pintail	*Anas acuta*	Maintain
A056	Shoveler	*Anas clypeata*	Maintain
A069	Red-breasted Merganser	*Mergus serrator*	Maintain
A130	Oystercatcher	*Haematopus ostralegus*	Maintain
A140	Golden Plover	*Pluvialis apricaria*	Maintain
A141	Grey Plover	*Pluvialis squatarola*	Maintain
A142	Lapwing	*Vanellus vanellus*	Maintain
A149	Dunlin	*Calidris alpina*	Maintain
A156	Black-tailed Godwit	*Limosa limosa*	Maintain
A157	Bar-tailed Godwit	*Limosa lapponica*	Maintain
A160	Curlew	*Numenius arquata*	Maintain
A162	Redshank	*Tringa totanus*	Maintain
A179	Black-headed Gull	*Chroicocephalus ridibundus*	Maintain
A182	Common Gull	*Larus canus*	Maintain
A183	Lesser Black-backed Gull	*Larus fuscus*	Maintain
A193	Common Tern	*Sterna hirundo*	Maintain
A999	Wetland and Waterbirds		Maintain

Restore = Restore favourable conservation condition, Maintain = Restore favourable conservation condition

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, “Wetland and Waterbirds” may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest. Thus, a further objective is to maintain or restore the favourable conservation condition of the wetland habitat within the Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

5.4 Status of qualifying interests for the Cork Harbour SPA

Cork Harbour SPA is a large, sheltered bay system that is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top ten sites in the country. Owing to the sheltered conditions, the intertidal flats are often muddy in character but described principally as 'mixed sediment to sandy mud with polychaetes and oligochaetes'. These muds support a range of macro-invertebrates, notably *Macoma balthica, Scrobicularia plana, Peringia (Hydrobia) ulvae, Nepthys hombergi, Nereis diversicolor* and *Corophium volutator*, all of which provide a food source for many wintering waterbird species. Salt marshes are scattered through the site and these provide high tide roosts for waterbirds (NPWS 2014).

The species listed as Special Conservation Interests of the Cork Harbour SPA and their conservation status are shown in **Table 3.** BirdWatch Ireland determined Birds of Conservation Concern in Ireland (BOCCI). These are bird species suffering declines in population size. BirdWatch Ireland and the Royal Society for the Protection of Birds have identified and classified these species by the rate of decline into Red and Amber lists. Red List bird species are of high conservation concern and the Amber List species are of medium conservation. Birds species listed in Annex I of the Birds Directive (2009/147/EC) are considered a conservation priority.

Table 3. Conservation status of SCI species for Cork Harbour SPA.

Species		Annex I of Birds Directive	BOCCI*	
			Red List	Amber List
Phalacrocorax carbo	Cormorant			X
Numenius arquata	Curlew		X	
Limosa limosa	Black-tailed Godwit		X	
Limosa lapponica	Bar-tailed Godwit	X	X	
Tringatotanus	Redshank		X	
Anas penelope	Wigeon			X
Anas crecca	Teal			X
Tachybaptus ruficollis	Little Grebe			X
Larus ridibundus	Black-headed Gull			X
Larus canus	Common Gull			X
Larus fuscus	Lesser Black-backed Gull			X
Vanellus vanellus	Lapwing		X	
Haematopus ostralegus	Oystercatcher		X	
Tadorna tadorna	Shelduck			X

Species		Annex I of Birds Directive	BOCCI*	
			Red List	Amber List
Ardea cinerea	Grey Heron			
Podiceps cristatus	Great Crested Grebe			X
Anas acuta	Pintail			X
Anas cylpeata	Shoveler			X
Mergus serrator	Red-breasted Merganser			X
Pluvialis apricaria	Golden Plover	X	X	
Pluvialis squatarola	Grey Plover		X	
Calidris alpina	Dunlin	X	X	
Sterna hirundo	Common Tern	X		X

Species		Annex I of Birds Directive	BOCCI*	
			Red List	Amber List
Phalacrocorax carbo	Cormorant			X
Numenius arquata	Curlew		X	
Limosa limosa	Black-tailed Godwit		X	
Limosa lapponica	Bar-tailed Godwit	X	X	
Tringatotanus	Redshank		X	
Anas penelope	Wigeon			X
Anas crecca	Teal			X
Tachybaptus ruficollis	Little Grebe			X
Larus ridibundus	Black-headed Gull			X
Larus canus	Common Gull			X
Larus fuscus	Lesser Black-backed Gull			X
Vanellus vanellus	Lapwing		X	
Haematopus ostralegus	Oystercatcher		X	
Tadorna tadorna	Shelduck			X
Ardea cinerea	Grey Heron			

Species		Annex I of Birds Directive	BOCCI*	
			Red List	Amber List
Podiceps cristatus	Great Crested Grebe			X
Anas acuta	Pintail			X
Anas cylpeata	Shoveler			X
Mergus serrator	Red-breasted Merganser			X
Pluvialis apricaria	Golden Plover	X	X	
Pluvialis squatarola	Grey Plover		X	
Calidris alpina	Dunlin	X	X	
Sterna hirundo	Common Tern	X		X

*Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 –2026". Irish Birds 9: 523—544

The reasons that these species are listed as Special Conservation Interests for the Cork Harbour SPA are as follows (NPWS 2014):

1. During winter the site regularly supports 1% or more of the all-Ireland population of Shelduck (*Tadorna tadorna*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,009 individuals.

2. During winter the site regularly supports 1% or more of the all-Ireland population of Wigeon (*Anas penelope*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,791 individuals.

3. During winter the site regularly supports 1% or more of the all-Ireland population of Teal (*Anas crecca*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,065 individuals.

4. During winter the site regularly supports 1% or more of the all-Ireland population of Pintail (*Anas acuta*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 57 individuals.

5. During winter the site regularly supports 1% or more of the all-Ireland population of Shoveler (*Anas clypeata*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 103 individuals.

6. During winter the site regularly supports 1% or more of the all-Ireland population of Red-breasted Merganser (*Mergus serrator*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 121 individuals.

7. During winter the site regularly supports 1% or more of the all-Ireland population of Little Grebe (*Tachybaptus ruficollis*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 57 individuals.

8. During winter the site regularly supports 1% or more of the all-Ireland population of Great Crested Grebe (*Podiceps cristatus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 253 individuals.

9. During winter the site regularly supports 1% or more of the all-Ireland population of Cormorant (*Phalacrocorax carbo*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 521 individuals.

10. During winter the site regularly supports 1% or more of the all-Ireland population of Grey Heron (*Ardea cinerea*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 80 individuals.

11. During winter the site regularly supports 1% or more of the all-Ireland population of Oystercatcher (*Haematopus ostralegus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,809 individuals.

12. During winter the site regularly supports 1% or more of the biogeographic population of the Annex I species Golden Plover (*Pluvialis apricaria*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 3,342 individuals.

13. During winter the site regularly supports 1% or more of the all-Ireland population of Grey Plover (*Pluvialis squatarola*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 95 individuals.

14. During winter the site regularly supports 1% or more of the all-Ireland population of Lapwing (*Vanellus vanellus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 7,569 individuals.

15. During winter the site regularly supports 1% or more of the all-Ireland population of Dunlin (*Calidris alpina*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 9,621 individuals.

16. During winter the site regularly supports 1% or more of the biogeographical population of Black-tailed Godwit (*Limosa limosa*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,896 individuals.

17. During winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Bar-tailed Godwit (*Limosa lapponica*). The mean peak number within the SPA during the baseline period (1995/96 – 1999/00) was 233 individuals.

18. During winter the site regularly supports 1% or more of the all-Ireland population of Curlew (*Numenius arquata*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,237 individuals.

19. During winter the site regularly supports 1% or more of the biogeographical population of Redshank (*Tringa totanus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,149 individuals.

20. During winter the site regularly supports 1% or more of the all-Ireland population of Black-headed Gull (*Chroicocephalus ridibundus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 3,640 individuals.

21. During winter the site regularly supports 1% or more of the all-Ireland population of Common Gull (*Larus canus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,562 individuals.

22. During winter the site regularly supports 1% or more of the all-Ireland population of Lesser Black-backed Gull (*Larus fuscus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 783 individuals.

23. The site is selected for the breeding Annex I species Common Tern (*Sterna hirundo*). In 1995, 102 pairs were breeding at this site. This exceeds the All-Ireland 1% threshold for this species.

24. The wetland habitats contained within Cork Harbour SPA are identified of conservation importance for non-breeding (wintering) migratory waterbirds. Therefore, the wetland habitats are considered to be an additional Special Conservation Interest.

The specific conservation objectives for the species listed as conservation interests for the Cork Harbour SPA (**Table 4**) are to maintain a favourable conservation condition of the non-breeding/breeding waterbirds and to maintain the favourable conservation condition of the wetland habitat at Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

Table 4. SCI species for which a potential impact has been identified – specific targets

Species/Habitats	Attribute	Measure	Target
Little Grebe Great Crested Grebe Cormorant Grey Heron Shelduck	Population trend	Percentage change	Long term population trend stable or increasing
Wigeon Teal Pintail Shoveler Red-breasted Merganser Oystercatcher Golden Plover Grey Plover Lapwing	Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by each species, other than that occurring from natural patterns of variation

Species/Habitats	Attribute	Measure	Target
Dunlin Black-tailed Godwit Bar-tailed Godwit Curlew Redshank Black-headed Gull Common Gull Lesser Black-backed Gull			
Common Tern	Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline
	Productivity rate: fledged young per breeding pair	Mean number	No significant decline
	Distribution: breeding colonies	Number; location; area (hectares)	No significant decline
	Prey biomass available	Kilogrammes	No significant decline
	Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase
	Disturbance at the breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population
Wetlands	Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,587 hectares, other than that occurring from natural patterns of variation

6. Water Quality data

6.1 River Basin Management Plan for Ireland 2018 – 2021 (2nd Cycle)

The Water Framework Directive (WFD) sets out the environmental objectives which are required to be met through the process of river basin planning and implementation of those plans. Specific objectives are set out for surface water, groundwater and protected areas. The challenges that must be overcome in order to achieve those objectives are very significant. Therefore, a key purpose of the River Basin Management Plan (RBMP) is to set out priorities and ensure that implementation is guided by these priorities.

The second-cycle RBMP aims to build on the progress made during the first cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban waste-water on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first cycle.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are *At Risk* of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to the watercourses within the study area is provided in **Table 5** and the location of these shown in **Figure 5.**

Table 5. WFD Status

Catchment: Lee, Cork Harbour and Youghal Bay (Code 19) – 2nd Cycle
This catchment includes the area drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy Battery, Co. Cork, draining a total area of 2,153km². The largest urban centre in the catchment is Cork City. The other main urban centres in this catchment are Ballincollig, Macroom, Carrigaline, Crosshaven, Blarney, Glanmire, Midleton, Carrigtohill, Cobh, Passage West and Belvelly. The total population of the catchment is approximately 328,854 with a population density of 153 people per km². Several small coastal rivers drain the area to the southeast of Cork Harbour and the area at the eastern extreme of the catchment is drained by the Womanagh River which flows into the sea on the western side of Youghal Bay. The Lee-Cork Harbour catchment comprises 18 sub-catchments with 92 river water bodies, three lakes, 13 transitional, six coastal water bodies and 16 groundwater bodies. There are five heavily modified and no artificial water bodies in the catchment. The catchment assessment notes that:

Catchment: Lee, Cork Harbour and Youghal Bay (Code 19) – 2nd Cycle

- Twenty-two river water bodies and all three lake water bodies in the catchment are At Risk of not meeting their water quality objectives. Measures will be needed in these water bodies to improve the water quality outcomes.
- There are eight Transitional and coastal water bodies in the catchment that are At Risk of not meeting their water quality objectives.
- Outer Cork Harbour water quality was defined as *Good* in the period from 2013-2018. Water quality in Cork Harbour was defined as *Moderate* in the same period.
- Water quality on the Owenboy Estuary, a transitional waterbody, was unassigned.
- There are five Special Areas of Conservation (SACs) in the catchment, not all of which have water quality and/or quantity conservation objectives for their qualifying interests.
- Diffuse urban pressures, caused, for example, by misconnections, leaking sewers and runoff from paved and unpaved areas, have been identified as a significant pressure in five river water bodies.
- Three river water bodies, two of which are on the Owenboy (Cork_020 and 040) subcatchments are subject to extensive modification due to channelization.
- Agriculture is a significant pressure on two transitional water bodies Glashaboy estuary and Owenboy estuary

The proposed works area is located within the Glasheen [Cork City]_SC_010 sub-catchment. All four waterbodies in this sub-catchment are unassigned but at risk due to elevated phosphate concentrations. Further investigation is required to determine what is impacting nutrient conditions. Waterbodies relevant to the proposed works area are listed below.

Waterbodies relevant to the proposed project

Waterbody	**Status**	**Date to meet objective**
Glasheen (Cork City)_010	At risk	2027
Lee (Cork) Estuary Upper	At risk	2027
Lee (Cork) Estuary Lower	At risk	2027

Source: EPA envision mapping and www.catchments.ie

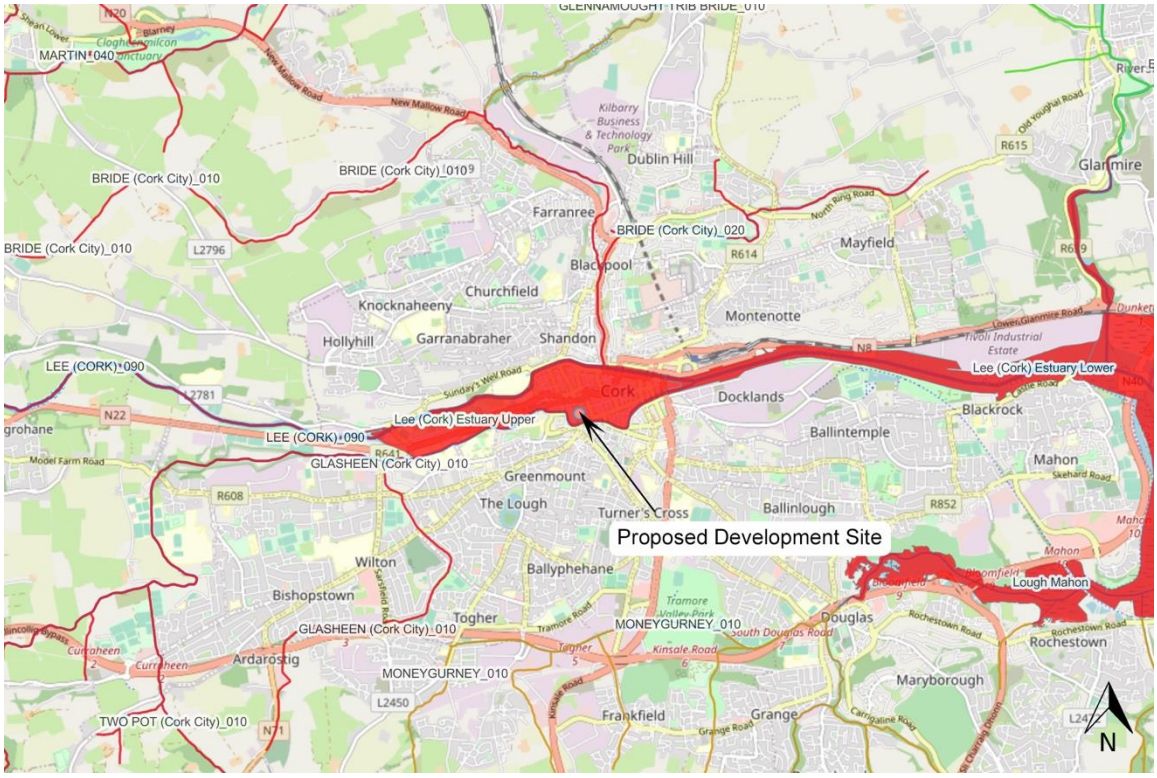


Figure 5. WFD waterbodies in the vicinity of the proposed development (approximate location) | Source: EPA Envision mapping https://gis.epa.ie/EPAMaps/) | not to scale

7. Site visit

7.1 Habitats

A habitat survey was carried out on the 22nd of June and the 25th of August 2020. Habitats were assessed in line with the methodology outlined in the Heritage Council Publication, *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011). The terrestrial and aquatic habitats within or adjacent to the proposed development site was classified using the classification scheme outlined in the Heritage council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex I Habitats where required. The survey area is dominated by artificial habitats (Buildings and artificial surfaces BL3) which includes buildings, bridges, quay walls, roads and footpaths and the River Lee (Tidal rivers CW2), which is tidally influenced within the study area.

Semi-natural vegetation is largely confined to the margins of the river and along the walls that enclose the river. The following species were noted: Ivy (*Hedera helix*), Mexican Fleabane (*Erigeron karvinskianus), Herb-robert (Geranium robertianum),* Butterfly-bush (*Buddleja davidii*), Red Valerian (*Centranthus ruber*), Groundsel (*Senecio vulgaris*), Nettle (*Urtica dioica), Water Figwort (Scrophularia auriculata),* Reed Canary-grass *(Phalaris arundinaceae), Old Man's Beard (Clematis vitalba), Rue* (Asplenium ruta-muraria)*, Golden Saxifrage (Chrysosplenium oppositifolium), Pellitory-of-the-wall (Parietaria judaica), Fools Watercress (Apium nodiflorum), Sycamore* ***(Acer pseudoplatanus),*** *Silver Birch (Betula pendula*), *Alder (Alnus glutinosa), Polypody Polypodium vulgare),* Common Whitlowgrass (*Draba verna*), Hemlock Water Dropwort (*Oenanthe crocata*). The invasive, non-native species Butterfly-bush (*Buddleja davidii*) occurs throughout the survey area, and in places forms dense thickets.

This mix of species is typical of limestone walls with a mixture of native and non-native species and the invasive species Butterfly Bush common (See **Photograph 1**). No rare or uncommon species were noted.

Photograph 1. Showing walls with a mixture of native and non-native species with occasional planted trees.

7.2 Birds

Bird surveys were carried out on the 22nd of June and 1st of July 2020 during weather conditions favourable for bird activity. All species seen or heard were recorded including those in flight over the site (**Table 6**). The survey area was within a built-up urban area. Semi-natural habitats were limited in extent and largely confined to the relevant section of the River Lee and this was where the majority of bird activity was recorded.

Surveys were carried out during weather conditions favourable for bird activity. This included avoiding periods of persistent or heavy rain, high wind or fog, as birds tend to be less active and therefore less visible during such conditions.

The transect was walked at a constant pace and all species of birds observed within and considered to be using the study area were recorded. Surveyors stopped periodically at certain locations to listen for calls and observe any behaviour. No attempts were made to locate nests as bird behaviour is generally sufficient to determine probable or confirmed breeding. Visits were not made during adverse weather conditions and a route was chosen to ensure all parts of the proposed development area were effectively surveyed.

The breeding status of all species encountered during surveys were classified into four categories: Confirmed (Br), Probable (Pr), Possible (Po) and Non-breeder (N), based on BTO categories of breeding evidence.

Species which are Red or Amber listed for their breeding populations in Ireland (Gilbert *et al.* 2021) are considered as species of conservation concern and are also listed in **Table 6**.

Table 6. Bird survey results

Species	Latin Name	Breeding Status	Conservation Status Amber/Red List
Swift	*Apus apus*	Po	Red List
Black-headed Gull	*Chroicocephalus ridibundus*	N	Amber List
Blackbird	*Turdus merula*	PB	
Grey Wagtail	*Motacilla cinerea*	PO	Red List
Herring Gull	*Larus argentatus*	N	Amber List
Jackdaw	*Corvus monedula*	PO	
Pied Wagtail	*Motacilla Alba*	N	
Robin	*Erithacus rubecula*	PO	
Rook	*Corvus frugilegus*	n	
Starling	*Sturnus vulgaris*	N	Amber List
Feral pigeon	*Columba palumbus*	PO	
Wren	*Troglodytes troglodytes*	PO	
Mallard	*Anas platyrhynchos*	PB	Amber List
House Sparrow	*Passer domesticus*	PO	Amber List
Grey Heron	*Ardea cinerea*	N	
Sand Martin	*Riparia riparia*	CB (adjacent to survey area).	Amber List

A total of 16 species were recorded during the breeding bird surveys of June and July 2020. Most of the survey area is urban in nature and bird communities are generally limited on artificial surfaces due to an absence of high value foraging habitat. However, Grey Heron feed on the Grand Parade during early morning deliveries to the English Market and there are substantial night time roosts of large numbers of Pied Wagtail in trees along the Grand Parade. It is noted that the Grand Parade is located to the east of the proposed works area and will not be directly impacted by the proposed development. Other species which are common in urban areas and which were recorded include House Sparrow, Feral Pigeon and corvids such as Jackdaw and Rook.

The section of the River Lee which flows beneath the proposed development site provides little suitable nesting habitat for riverine species, as the river is confined within high walls and vegetation is limited in extent. However some more specialist species such as Grey Heron, Grey Wagtail and Mallard were recorded. Sand Martin have been recorded nesting outside the survey area in the southern wall of the river downstream of South Gate Bridge (Leslie

Lewis pers. comm.). Swifts were noted overflying close to St. Fin Barre's Cathedral outside the survey area.

7.3 Invasive Species

Non-native plants are defined as those plants which have been introduced outside of their native range by humans and their activities, either purposefully or accidentally. Invasive non-native species are so-called as they typically display one or more of the following characteristics or features: (1) prolific reproduction through seed dispersal and/or re-growth from plant fragments; (2) rapid growth patterns; and, (3) resistance to standard weed control methods.

Where a non-native species displays invasive qualities and is not managed it can potentially: (1) out compete native vegetation, affecting plant community structure and habitat for wildlife; (2) cause damage to infrastructure including road carriageways, footpaths, walls and foundations; and, (3) have an adverse effect on landscape quality. The NBDC lists a number of high impact invasive species which have been recorded within grid square W67 (**Table 7**).

Table 7. NBDC list of high impact invasive species.

Common Name	Latin Name
Canada Goose	*Branta canadensis*
Canadian Waterweed	*Elodea canadensis*
Cherry Laurel	*Prunus laurocerasus*
Curly Waterweed	*Lagarosiphon major*
Fallopia japonica x sachalinensis = F. x bohemica	
Giant Hogweed	*Heracleum mantegazzianum*
Giant-rhubarb	*Gunnera tinctoria*
Indian Balsam	*Impatiens glandulifera*
Japanese Knotweed	*Fallopia japonica*
Nuttall's Waterweed	*Elodea nuttallii*
Rhododendron ponticum	
Harlequin Ladybird	*Harmonia axyridis*
American Mink	*Mustela vison*
Brown Rat	*Rattus norvegicus*
Coypu	*Myocastor coypus*
Feral Ferret	*Mustela furo*
House Mouse	*Mus musculus*
Sika Deer	*Cervus nippon*

Source NPWS 09/04/21

Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 make it an offence to plant, disperse, allow dispersal or cause the spread of certain species e.g. Japanese knotweed and Himalayan Balsam, keep the plant in possession for purpose of sale, breeding, reproduction, propagation, distribution, introduction or release, keep anything from which the plant can be reproduced or propagated from, without a granted

licence and keep any vector material for the purposes of breeding, distribution, introduction or release. The Wildlife (Amendment) Act 2000 states that anyone who plants or otherwise causes to grow in a wild state in any place in the State any species of (exotic) flora, or the flowers, roots, seeds or spores of (exotic) flora shall be guilty of an offence.

There is a statutory obligation under S.I. 477 of 2011 of the European Communities (Birds and Natural Habitats) Regulations 2011 to address invasive species in Ireland. In relation to this particular project high risk invasive species like Japanese knotweed (*Reynoutria japonica*) are of particular interest. These species for example are listed under the 3rd Schedule: Part 1 – Plants; Non-native species subject to restrictions under Regulations 49 & 50. Regulation 49 deals with the 'Prohibition on introduction and dispersal' while Regulation 50 deals with the 'Prohibition on dealing with and keeping certain species'.

No high-risk invasive species were recorded within the proposed development site.

Buddleia was recorded along the limestone wall which borders the River Lee near the southern and western boundaries of the proposed development site. Buddleia is on the "Amber List: Uncertain Risk" (their ecological impact remains uncertain due to lack of data showing impact or lack of impact). Buddleia is also included in the NRA *Guidelines on the Management of Noxious Weeds and Non-native Species on National Roads* (NRA, 2010) as these species have been shown to have an adverse impact on landscape quality, native biodiversity or infrastructure; and are likely to be encountered during road schemes.

8. Potential Impacts

Potential impacts could arise from the following:

- Potential impacts from loss of habitat
- Potential impacts from noise and disturbance
- Potential impacts on water quality during construction
- Potential impacts on water quality during operation
- Spread of invasive species
- Cumulative Impacts

8.1 Potential impacts from loss of habitat

Cork Harbour SPA is located 3.1km southeast of the proposed development site at its closest point. An ecological appraisal of the proposed development site indicates that it supports common habitats which are not of high value in the context of the Natura 2000 designation. The habitats recorded within the proposed development boundary do not correspond to habitats listed on Annex I of the Habitats Directive.

The proposed development will not result in any significant deterioration in habitat quality or loss of habitat within the Cork Harbour SPA. Therefore, it is concluded that the proposed development will not result in any loss or deterioration of habitat within Natura 2000 sites.

8.2 Potential impacts from noise and disturbance

Potentially increased noise and disturbance associated with the site works could cause disturbance/displacement of fauna. If of sufficient severity, there could be impacts on

reproductive success. Disturbance can cause sensitive species, such as birds, to deviate from their normal, preferred behaviour, resulting in stress, increased energy expenditure and, in some cases, species mortality.

The potential effects and impacts of disturbance have been widely recognised in wildlife conservation legislation, as has the need to develop conservation measures for birds whilst taking human activities into account. Article 4.4 of the Bird's Directive (79/409/EEC) requires member states to "*take appropriate steps to avoid… any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article*". This specifically relates to conservation measures concerning Annex I species.

The wintering birds listed as qualifying interests for the Cork Harbour SPA are strongly associated with estuarine shoreline areas or wetlands - habitat types absent from the proposed development site.

Theoretically disturbance of important qualifying bird species could potentially occur during the construction phase of the project. However, predicting potential impacts on birds from disturbance can be problematic. Although there are many instances where waterfowl and people appear to co-exist on estuaries, there are widespread examples where effects and impacts of varying severity have been described.

Optimal foraging theory is a useful basis from which to understand likely effects of disturbance on feeding. Many studies have shown that birds concentrate where feeding is best. If birds are forced temporarily or permanently to leave these places, then there is an increased risk that their foraging ability will suffer. However, the severity of this type of situation and the way is which birds respond; vary in a very complex way. The multiplicity of variables underlying the observed interactions between birds and people makes it difficult to assess the cause and implications of a particular instance of disturbance. The magnitude of disturbance to birds may arise from synergistic effects of more than one activity.

Noise levels of 70dB and above are regularly cited within the literature as being the threshold beyond which disturbance to estuarine bird species can be predicted to occur (Cutts *et al.* 2013). However, the greatest levels of disturbance response typically occur when the difference between ambient noise levels and peak noise levels is greatest, and when combined with visual human presence (Cutts *et al*. 2013).

Burger (1981), in a study of a coastal bay, found that birds were present 42% of the time when people were present, but birds were present 72% of the time when people were absent. Human activities such as jogging or grass mowing, which involved rapid movement or close proximity to roosting birds, usually caused them to flush (fly away). Slow-walking birdwatchers and clammers did not usually cause birds to flush. Gulls and terns were least affected and usually returned to where they had been; ducks usually flushed and flew to the centre of the pond; and herons, egrets and shorebirds were most disturbed and flushed to distant marshes.

The magnitude and predictability of impacts as a result of disturbance ranges between species, seasons, weather, source and duration of disturbance, degree of previous exposure of the individuals to disturbance and the occurrence of additional disturbances. Most disturbances to wetland birds result in an interruption to normal activity and the displacement of birds over variable distances, often into sub-optimal habitats. This can be critical during severe winters and can lead to a reduction in the carrying capacities of important wintering

wetland sites. However, in general studies show that most bird species have the ability to habituate to regular and continual sources of noise and visual disturbances providing there is no large 'startling' component.

It is noted that the proposed development site is outside the SPA boundary and is located within a busy city centre setting. This area is subject to existing noise disturbance and light pollution from neighbouring dwellings and retail outlets. Some localised noise emissions will be generated during the construction works. However, these will not be significant due to the duration of the works, the low level of construction vehicles/plant and construction staff required to carry out the works, the nature of the works proposed and the narrow construction footprint along busy trafficked roads. Therefore, during the construction stage, there may be short-term increases in disturbance, but it will not be significant in the context of existing noise/activity levels.

The proposed development is located a considerable distance from the Cork Harbour SPA (3.1km). While SCI species for the SPA (such as Black-headed Gull or Grey Heron) could potentially use the River Lee in the vicinity of the site, the lands between the works area and the river consists of a contiguous urban area that is characterised by built-up developments. During operation, noise will return to pre-existing levels.

The construction phase of the project will increase noise and disturbance, however given the limited scale of the development, the existing environment and the distances involved, no impact on birds listed as qualifying interests for the Cork Harbour SPA is predicted to occur.

8.3 Potential impacts on water quality during construction

Potential impacts on aquatic habitats which can arise from surface water emissions during the construction phase of the proposed development include increased silt levels in surface water run-off, as well as inadvertent spillages of hydrocarbons from fuel and hydraulic fluid.

Inadvertent spillages of hydrocarbon and/or other chemical substances during construction could introduce toxic chemicals into the aquatic environment via direct means, surface water run-off or groundwater contamination. Some hydrocarbons exhibit an affinity for sediments and thus become entrapped in deposits from which they are only released by vigorous erosion or turbulence. Oil products may contain various highly toxic substances, such as benzene, toluene, naphthenic acids and xylene which are to some extent soluble in water; these penetrate into the fish and can have a direct toxic effect. The lighter oil fractions (including kerosene, petrol, benzene, toluene and xylene) are much more toxic to fish than the heavy fractions (heavy paraffins and tars). In the case of turbulent waters, the oil becomes dispersed as droplets into the water. In such cases, the gills of fish can become mechanically contaminated and their respiratory capacity reduced (Svobodova *et al*. 1993).

High levels of silt can also impact on fish species. If of sufficient severity, adult fish could theoretically be affected by increased silt levels as gills may become damaged by exposure to elevated suspended solids levels. If of sufficient severity, aquatic invertebrates may be smothered by excessive deposits of silt from suspended solids. In areas of stony substrate, silt deposits may result in a change in the macro-invertebrate species composition, favouring less diverse assemblages and impacting on sensitive species. Cement can also affect fish, plant life and macroinvertebrates by altering pH levels of the water.

Aquatic plant communities may also be affected by increased siltation. Submerged plants may be stunted and photosynthesis may be reduced. Significant impacts on fish stocks could impact on piscivorous birds or Otter due to a reduction in prey availability. Such run-off if severe could potentially result in changes in the ecology of the estuary.

Works in the vicinity of the River Lee will be carried out along South Gate Bridge, French's Quay and Crosses Green. This will include construction of handrails on the top of the quay walls and the improvement of footpaths near the river. It is noted that a very small volume of grout is required for the handrail installation and the risk of spillage into the adjoining River Lee is negligible.

Given the large size of the River Lee and the Lee Estuary (Cork Harbour SPA), the dilution provided in the estuarine environment and naturally fluctuating levels of silt as well as the small-scale nature of the works, impacts are only likely to arise from extremely severe levels of siltation or major spills of hydrocarbons. Given the limited scope of the proposed development there is no risk of severe silt levels being generated or major spills of hydrocarbons during construction works.

As noted in **Section 3.2** the proposed development is minor in scale. There will be no new emissions to air or water during the operational phase of the proposed development. Stormwater run-off will tie into the existing stormwater management system on site and there are no foul water discharges associated with the proposed development. Significant effects as a result of the operation of the proposed development, on European sites or otherwise, can therefore be excluded.

Overall, no impact on water quality within European sites during construction or operation is predicted to occur.

8.4 Spread of Invasive Species

No high-risk invasive species were recorded within the proposed development area. Following best practice guidance any amber listed species found on site e.g. Buddleia, will be removed through standard eradication/control methods including digging out and post construction herbicide treatment if necessary. Therefore, no risk from the spread of invasive species will occur. Therefore, there is no risk to Cork Harbour SPA via impacts from the spread of invasive species.

8.5 In-combination Impacts

In-combination impacts refer to a series of individually modest impacts that may in combination produce a significant impact. The underlying intention of this in combination provision is to take account of cumulative impacts from existing or proposed plans and projects and these will often only occur over time.

High negative threats, pressures and activities identified for the Cork Harbour SPA include roads, motorways, port areas, industrial or commercial areas, urbanised areas, human habitation and marine and freshwater aquaculture. Other developments near the proposed development site and their potential cumulative impacts are listed in **Table 8**.

Table 8. Other developments near site and potential cumulative impacts

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Impact
River Basin Management Plan 2018-2021	The project should comply with the environmental objectives of the Irish RBMP which are to be achieved generally by 2021. • Ensure full compliance with relevant EU legislation • Prevent deterioration • Meeting the objectives for designated protected areas • Protect high status waters • Implement targeted actions and pilot schemes in focus sub-catchments aimed at: targeting water bodies close to meeting their objective and addressing more complex issues which will build knowledge for the third cycle.	The implementation and compliance with key environmental policies, issues and objectives of this management plan will result in positive in-combination effects to European sites. The implementation of this plan will have a positive impact for the biodiversity. It will not contribute to in-combination or cumulative impacts with the proposed development.
Inland Fisheries Ireland Corporate Plan 2016 -2020 **The Inland Fisheries Act 2010.**	To ensure that Ireland's fish populations are managed and protected to ensure their conservation status remains favourable. That they provide a basis for a sustainable world class recreational angling product, and that pristine aquatic habitats are also enjoyed for other recreational uses. To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected. To grow the number of anglers and ensure the needs of IFI's other key stakeholders are being met in a sustainable conservation focused manner. EU (Quality of Salmonid Waters) Regulations 1988. All works during development and operation of the project must aim to conserve fish and other species of fauna and flora habitat; biodiversity of inland fisheries and ecosystems and protect spawning salmon and trout.	The implementation and compliance with key environmental issues and objectives of this corporate plan will result in positive on-combination effects to European sites. The implementation of this corporate plan will have a positive impact for biodiversity of inland fisheries and ecosystems. It will not contribute to in-combination or cumulative impacts with the proposed works.
Irish Water Capital Investment Plan 2014-2016	Proposals to upgrade and secure water services and water treatment services countrywide.	Likely net positive impact due to water conservation and more effective treatment of water.
Water Services Strategic Plan (WSSP, 2015)	Irish Water has prepared a Water Services Strategic Plan (WSSP, 2015), under Section 33 of the Water Service No. 2 Act of 2013 to address the delivery of strategic objectives which will contribute towards improved water quality and biodiversity requirements through reducing:	The WSSP forms the highest tier of asset management plans (Tier 1) which Irish Water prepare and it sets the overarching framework

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Impact
	• Habitat loss and disturbance from new / upgraded infrastructure; • Species disturbance; • Changes to water quality or quantity; and Nutrient enrichment /eutrophication.	for subsequent detailed implementation plans (Tier 2) and water services projects (Tier 3). The WSSP also sets out the strategic objectives against which the Irish Water Capital Investment Programme is developed. The current version of the CAP outlines the proposals for capital expenditure in terms of upgrades and new builds within the Irish Water owned assets. Therefore, no adverse significant in-combination effects are envisaged.
NPWS Conservation Management Plans	Conservation Management Plans have not been fully prepared for the European sites being assessed. However, conservation objectives along with supporting documents for the Cork Harbour SPA	The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site. The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. The resultant effects of conservation objectives are a net positive and there is no potential for in combination effects on European sites.
WWTP discharges	Carrigtwohill and Environs WWTP, Ringaskiddy WWTP, Midleton WWTP, Whitegate-Aghada WWTP,	Discharges from municipal WWTPs are required to meet water

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Impact
	Midleton WWTP, Ringaskiddy Village WWTP's, Cobh & North Cobh WWTP's, Passage-Monkstown WWTP.	quality standards. Irish Water Capital Investment Plan proposes to upgrade water treatment services countrywide (see above). The long-term cumulative impact is predicted to be negligible.
Other developments	Beamish and Crawford Development Redevelopment of Bishop Lucey Park	Future developments will only be granted permission where discharges from same meet with relevant water quality standards. The long-term cumulative impact is predicted to be negligible.

The area surrounding the proposed development is also heavily populated with a mixture of residential apartments, commercial units and roads. Wastewater is also discharged from local settlements and industry. However, in the absence of any significant impact associated with this project no cumulative impacts on water quality have been identified. Similarly, no significant cumulative impacts in relation to noise and disturbance have been identified.

9. Screening conclusion and statement

This AA screening report has been prepared to assess whether the proposed development, individually or in-combination with other plans or projects, and in view of best scientific knowledge, is likely to have a significant effect on any European site(s).

The screening exercise was completed in compliance with the relevant European Commission guidance, national guidance, and case law. The potential impacts of the proposed development have been considered in the context of the European sites potentially affected, their qualifying interests or special conservation interests, and their conservation objectives.

Through an assessment of the source-pathway-receptor model, which considered the ZoI of effects from the proposed development and the potential in-combination effects with other plans or projects, the following findings were reported:

- The proposed Beamish and Crawford Quarter Infrastructure, either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect any European Site, in light of their conservation objectives.

Therefore, a Stage 2 Appropriate Assessment is deemed not to be required.

References

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Gilbert G, Stanbury A and Lewis L (2021), “Birds of Conservation Concern in Ireland 2020 – 2026”. Irish Birds 9: 523—544

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National Biodiversity Data Centre (http://www.biodiversityireland.ie/)

National Parks and Wildlife Service website (www.npws.ie)

Svobodova et al (1993) Water Quality and Fish Health. EIFAC Technical Paper 54. European Inland Fisheries Advisory Commission

Appendices

Appendix 1 Site synopses

Appendix 1 Site synopses

Cork Harbour Special Protection Area (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 and the Rostellan and Poulnabibe 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, Nepthys hombergi, Nereis diversicolor and Corophium volutator. Green algae species occur on the flats, especially Ulva lactua and Enteromorpha 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. Salt marsh species present include Sea Purslane (Halimione portulacoides), Sea Aster (Aster tripolium), Thrift (Armeria maritima), Common Saltmarsh-grass (Puccinellia maritima), Sea Plantain (Plantago maritima), Laxflowered Sea-lavender (Limonium humile) and Sea Arrowgrass (Triglochin maritima). Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. 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, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Blacktailed Godwit, Bar-tailed Godwit, Curlew, Redshank, 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, for which it is amongst the top five sites in the country. The two-year mean of summed annual peaks for the entire harbour complex was 55,401 for the period 1995/96 and 1996/97. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (905) and Redshank (1,782) - all figures given are average winter means for the two winters 1995/96 and 1996/97. At least 18 other species have populations of national importance, as follows: Little Grebe (51), Great Crested Grebe (204), Cormorant (705), Grey Heron (63), Shelduck (2,093), Wigeon (1,852), Teal (922), Pintail (66), Shoveler (57), Red-breasted Merganser (88), Oystercatcher (1,404), Golden Plover (3,653), Grey Plover (84), Lapwing (7,688), Dunlin (10,373), Bartailed Godwit (417), Curlew (1,325)

and Greenshank (26). The Shelduck population is the largest in the country (over 10% of national total). The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145) and Turnstone (79). Other species using the site include Gadwall (13), Mallard (456), Tufted Duck (113), Goldeneye (31), Coot (53), Mute Swan (38), Ringed Plover (34) and Knot (38). Cork Harbour is a nationally important site for gulls in winter and autumn, especially Black-headed Gull (4,704), Common Gull (3,180) and Lesser Black-backed Gull (1,440).

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.

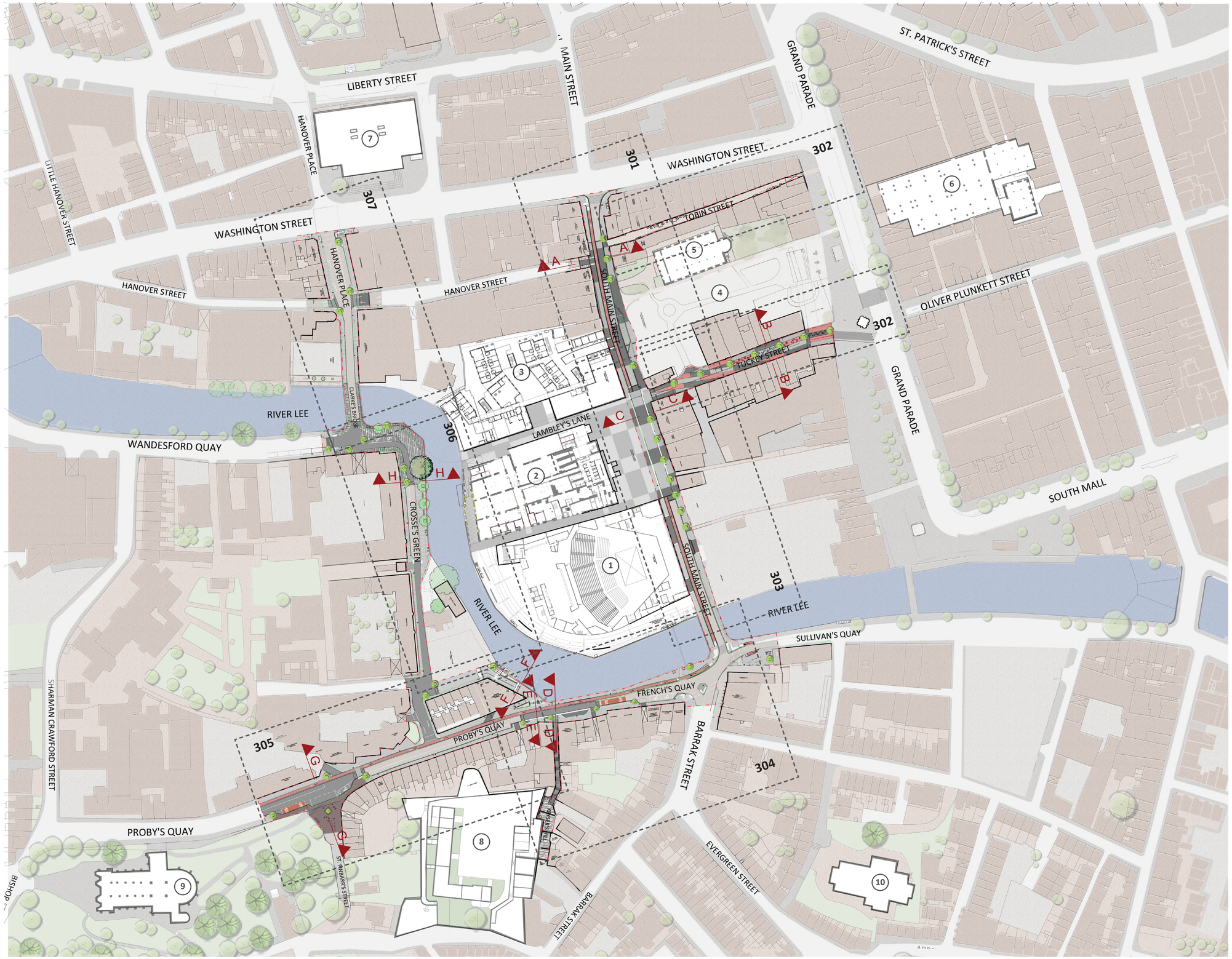
The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 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.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds.

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, there are at least 18 wintering species that have populations of national importance, 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, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it.

Appendix 2. Drawings



LEGEND

- Existing Tree - High Value
- Existing Tree - Moderate Value
- Proposed Street Tree - Fastigiate habit
- Existing Tree to be removed
- Existing Surrounding Trees
- Existing Kerb Line
- Section Line
- Site Notice Location

SITE FEATURES/FURNISHINGS

- Planting Area
- Planter Box
- Proposed Raised Access Pedestrian Crossing
- Stone Seatwall
- Bench/Individual Seat
- Cafe Tables & Chairs
- Relocated bike share terminal

KEY BUILDINGS AND LANDMARKS

1. Events Centre
2. Counting House
3. Uninest Student Apartments
4. Bishop Lucey Park
5. Triskel Arts Centre
6. English Market
7. Cork Court House
8. Elizabeth Fort
9. Saint Fin Barre's Cathedral
10. Saint Nicholas Church

Rev	Date	Drawn	Checked	Description	Notes

North N

Project	BEAMISH & CRAWFORD QUARTER INFRASTRUCTURE	Project No.	6813
Drg.	OVERALL SITE PLAN	Drawing No.	300
Rev.			
Scales	1:500 @ A1	Status	Planning
Date	12/07/2021		

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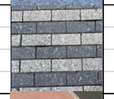
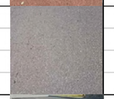
Drn.	Chd.	Passed
EG	DB	

BSM Est. 1968

MATERIALS SCHEDULE

SYMBOL	MATERIAL	REFERENCE IMAGE	DRAWING NUMBER
HARDSCAPE			
	Paving Type A - Dark Granite		
	A1: Picked Finish, 150 x 150 x 150mm paving		
	A2: Flamed Finish, 150 x 150 x 150mm paving		301; 302;
	A3: Picked Finish, 150 x 150 x 100mm paving at building threshold		303
	A4: Picked Finish, 150 x 150 x 150mm paving at Historic Laneway with artwork		
	A5: Granite Cobbles, 100 x 100 x 100mm setts at building access and Hanover St.		
	Paving Type B - Light Granite		
	B1: Picked Finish, 150 x 150 x 150mm paving		301; 302;
	B2: Flamed Finish, 150 x 150 x 150mm paving		303
	Paving Type C		
	600 x 300 x 80mm granite paving		301; 302;
	100 x 100 x 100mm granite sett at driving apron		303; 304
	Paving Type D		
	Red Granite Setts		302; 303
	TBC to match Bishop Lucey Park		
	Paving Type E		
	Typical granite aggregate paving		301; 304;
			305; 306; 307
	Paving Type F		
	Alternating Dark and Light granite pavers at controlled Crossing		301; 302;
			303;304
	Paving Type G		
	Standard Cycle Lane - Red chip asphalt		301; 303;
			304;305
	Paving Type H		
	Standard chip asphalt		ALL
	Paving Type I		
	Street print Asphalt/Concrete		304; 305;
			306;307
	Paving Type K		
	100 x 100 x 100mm, blue grey limestone setts, fan-tail pattern (TBC)		304
	Specialty Paving at Keyser's Hil		
	Paving Type J		
	100 x 100 x 100mm porphyry fan-tail paving (TBC)		305
	Specialty Paving at St. Fin Barre's Plaza		
	Paving Type L		
	600 x 450-900mm varied lengths, blue grey limestone, bush hammered (TBC)		306
	Specialty Paving at Crosse's Green		
	Paving Type M		
	Resin Bound Aggregate		306
	Specialty Permeable Paving at Specimen Tree on Crosse's Green		

KERBS			
	K1: Dark Stone Kerb		
K1	300x300x914mm dark granite, picked finish		301; 302;
			303; 304
	K2: Flush Kerb - Stone Banding		
K2	300x300x914mm dark granite, picked finish		301; 302;
			303; 304
	K3: Chamfered Stone Kerb at Cycle Lane		
K3	300x300x914mm dark granite with chamfered edge, picked finish		301; 302;
			303; 304
	K4: Light Stone Kerb		
K4	200x200x914mm light granite, picked finish		306
	K5: Standard Kerb		
	Standard PC/Cast in Situ Kerb		304; 305;
			306;307
TACTILE PAVING			
	Red Blister at controlled crossing		
	200x133x65mm clay bricks		
	Blue Blister at uncontrolled crossing		
	200x133x65mm clay bricks		
	Corduroy Hazard at uncontrolled crossing		
	200x100x65mm clay bricks		
	Cycleway controlled slabs		
	400x400x50mm precast concrete tactile flags		

SITE FEATURES/FURNISHINGS:			
	Planting Area		
	Proposed tree planting pit with Tree Grille		
	Planter Box		
	Proposed Raised Access Pedestrian Crossing		
	Stone Seatwall	See Suggested Materials Document for Site Furnishing Reference Images and Planting Information	
	Bench/Individual Seat		
	Cafe Tables & Chairs		
	Proposed Bollard and retention socket		
	Proposed Light Column location		
	Proposed push button crossing signal		
	Proposed slot drain location		
	Proposed cycle stand location		
	Relocated bike share terminal		

TABLE OF CONTENTS

NOTES

See Suggested Materials Document for detailed specifications of each Hardscape element and furnishings.

Mood images shown on the following pages are meant to reflect the character of the site and may not depict exact features.

All historic laneways to have consistent laser etchng in paving and wayfinding signage consistent with surrounding historic sites and laneways throughout the city.

KEY PLAN

Rev	Date	Drawn	Checked	Description	Notes

Project	BEAMISH & CROWFORD QUARTER INFRASTRUCTURE	Project No.	6813
Drg.	MATERIALS SCHEDULE	Drawing No.	300 Rev.
Scales	NTS	Status	Planning
Date	12/07/2021		
Drn.	EG	Chd.	DB
Passed			

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