



OIFIG na nOIBREACHA POIBLÍ  
OFFICE OF PUBLIC WORKS

## River Bride (Blackpool) Certified Drainage Scheme



### Natura Impact Statment

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Planning & Environmental Consultants



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# 1 INTRODUCTION & BACKGROUND TO PROJECT

## 1.1 INTRODUCTION

Ryan Hanley in partnership with McCarthy Keville O'Sullivan has been commissioned by the Office of Public Works (OPW) to prepare a Natura Impact Statement for the River Bride (Blackpool) Certified Drainage Scheme. The Natura Impact Statement assesses site investigation works, construction works and the operational stage of the proposed drainage scheme. The purpose of the NIS is to inform the Appropriate Assessment (AA) process which is carried out by the competent authority. Appropriate Assessment is an assessment of the potential effects of a plan or project, in combination with other plans or projects, on a European Site (Natura 2000 site).

As part of the Public Exhibition for the River Bride (Blackpool) Certified Drainage Scheme (November / December of 2015) and as required by the Habitats Directive, a Screening for Appropriate Assessment was carried out on the River Bride (Blackpool) Certified Drainage Scheme. This Screening Report concluded that there is no potential for significant effect on European Sites as a result of the project. Recent case law, in particular CJEU case C-323/17 (People over Wind and Peter Sweetman v Coillte) has highlighted common practices that have been carried out in Screening Reports to date, in particular with regard to what constitutes mitigation. In light of this court decision and using the precautionary principle with regard potential for impact on European Sites, the OPW have taken the opportunity to revise the AA Screening and instead provide a Natura Impact Statement assessing the potential impact on all downstream European Sites in the absence of mitigation and in combination with other plans and projects.

## 1.2 BACKGROUND

There has been an extensive history of flooding in the Blackpool area of Cork City in recent years. Flooding is primarily due to heavy rainfall in the catchment of the Bride River and of its tributaries, the Glenamought and Glen Rivers. The design of the proposed River Bride (Blackpool) Certified Drainage Scheme has evolved through an initial screening process of a range of potential engineering measures typically considered for flood alleviation schemes, the development of potential options and finally the development of the proposed scheme.

The proposed scheme will consist of a combination of flood walls, culverting a section of open channel, bridge replacement, embankment construction and other minor works. The Preferred Option will be designed to cater for the 1% Annual Exceedance Probability (AEP) flood event (also known as the 100-year flood event). The design of the proposed works has considered the future adaptability of the scheme for the potential impacts of future climate change in accordance with Office of Public Works guidance in relation to climate change and also includes an allowance for freeboard.

In summary, the preferred flood relief scheme will involve the following proposed works:

- Site investigations;
- Construction of new and replacement of existing bridges / culverts;
- Construction of new flood walls/ earthen embankments;
- Constructing bridge parapets;

- Local channel widening of the River Bride (referred to as a 'Winter Channel' on the scheme drawings in Appendix 3 of the EIA);
- Construction of a sedimentation trap on the left bank of the River Bride;
- Removal of approximately 70m of existing culvert and restoration of open channel (River Bride) at this location;
- Construction of a new trash screen and roughing screens, and removal of existing trash screens on the River Bride, and the Glen and Glenamought Rivers;
- Modifications to the existing foul and surface water collection networks in the vicinity of the proposed works, including construction of pumping stations, in order to prevent flooding;
- Removal of an existing sluice structure in the channel of the River Bride to the rear of the Dulux factory;
- Localised regrading of ground levels, erection of fencing and access gates, to facilitate pedestrian/vehicular access to and around flood defences, or to redirect overland surface water flow paths;
- Culverting an existing open watercourse;
- Introduction of a flow control structure on the entrance to the Brewery culvert on the River Bride and the Spring Lane culverted branch of the River Glen;
- Regular maintenance of the river channel and pumping stations;
- Local Stonework repairs within an existing masonry arch culvert (Brewery Branch culvert); and
- Utility diversions.

### 1.3 THE REQUIREMENT FOR APPROPRIATE ASSESSMENT

The requirement for Appropriate Assessment is set out in the EU Habitats Directive (92/43/EEC) in Article 6 (3) which states:

*“Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives.”*

The Habitats Directive is transposed in Ireland by the European Communities (Birds and Natural Habitats) Regulations, 2011 (consolidating the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in recent CJEU Judgements) (hereafter referred to as the Habitats Regulations) and the Planning and Development (Amendment) Act, 2010.

### 1.4 THE AIM OF THIS REPORT

Appropriate Assessment is required to assess the proposed Project as identified above with regard to impact on European Sites. It will identify whether the existing and proposed project is likely to have significant effects on European Sites in view of best scientific knowledge and the conservation objectives of the sites. European Sites are those identified as sites of European Community importance, designated as Special Areas

of Conservation (SAC) under the Habitats Directive or as Special Protection Areas (SPA) under the Birds Directive.

This report follows the Department of the Environment, Heritage and Local Government 'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities' (DoEHLG, 2010). Furthermore, the report has regard for recent European Court of Justice Decisions (CJEU) in particular, case C-323/17 People Over Wind and Perter Sweetman v Coillte.

## 2 THE APPROPRIATE ASSESSMENT PROCESS

### 2.1 GUIDANCE

Article 6(3) of the EU Habitats Directive (92/43/EEC) defines the requirement for Appropriate Assessment of certain plans and projects. In order to inform the requirements of this Natura Impact Statement, the following guidance documents have been referred to:

- DoEHLG Circular NPWS 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.
- DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environmental Heritage and Local Government.
- European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- European Commission (2000) Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg. European Commission.
- European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC
- European Commission (2006) Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg.
- European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/49/EEC; clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- European Commission (2013). Interpretation Manual of European Union Habitats. Version EUR 28. European Commission
- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No.477 of 2011).
- Ryan Hanley (2014a) Stage 1: Appropriate Assessment Screening Methodology for the Maintenance of Arterial Drainage Schemes. Prepared by Ryan Hanley on behalf of the Office of Public Works.
- Ryan Hanley (2014b) OPW Drainage Maintenance Categories Source » Pathway » Receptor Chains for Appropriate Assessment. Prepared by Ryan Hanley on behalf of the Office of Public Works

### 2.2 STAGES OF ARTICLE 6 ASSESSMENT

The European Commission's guidance promotes a staged process, as set out below, the need for each being dependent upon the outcomes of the preceding stage.

- (1) Screening
- (2) Appropriate Assessment
- (3) Assessment of Alternative Solutions
- (4) Assessment where no alternative solutions remain and where adverse impacts remain.

- The “IROPI test” (Imperative Reasons of Over-riding Public Interest) and compensatory measures.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures.

Stage 1 of the process is intended to identify whether the project is ‘likely to have a significant effect’ upon a European site, referred to as ‘Screening for Appropriate Assessment’.

If the screening process identifies effects to be significant, potentially significant or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Screening is undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided through the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan or project. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact.

Section 177U of the Planning and Development Act 2010 states that; *“the competent authority shall determine that an appropriate assessment of the proposed development is not required if it can be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will not have a significant effect on a European site.”*

Stage 2 of the process considers any potential impacts in greater detail including whether mitigation measures are required. Recent case law with regard to screening and NIS, further emphasizes that the term, ‘mitigation’ can be taken to include any measures intended to avoid or reduce the harmful effects of a project, which may in some cases be interpreted as best practice and pollution control measures thereby triggering the requirement for NIS.

If an adverse impact upon the site’s integrity cannot be ruled out, then Stage 3 will need to be undertaken to assess whether alternative solutions exist. If no alternatives exist that have a lesser effect upon the Natura 2000 site/s in question, the project can only be implemented if there are ‘imperative reasons of overriding public interest’, as detailed in Article 6(4). In essence, the work at Stage 1 will determine whether further stages of the process are required.

### 2.3 REPORT FORMAT

In complying with the obligations under Article 6(3) and to be consistent with the Guidance for Planning Authorities, this report has been structured as follows:

- Description of the Plan/Project;
- Identification of Natura 2000 sites, and the associated Conservation Objectives, which may be potentially affected;
- Identification and description of individual and cumulative impacts likely to result from the Plan/Project;
- Assessment of the significance of the impacts identified above on-site integrity.
- Exclusion of site where it can be objectively concluded that there will be no significant effects.

### 3 DESCRIPTION OF THE PROPOSED PROJECT

#### 3.1 STUDY AREA

The study area for the River Bride (Blackpool) Certified Drainage Scheme encompasses three major watercourses: the Bride (North), the Glenamought and the Glen (Figure 3.1). The total catchment area upstream of Blackpool Village is 41.7 km<sup>2</sup>. The Bride (North) rises in the townland of Ballycannon, near Healy's Bridge, before flowing in an easterly direction towards Cork City. The Glenamought River rises in Whitechurch and flows in a southerly direction before making an abrupt right-turn in the townland of Ballincroig. The Bride (North) and the Glenamought meet each other in a culverted system at the North Point Business Park on the N20. The Glen River flows in a westerly direction from Mayfield, through the Glen River Park, before entering a culvert under Spring Lane. It then merges with the Bride (North) in a large culvert junction under Madden's Buildings, 100m downstream of Blackpool Church. Downstream of the confluence of the Bride (North) and the Glen, the watercourse has traditionally been known as the Kiln River. The Kiln River discharges to the River Lee at Christy Ring Bridge. The culverted system in Blackpool has existed, in part at least, since the 19<sup>th</sup> century and has been incrementally re-constructed and extended since the early 1980s as part of the Glen-Bride-Kiln River Improvement Scheme which was commissioned by Cork Corporation in 1981. The topography of the entire catchment varies between 188mOD at Whitechurch and 25mOD in the Blackpool river valley. The location of the proposed works is in a largely urbanised area. The upper reaches of the Bride (north), close to its confluence with the Glenamought River and within the vicinity of North Point Business Park are the least urbanised sections of the river. This section of the river is short and features a riparian zone containing Scrub (WS1), open grassy areas categorised as dry meadow and grassy verge (GS2), amenity grassland (GA2), improved agricultural grassland (GA1), hedgerow (WL1) and buildings and artificial surfaces (BL3) and mature treelines (WL2).

Downstream of Commons Inn, the river flows through a series of operational and derelict industrial areas and is typically retained by flood walls. Riparian species here are more typical of waste ground. Further downstream habitats adjacent to the Bride (north) within the works area include recreational parkland including scattered trees and amenity grassland categorised as scattered trees and parkland (WD5). A small section of mixed broadleaved woodland (WD1) is also present on the western bank of the river to the south of Common's Inn. Scrub (WS1) is present on the eastern bank of the river. Narrow strips of dry meadow and grassy verge (GS2) are also present along the river within this section.

Between Fitz's Boreen and Blackpool Retail Park the Bride (North) is heavily industrialised and flows through largely built up areas categorised as buildings and artificial surfaces (BL3). A narrow strip of dry meadow and grassy verge (GS2) is present on the river margin of the eastern bank which is bordered by flood walls. Short treelines (WL2) are also present along the river banks within this section on the eastern and western banks of the channel. A Japanese knotweed stand (approx. 10m long) is present along the treeline on the eastern bank of the river close to Sunbeam Industrial Estate.

The Bride (North) downstream of the culvert near Blackpool Retail Park flows through an area of scattered trees and parkland (WD5) and amenity grassland (GA2). Narrow strips of amenity grassland within the vicinity of Blackpool Retail Park are interspersed with planted areas of flower beds and borders (BC4) and ornamental non-native shrub (WS3) along the river banks.

Downstream of Blackpool Retail Park the riverside habitats consist of mature dense treelines (WL2), an area of mown amenity grassland (GA2), scattered trees and parkland (WD5) and buildings and artificial surfaces (BL3). Large stands of Japanese knotweed are present along both banks of the river in Orchard Court, close

to where the river is culverted underground. The river between Orchard Court and Watercourse Road where the works are located is all culverted underground. This area is largely built land categorised as buildings and artificial surfaces. (BL3)

The Glenamought River is a less modified river than the Bride (North), flowing through rural areas for much of its length. The river downstream of the Glenamought viaduct flows through an area of Mixed broadleaved woodland (WD1), Amenity grassland (GA2) and built land (BL3). Areas of maintained amenity grassland are associated with private dwellings and business parks. Mature Treelines (WL2) are present on both banks of the river close to its confluence with the Bride (north).

A number of non-native species are present along the Bride (North), including montbretia (*Crocsmia x crocosmiiflora*) and snowberry (*Symphoricarpos albus*).

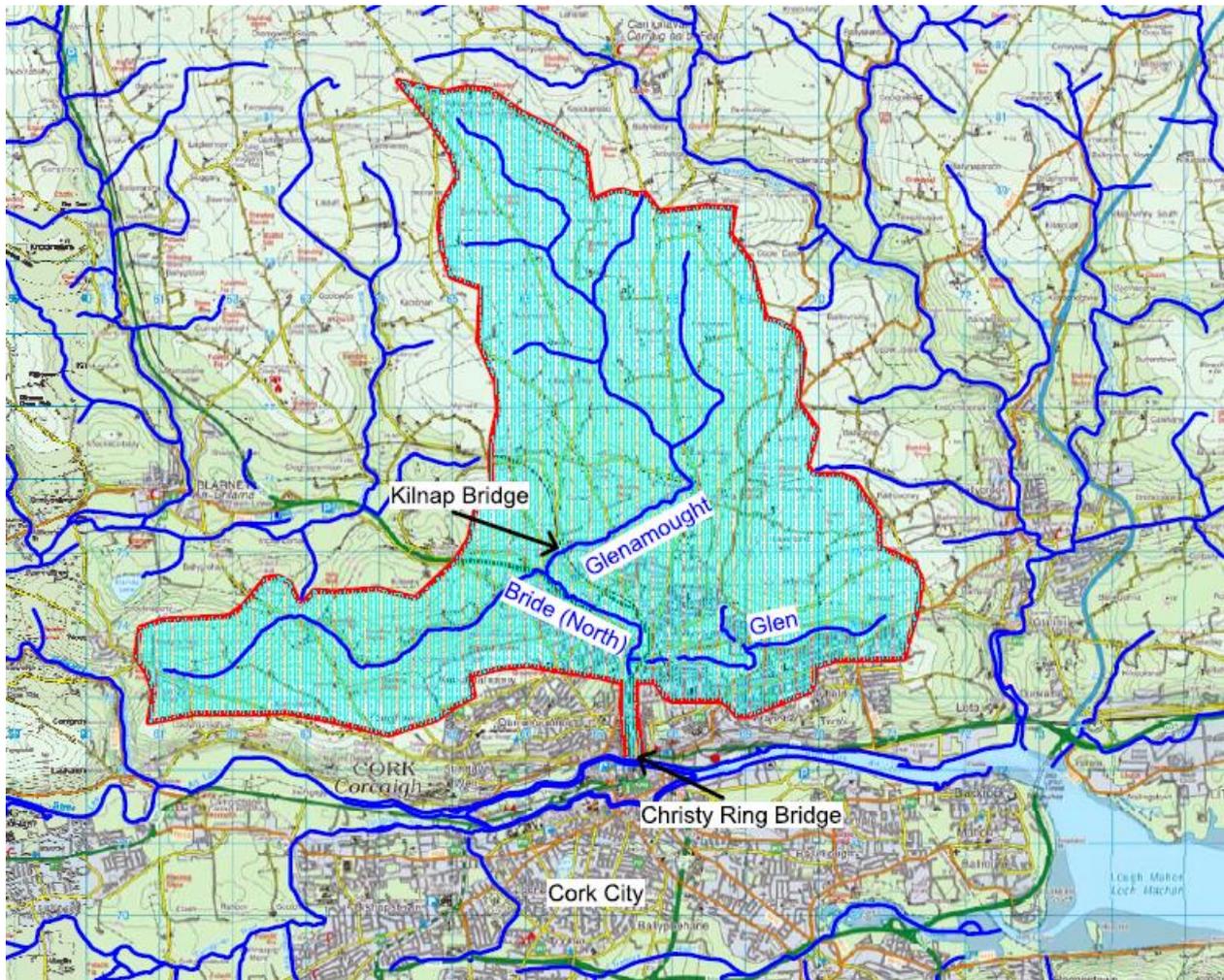
Small localised stands of *Ranunculus* sp. with very low cover, *Fontinalis* moss with low cover and *Calitriche* sp. with low cover were recorded as present on the River Bride and the Glenamought River. No pondweeds were recorded. While these examples of Floating River Vegetation habitat exist, the percentage cover is low and therefore they are not considered good examples of the habitat. Along the middle reaches of the Bride, these stands of FRV alternate along the margins of the river. At Oldcourt, where the river is to be culverted the moss species *Fontinalis antipyretica* (more nutrient tolerant moss) occurs.

Within the Bride (North) and Glenamought rivers the Floating River Vegetation was not of Annex I habitat quality given the extent of fragmentation.

Two invasive species, Japanese knotweed and giant rhubarb, were recorded in the works area for the River Bride (Blackpool) Certified Drainage Scheme, Japanese knotweed is common along the Bride (north) and Glenamought river channel. A single giant rhubarb plant (*Gunnera*) was present.

A low diversity and abundance of fish species was recorded from the study area. River Lamprey, listed on Annex II of the EU Habitats Directive was recorded in low numbers in both the Bride River (North) and The Glenamought River. Brown Trout was the most frequently recorded species throughout the Bride (north) and the Glenamought River. European eel was recorded in the Bride (North) in low numbers.

In addition, the river and surrounding vegetation provide habitat for two further species that are protected under European legislation. These are Otter (Annex II, Habitats Directive) and Kingfisher (Annex I, Birds Directive). Kingfisher was recorded on the Glenamought River, whereas Otter was recorded along the Bride (North). All bat species are protected under Annex IV of the EU Habitats Directive and are likely to use the area for foraging. No roosting potential for bats was identified. Species and habitats of conservation interest but not related any European Site that is potentially impacted by the proposed scheme are discussed as part of the EIAR for the River Bride (Blackpool) Certified Drainage Scheme.



**Fig 3.1: Study area and catchment rivers**

### **3.2 PROPOSED WORKS**

The proposed works for the River Bride (Blackpool) Drainage Scheme will comprise the following:

- Site investigations;
- Construction of new and replacement of existing bridges / culverts;
- Construction of new flood walls/ earthen embankments;
- Constructing bridge parapets;
- Local channel widening of the River Bride (referred to as a 'Winter Channel' on the scheme drawings in Appendix 3 of the EIA);
- Construction of a sedimentation trap on the left bank of the River Bride;
- Removal of approximately 70m of existing culvert and restoration of open channel (River Bride) at this location;
- Construction of a new trash screen and roughing screens, and removal of existing trash screens on the River Bride, and the Glen and Glenamought Rivers;

- Modifications to the existing foul and surface water collection networks in the vicinity of the proposed works, including construction of pumping stations, in order to prevent flooding;
- Removal of an existing sluice structure in the channel of the River Bride to the rear of the Dulux factory;
- Localised regrading of ground levels, erection of fencing and access gates, to facilitate pedestrian/vehicular access to and around flood defences, or to redirect overland surface water flow paths;
- Culverting an existing open watercourse;
- Introduction of a flow control structure on the entrance to the Brewery culvert on the River Bride and the Spring Lane culverted branch of the River Glen;
- Regular maintenance of the river channel and pumping stations;
- Local Stonework repairs within an existing masonry arch culvert (Brewery Branch culvert); and
- Utility diversions.

### 3.2.1 SITE INVESTIGATION

A detailed site investigation has been carried out to inform the detailed design of the drainage scheme. The contractor may choose to carry out additional site investigations prior to construction, however these are expected to be limited. Trial pits, slit trenches, boreholes, rotary core boreholes and dynamic probes may be carried out along the footprint of the proposed works, in addition to utility identification.

### 3.2.2 CULVERTS

The scheme will include construction of new culverts and reconstruction of existing culverts at the following locations:

- Reconstruction of 75m of existing pipe culvert of internal dimension 2.5m wide and 2.0m high adjacent to North Point Business Park.
- 342m of new reinforced concrete culvert (approximate internal dimensions 5.5m x 2.1m) commencing downstream of the Blackpool bypass (N20 Commons Road) at Orchard Court and terminating under the Old Commons Road to the North of Blackpool Church.
- Replacement and slight realignment of 7m of existing culvert (approximate internal dimensions 5.5m x 2.1m) on Old Commons Road upstream of Blackpool Church.
- Rehabilitation of 26m of existing culvert on Old Commons Road upstream of Blackpool Church and 163m of existing culvert on Watercourse Road upstream of Madden's Buildings.
- Replacement and slight realignment of 69m of existing culvert at Blackpool Church commencing on Old Commons Road and terminating on Watercourse Road. This will also involve culverting an open section of channel outside the Church.
- Replacement and slight realignment of 62m of existing culvert at Madden's Buildings commencing on Watercourse Road and terminating on the North City Link Road (N20). This will involve construction of a flow control structure at the entrance to the 'Brewery' culvert, which runs under Watercourse Road.

The culverts will consist of reinforced concrete structures and in general will be constructed on the footprint of the existing river channel (within only minor realignment). The one exception will be the culvert at the northern end of Orchard Court, which will be constructed off the line of a slight meander in the existing channel. This is required in order to maximise the hydraulic efficiency of the proposed culvert system.

A concrete blockwork boundary wall will be constructed along the property boundaries on the right bank of the new Orchard Court culvert.

### 3.2.3 BRIDGE REPLACEMENT

The scheme will include replacement of existing bridges/ culverts at the following locations:

- Two existing bridges/ culverts on the Glenamought River will be replaced with new reinforced concrete bridges between Sweeney's Hill and the North Point Business Park.
- Two existing bridges/ culverts on the River Bride will be replaced with new reinforced concrete bridges between the North Point Business Park and Commons Road (N20).
- Two pedestrian bridges at Blackpool Retail Park will be removed and replaced by a new single crossing point located approximately 120m and 10m to the North of the two bridges respectively.

The purpose of the replacement is to increase the conveyance capacity of the River Bride at the first two locations, and to facilitate construction of flood defences at Blackpool Retail Park in the case of the two pedestrian bridges. It will also be necessary to limit vehicular and pedestrian access points across the river during construction stage to facilitate the construction of the new bridges and culverts.

In addition, the construction of the culvert will result in the removal of two existing bridges at Orchard Court, including one pedestrian bridge. These access points will be fully restored on completion of the works, the bridge effectively being replaced by the new culvert.

### 3.2.4 FLOOD WALLS / EMBANKMENTS

The scheme will include construction of new flood walls/ earthen embankments at the following locations:

- 62m of earthen embankment to upstream of Glenamought Bridge to tie into high ground and reinforced concrete wall,
- 30m of reinforced concrete wall to be constructed to flood defence levels on the wet side of the existing boundary wall at Collins House;
- 21m of reinforced concrete wall at O'Shea's Building
- 58m of reinforced concrete wall at O'Shea's Building
- 109m of earthen embankment at Woodpark (Glenamought River), downstream of the railway viaduct on the Cork-Limerick railway line to tie into high ground and reinforced concrete wall,
- 31m of reinforced concrete wall at Woodpark (Glenamought River), downstream of the railway viaduct on the Cork-Limerick railway line,
- 102m of flood wall adjacent to the Lower Killeens Road (River Bride),
- 34m of existing open wall to be reconstructed in solid blockwork to 1.1m above the path adjacent to the Lower Killeens Road,

- 31m of flood wall and 114m of earthen embankment to the North and West of the Commons Inn Hotel,
- 50m of flood wall on the right bank of the Fairhill Stream to the rear of Bride Villas,
- 259m of flood wall on the right bank of the River Bride between the Bride Villas and the 'Topaz' filling station,
- 232m reinforced concrete wall on the right bank of the River Bride between the Dulux factory and the Sunbeam Industrial Estate (new wall behind existing wall),
- 144m reinforced concrete wall on the right bank of the River Bride between the Dulux factory and the Sunbeam Industrial Estate (raising existing wall),
- 147m reinforced concrete wall on the right bank of the River Bride between the Dulux factory and the Sunbeam Industrial Estate (new wall),
- 76+153+91m reinforced concrete wall on the left bank of the River Bride between the Dulux factory and the Sunbeam Industrial Estate (new wall behind existing wall),
- 219+88m reinforced concrete wall on the left bank of the River Bride between the Dulux factory and the Sunbeam Industrial Estate (new wall),
- 121m of earthen embankment along the left bank of the River Bride at the location of a new crossing point and trash screen,
- 212m of flood wall on the left bank of the River Bride alongside to the Blackpool Retail Park/ Heron Gate and River House, and
- 49m of flood wall on the left bank of the River Bride between the Commons Road (N20) and the carpark of the Blackpool Shopping Centre.
- 109m of flood wall on the left bank of the River Bride at Springlane.

The purpose of the flood walls and embankments is to prevent overtopping of the river banks and subsequent flooding that would result from overtopping. The locations and heights of flood walls and embankments have been chosen based on a hydrological and hydraulic analysis of the River Bride, topographical data, the 1% Annual Exceedance Probability (AEP) flood event (also known as the 100-year flood event), and allowance for freeboard.

Where space is available, flood defences will consist of earthen embankments. In most cases, space constraints in the vicinity of the urbanised catchment of the River Bride in the vicinity of Blackpool means that flood walls will be required. In some locations, such as to the rear of the Dulux Paints factory, the new flood walls will replace existing walls or will consist of extensions to existing reinforced concrete retaining walls.

### 3.2.5 BRIDGE PARAPETS

It will be necessary to carry out works to bridge/ culvert parapets at the locations shown on the Scheme Drawings contained in Appendix 1 in order to contain flood waters within the river channel. The four existing bridges/ culverts in question are located between the North Point Business Park and Commons Road (N20) as shown on the Scheme Drawings in Appendix 3 of the EIAR. Works will consist of repairs to existing parapets where they exist, replacement of existing parapets where repairs are not practical or cannot

deliver the required level of protection, construction of new parapets where existing parapets do not exist, or where existing parapets are not of a sufficient height to contain flood waters.

### 3.2.6 WINTER CHANNEL

A series of sharp bends in the Bride channel contribute to elevated flood levels along the Commons Road (N20). This is because the water velocity is abruptly slowed at each of these bends. It is proposed to introduce a 'winter channel' to the existing channel to help with high flows by cutting a secondary flow route into the existing bank. In normal flow conditions, the river would be confined to the 'low-flow' or 'summer channel', however during periods of high flow the winter channel would provide additional capacity.

The winter channel will consist of an excavation of the right bank (looking downstream). The left bank will be undisturbed. The width of the cut will vary from 0m at the upstream/downstream ends, to maximum 7-10m at the apex of the river bend. The formation level of the cut will be at approximately 1.2m above the channel invert (approx. 18.9mOD). This will leave the existing low flow channel substantially undisturbed apart from cutting back vegetation. The total length of the cutting will be approximately 50m on plan, measured along the bank line.

The slope of the new cutting will match the existing bank slope. The surface of the new cut slope will be covered with a biodegradable membrane, which will protect the exposed soil from erosion while vegetation is re-established over a number of months following the works.

### 3.2.7 SEDIMENTATION MANAGEMENT

It is proposed to construct a sediment trap at the upstream end of the Sunbeam Industrial Estate.

The purpose of the sediment trap at the Sunbeam Industrial Estate is to capture fluvial sediments (primarily small cobble sized material), to help minimise the risk of large sediments settling in the Blackpool culvert system, which would reduce hydraulic capacity. A sediment trap is an online pond which increases local width and depth of the channel and reduces flow velocity. This promotes the settlement of suspended solids, and the deposition of coarser bedload. Sediment traps require regular maintenance to remove sediment and will no longer function when full.

The proposed sediment trap will typically be 20m wide x 80m long. It will most likely be constructed of reinforced concrete or sheet pile walls with shallow rock weirs constructed at 20m centres. It will be constructed by excavating an area of the existing channel to make it wider and deeper. The inlet and outlet structures will have the same invert level and approximate dimensions as the existing channel in those locations, to minimise impact on upstream and downstream water levels. The bed level of the basin will be approximately 1.5m below the existing bed level.

The sediment trap will also incorporate a ramp along the left bank to allow access for a JCB/excavator to remove accumulated sediment and will also require a slight realignment of the river channel at the downstream end of the sedimentation trap. It will also be necessary to slightly realign local access routes to the north of the sediment trap.

### 3.2.8 OPEN CHANNEL

The scheme will include removal of approximately 100m of existing culvert to the rear of the Sunbeam Industrial Estate, and restoration of open channel (River Bride) at this location. This work will be done in combination with construction of a sedimentation trap, a new pumping station, regrading of ground levels and construction of flood walls at the same location (described separately in this chapter).

### 3.2.9 SCREEN

The scheme will include construction of a new trash screen within the channel of the River Bride at the Blackpool Retail Park and three new roughing screens upstream of the Viaduct on the Glenamought River, upstream of Rose Cottage on the River Bride (North) and upstream of the existing Spring Lane trash Screen on the River Glen. The existing trash screens on the River Bride (North) (two existing screens) and the River Glen at Spring Lane will then be removed. The purpose of the roughing screens and trash screen will be to remove large debris from the river channel, which could potentially cause a blockage in the almost entirely culverted channel downstream of this Blackpool Retail Park.

Trash screens will be designed in accordance with the UK Environment Agency "Trash and Security Screen Guide 2009" and CIRIA guidance document C689 "Culvert Design and Operation Guide". The EA guidance states that only mature salmon species could be discouraged by a screen. Other fish species are unlikely to be affected by bars with a minimum clear spacing of 250 mm. For the Blackpool screen, the minimum bar spacing will be no less than 250mm in accordance with the CIRIA guidance document. A small bypass route through the western arm of the structure will also be provided in order to facilitate the movement of otters.

The roughing screens will be designed to catch only large debris and allow smaller material to pass through. The screens will be designed to allow for overtopping and/or bypassing during high flood levels or blockage scenarios without the risk of flooding nearby properties. The overall screen width will be approximately 20m on the Glenamought River and approximately 10-15m on the River Bride.

### 3.2.10 DRAINAGE WORKS

Flooding in Blackpool is primarily fluvial (i.e. flood waters flow directly from the River Bride, however restricting the river channel by constructing hard flood defences will also restrict pluvial flow - surface water run off during rainfall events which coincides with high river levels. There are existing surface water and combined foul and surface water collection networks in Blackpool.

In order to prevent pluvial flooding, particularly during flood events, it will be necessary to upgrade the surface water and combined drainage network in the town. Initially, existing outfalls will need to be sealed against backflow from rising flood waters, where this has not already taken place.

Pumping stations will be required so that surface water run off can be pumped to the river channel during flood events and on occasions when the new non-return valves malfunction. In addition to substructure, pumping stations will incorporate a surface mounted kiosk in close proximity to the underground substructure. Eight pumping stations are proposed at the following locations:

- Bride Villas (Commons Road)
- Fitz's Boreen
- Two pumping stations to the rear of the Dulux factory, one on either bank of the River Bride
- Open area at North end of Orchard Court
- Old Commons Road (at entrance to Orchard Court)
- Blackpool Church/ Thomas Davis Street.

New collector drains will be required to connect the new and old collection networks. Surface water will be pumped into the river channel/ new culvert at these locations through new rising mains fitted with non-return valves.

In addition to the above, it will be necessary to regrade impermeable areas (roads, footpaths) at certain locations along the route of the River Bride, in order to redirect overland flow towards the river or other surface water drainage networks. The extent of regrading works required is shown on the Scheme Drawings in Appendix 3 of the EIA.

### 3.2.11 MAINTENANCE REGIME

A rigorous and organised channel maintenance programme will be required throughout the reach of the channel impacted by the proposed works. The channel maintenance programme will include the following stretches of river/ stream channel:

- The Glenamought River from the new roughing screen upstream of the Viaduct to its confluence with the River Bride (517m),
- The River Bride from the new roughing screen upstream of Rose Cottage to Blackpool Church (2,623m),
- The River Bride (Kiln culvert branch) from Blackpool Church to the confluence of the Kiln Branch and the Kiln Brewery Branch (946m, running under Watercourse Road and the N20 Blackpool Bypass),
- The River Bride (Kiln Brewery culvert branch) between its bifurcation with the Kiln culvert branch at its upstream end to its confluence with the Kiln culvert branch at its downstream end (740m, running under Watercourse Road and the Heineken Brewery),
- The Glen River (Spring Lane culvert branch) from its confluence with the new culvert on the River Bride to the proposed sluice structure at the head of this channel section (333m),
- The Glen River (mainly open channel) from the proposed sluice structure referred to above to the existing culvert under the North Ring Road (230m),
- The Glen River (Back Watercourse culvert branch) from the proposed sluice structure referred to above to its confluence with the (Kiln Watercourse culvert branch) outside Madden's Buildings (542m, running mainly under the N20 Blackpool Bypass),
- The Rathpeacon Stream from its confluence with the River Bride for a distance of 193m upstream, and
- The Fairhill Stream from its confluence with the River Bride for a distance of 108m upstream,

The channel maintenance programme will pay particular attention to locations where silt, gravel and debris are likely to accumulate, such as at structures, sharp bends, culvert inlets, etc.

The new trash screen and roughing screens will require regular maintenance, as will the proposed surface water pumping stations. The surface water pumping stations will require regular maintenance and it will be necessary to jet the surface water sewers to maintain hydraulic capacity to drain flood waters.

Other measures will include regular inspections of flood walls and embankments, regular scheduled maintenance of the river channel and pruning of trees (including removal of tress where necessary), planning and control measures. The inspection regime will ensure that there is no deterioration in the structural integrity of the defences which may occur as a result of a collision for example. It is expected that the flood defences will be relatively maintenance free otherwise. The extents of channels/culverts to be maintained will be shown on the drawings contained in Appendix 3 of the EIA. In general, maintenance activities will consist of the following:

- The channels and structures will be monitored by means of a walkover survey from the banks on a regular basis (likely quarterly, and also following a flood event). The walkover surveys would aim to identify issues with implications for flood risk (e.g. fallen trees, excessive vegetation build-up, overgrown trees, illegal dumping, accumulation of granular deposits, etc.). In-channel debris will typically be removed by JCB. Excessive overhanging vegetation will typically be pruned back or removed by hand using a cherry picker, depending on access.
- Culverts will be inspected by means of physical inspection on an annual basis, or following a significant flood event. Any debris present in the culvert will be cleared by hand. A full CCTV survey and clearing of silt/sediment from the culvert is expected to take place approximately every 5 years.
- The optimum frequency of cleaning of the sediment trap and trash screen will evolve over time based on experience. However, initially it is proposed to carry out cleaning generally on a quarterly basis, and also following a significant flood event. Water level monitoring and alarms will also be installed at the trash screen to alert maintenance staff of a screen blockage.

### 3.3 ANTICIPATED CONSTRUCTION METHODS

#### 3.3.1 NEW CULVERTS

Construction of new culverts will form the most significant aspect of the new scheme. Approximately 480m of new culvert will be constructed in Blackpool, some of which will be constructed along the route of the River Bride. Construction of the new culvert will take place as follows:

- The works area will be isolated and traffic management set up as required. Temporary road closures will be required for the culvert replacement in the vicinity of Blackpool Church and Madden's Buildings. Alternative access routes may be required for Orchard Court during construction works if it does not prove possible to maintain one lane of the existing bridge open at all times/ maintain access in the vicinity of the existing bridge.
- Temporary works will be put in place, including silt barrages, and flow diversions/ over pumping where in-stream works are required at Blackpool Church and between the Old Commons Road and the N20 culvert (upstream of Orchard Court). Service diversions will also be required in advance of culvert construction, particularly at Blackpool Church and Madden's Buildings.
- The foundations will be excavated down to formation level. Utilities and drainage pipes will be diverted as required. Excavated material will be transported off site to a licenced facility or stored for reuse on site. Blinding will be poured.
- Reinforced concrete culverts will be placed in position. Utilities and drainage pipes will be diverted into permanent positions as required.
- The excavation will be backfilled, the area reinstated, and the works area reopened. In the case of culverts constructed under the public road, permanent reinstatement may be required approximately six months following reopening of the road.
- An otter ledge will be integrated into the existing and proposed culvert network. Light wells will be provided within the culvert periodically to provide light for otters and aquatic organisms using the structure.

### 3.3.2 BRIDGE REPLACEMENT

The replacement of existing bridges is likely to comprise the following proposed works:

- The works area will be isolated and traffic management set up as required. Temporary road closures may be required if it does not prove possible to maintain one lane of the existing bridge open at all times/ maintain access in the vicinity of the existing bridge, or if an alternative convenient access route is available.
- Temporary works will be put in place, including silt barrages, and flow diversions/ over pumping. Service diversions may also be required in advance of culvert construction.
- The existing bridge/ culvert structure will be dismantled/ demolished and removed off site.
- The foundations will be excavated down to formation level. Excavated material will be transported off site to a licenced facility or stored for reuse on site. Blinding will be poured.
- The new bridge/culvert will be constructed using either precast units or reinforced concrete placed in situ. Utilities and drainage pipes will be diverted into permanent positions as required during/ following construction. Construction of an in-situ reinforced concrete bridge would involve
  - Fixing of reinforcement for abutments and piers,
  - Placing of formwork for abutments and piers,
  - Placing of cast in-situ concrete for abutments and piers,
  - Stripping of formwork,
  - The placing and fixing of a precast concrete bridge deck, and
  - Construction of bridge parapets.
- The excavation will be backfilled, the area reinstated, and the works area reopened. Permanent reinstatement of road surfaces may be required approximately six months following reopening of the road.

### 3.3.3 BRIDGE PARAPETS

New/ upgraded bridge parapets will be constructed as follows:

- Isolation of works area, including traffic management.
- One lane of the bridge will be closed at a time where possible. Where sufficient space is not available to accommodate a working area and live traffic, a road closure will be acquired and alternative access put in place.
- The existing bridge parapet/ railings will be removed where these exist.
- The underlying concrete will be scabbled and starter bars dowelled into the concrete.
- Formwork will be set up from the bridge deck for the construction of the reinforced concrete bridge parapet.
- Scaffolding will be set up as required. The parapet will be poured following steel fixing. Once the concrete has cured, the formwork will be stripped and the scaffolding removed.

- The lane will be opened, the second lane closed and the plant and equipment will be relocated to the location of the second parapet.

### 3.3.4 FLOOD DEFENCE WALLS

The construction of the reinforced concrete flood defence walls is likely to be carried out by traditional methods comprising the following activities:

- isolation of works area, including traffic management where the work area will overlap with a public road/ pedestrianised area,
- temporary works including silt barrages where in stream works are required,
- flow diversions and / or over pumping,
- excavation for foundations,
- blinding of formation,
- fixing of reinforcement,
- placing of formwork,
- placing of concrete,
- stripping of formwork,
- disposal of material to licenced facilities, and
- reinstatement of works area.

In certain locations, where there is a possibility of flood water passing underneath the flood defence wall foundations, either sheet piles or grouting techniques will be required to provide a cut-off. The sheet piles may be metal or plastic and will be driven to the required depth using a piling hammer or similar.

### 3.3.5 EARTHEN EMBANKMENTS

The construction of the earthen flood defence embankments is likely to comprise the following activities:

- Temporary works,
- Excavation for formation,
- Placing and compaction of suitable clay material,
- disposal of material to a licenced facility, and
- Reinstatement of area, including grass seeding.

### 3.3.6 DRAINAGE WORKS

The drains/ surface water sewers will be constructed by one of two methods as follows:

- Where the trench does not overlap with the footprint of the excavation for the flood wall, the trench of the drainage pipe will be set out. Where the trench is located in a road, the road will be saw cut. Where the trench is located in a grassed area, the topsoil will be removed and stored in close proximity to the trench. The trench will then be excavated to the required depth. Excavated material unsuitable for use as backfill material will be disposed of to an approved waste management facility. Pipe bedding will be placed, followed by the pipe and granular pipe

surround. Trenches in roads will be backfilled with granular material or lean mix concrete, depending on its location in accordance with DDTS (2017) *Guidelines for Opening, Backfilling and Reinstatement of Openings in Public Roads* and Cork City Council (2010) *Directions for Management and Control of Roadworks in Cork City*. Trenches in grassed areas will be backfilled with suitable excavated material, following which the original topsoil will be replaced. The trench will be left to consolidate for approximately six months, following which the surface layer will be removed is necessary, the backfill material will be supplemented and the trench reinstated.

- Where the trench overlaps with the footprint of the excavation for the flood wall, the steps outlined above will be taken. The order of excavation, pipelaying, backfilling and reinstatement will depend on the sequence of construction of the retaining wall and the proximity of the proposed retaining wall to the pipe trench. The pipe may be laid and partially backfilled prior to pouring of concrete for the wall. Pipelaying may alternatively take place following pouring of the base of the wall or following construction of the wall.

### 3.3.7 PUMPING STATIONS

The footprint of the pumping station will be set out. Where the proposed excavation is located in a paved area, the pavement will be saw cut. Where the proposed excavation is located in a grassed area, the topsoil will be removed and stored in close proximity to the excavation. The excavation will take place to the required depth. Excavated material unsuitable for use as backfill material will be disposed of to an approved waste management facility. Lean mix concrete blinding will be placed, followed by formwork and steel fixing. Once concrete has been poured and has cured, the formwork will be stripped and the area outside the pumping station will be backfilled. Excavations in grassed areas will be backfilled with suitable excavated material, following which the original topsoil will be replaced. Excavations in paved areas will be backfilled with granular material and reinstated to their original condition. Mechanical and electrical fit out of pumping stations will take place following backfilling.

### 3.3.8 OTHER INSTREAM WORKS

Other proposed works which would be carried out partially or wholly instream include:

- Local channel widening of the River Bride (referred to as a 'Winter Channel' on the scheme drawings in Appendix 3 of the EIAR,
- Construction of a sedimentation trap,
- Construction of roughing screens and a new trash screen,
- Removal of existing trash screens on the River Bride (North) and Glen River, and
- Removal of an existing sluice structure in the channel of the River Bride to the rear of the Dulux factory, and
- Fisheries enhancement measures will be provided at interference number C06 C02, downstream of McDonalds to the area adjacent to Blackpool Shopping Centre and will include 4 channel meanders with a low flow wetted area and stone deflectors and the provision of riparian zones including window boxes to provide vegetation cover (shading) in the river.

In general, these works will involve:

- Isolation of works area, and temporary works including silt barrages, flow diversions or over-pumping,
- Dismantling/ demolition and removal of the existing structure (in the case of sluice structure at Dulux and the screens on the River Glen and Bride North) and removal off site,
- Excavations,
- Blinding of formation (as required),
- Construction of sedimentation trap/ screen, following which
- The excavation will be backfilled, the area reinstated, flow redirected, and the works area reopened,
- Disposal of material to a licenced facility.

## 4 DESIGNATED SITES IN PROXIMITY TO THE PROPOSED PROJECT

### 4.1 EUROPEAN SITES

Section 3.2.3 of the DEHLG (2010) Guidance for Planning Authorities states that the approach to screening can be different for different plans and projects and will depend on the scale and the likely effects of the project. A key variable that will determine whether or not a particular Natura 2000 site is likely to be negatively affected is its physical distance from the project site.

Furthermore, UK guidance (Scott Wilson et al., 2006) state that a distance of 15km is currently recommended in the case of plans. For projects, the distance could be much less than 15km and in some cases less than 100m, similarly the activity may have an influence on works beyond 15km, but this must be evaluated on a case-by-case basis.

Given the nature of this project and the proposed construction methodology it is considered for the purpose of this screening exercise that the likely zone of influence is the zone immediately around the construction site and those sites that are hydrologically linked downstream.

A review of the National Parks and Wildlife Service database has identified the following European Sites (Natura 2000 sites) as potentially impacted by the proposed project, being in proximity or downstream of the works (See Figure 4.1):

- Great Island Channel SAC (Site Code:004219)
- Cork Harbour SPA (Site Code 004030)

#### **Cork Harbour SPA**

Cork Harbour SPA is located approximately 5 km downstream of where the River Bride (North) flows into the River Lee.

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The Cork Harbour SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel (north of Great Island), the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poul nabibe inlets (NPWS, 2008).

Intertidal flats are often muddy in character as a result of sheltered conditions but described principally as 'mixed sediment to sandy mud with polychaetes and oligochaetes' (NPWS, 2014a). These muds support a range of macro-invertebrates. Green algae are a common occurrence on the mudflats while Common Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places. Salt marshes are scattered through the site and these provide high tide roosts for waterbirds.

Cork Harbour SPA is an internationally important wetland site regularly supporting over 20,000 wintering waterbirds. In addition to the total number of winter waterbirds it supports, Cork Harbour is internationally important for its populations of black-tailed godwit (*Limosa lapponica*) and redshank (*Tringa totanus*) and of national importance for populations of 18 other species. The shelduck (*Tadorna tadorna*) population is the largest in the country with over 10% of the national total. Cork Harbour SPA also supports a nationally important breeding colony of common tern (*Sterna hirundo*). Three of the species of Special Conservation Interest are also listed on Annex I of the EU Birds Directive; golden plover (*Pluvialis apricaria*), black-tailed godwit (*Limosa lapponica*) and common tern (*Sterna hirundo*). Other Annex I species which occur regularly are whooper swan and ruff.

The wetland habitats contained within Cork Harbour SPA are identified to be of conservation importance for non-breeding (wintering) migratory waterbirds and are therefore a Special Conservation Interest for Cork Harbour SPA.

The following species are listed as conservation objectives for the SPA:

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

### Great Island Channel SAC

Stretching from Little Island to Midleton, with its southern boundary being framed by Great Island, Great Island Channel SAC is a minimum distance of 9.4 km via the River Lee from the proposed works.

The site consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. The site is designated as an SAC for the following Conservation Interests:

- Tidal Mudflats and Sandflats
- Atlantic Salt Meadows

Tidal Mudflats and sandflats are made up of mixed sediment to sand mud with polychaetes and oligochaetes community complex and are recorded throughout the intertidal and into the shallow subtidal area at this site. The closest area of mudflats and sandflats not covered by sea water at low tide are located over 9.4km from the proposed works.

The overall objective for Atlantic salt meadows in Great Island Channel SAC is to restore the favourable conservation condition. A total (ha) of Atlantic Salt meadows (including mosaics) within the SAC boundary is 18.90ha and is found at Harpers Island, Carrigtwohill, Foaty, Bawnard. Atlantic Salt Meadows within the SAC at the closest point to the project is over 10.5km downstream.

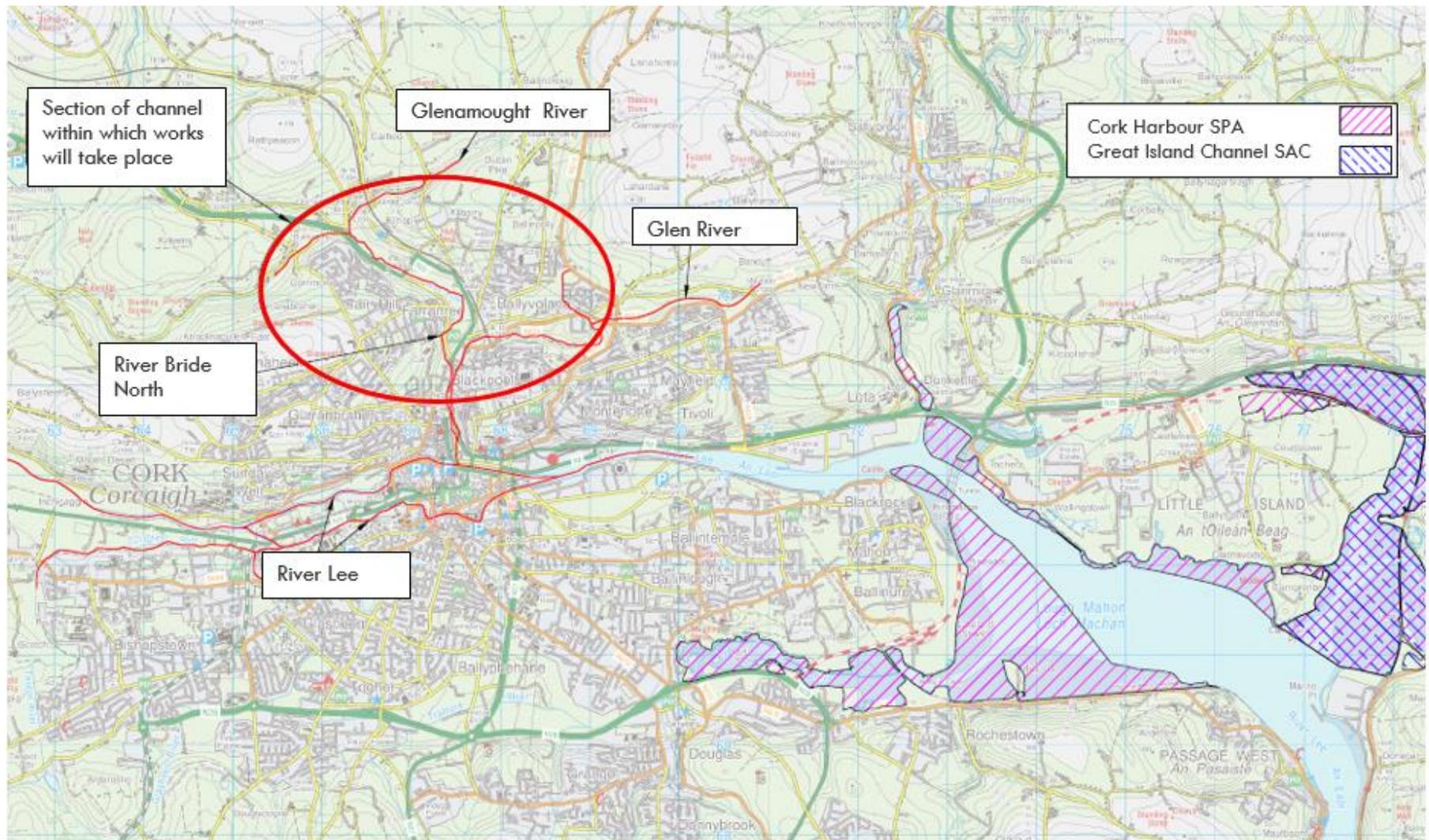


Figure 4.1: Location of European Sites in relation to works

## 4.2 IDENTIFICATION OF POTENTIAL IMPACTS

Both Cork Harbour SPA and Great Island Channel SAC are downstream of the River Bride in Cork Harbour. Cork Harbour has a history of problems associated with water pollution and eutrophication (e.g. ERU, 1989). In Cork City, extensive areas of estuarine habitat have been reclaimed since the 1950s for industrial, port-related and road projects, and further reclamation remains a threat to the SPA. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable and the estuary of the River Lee and parts of the Inner Harbour are somewhat eutrophic). The current water quality status of Cork Harbour is 'moderate' according to the South-Western River Basin Transitional and Coastal Waters Action Programme (SWRBD, 2010b) and therefore fails to meet the required standards as set by the Water Framework Directive. The contributing factors were below standard levels of dissolved inorganic nitrogen (DIN) and dissolved oxygen (DO) with waste water treatment plants (WWTP), combined sewer overflows and treatment plant overflows being the listed pressures.

### Cork Harbour SPA

Cork Harbour is a significant distance downstream of the proposed Project. However, taking a precautionary approach to assessment the following mechanisms by which an adverse effect on the Conservation Objectives of the SPA might potentially occur during construction activity including:

- Disturbance during construction to birds designated within the SPA that are using the River Bride in proximity to the works (e.g. Grey Heron);
- Smothering of habitats within the SPA by hydrological linkage as a result of deposition of increased suspended sediments arising from construction phase associated with the proposed works;
- Deterioration of habitats as a result of reduction in sediment load to the intertidal zone as a result of sedimentation trap and maintenance;
- Deterioration of habitats within the SPA by hydrological linkage as a result of spread of invasive species; and
- Deterioration of habitats within the SPA by hydrological linkage as a result of pollution incidences arising from construction or operation of the proposed works.

### Potential Impacts on Great Island Channel SAC

Great Island Channel SAC is over 9km downstream of the project. The following are three mechanisms by which an adverse effect on the Conservation Objectives of the SAC might potentially occur during construction activity, when considering a precautionary approach, as follows:

- Smothering of habitats within the SAC by hydrological linkage as a result of deposition of increased suspended sediments arising construction operations associated with the proposed works;
- Deterioration of habitats within the SAC by hydrological linkage as a result of pollution incidences arising from construction of the proposed works;
- Deterioration of habitats as a result of reduction in sediment load to the intertidal zone as a result of sedimentation trap and maintenance.

Site Name	Code	Conservation Objectives / Qualifying Interest	Potential connectivity / source pathway receptor link	Potential impact on QI
004030		To maintain the favourable conservation condition of the following bird species:		<b>Yes, potential impact as a result</b>

Site Name	Code	Conservation Objectives / Qualifying Interest	Potential connectivity / source pathway receptor link	Potential impact on QI
Cork Harbour SPA	A004	little grebe ( <i>Tachybaptus ruficollis</i> )	<p>Direct link with SPA via the River Lee for which the Bride (North) is a tributary.</p> <p>Foraging and roosting sites within the SPA &gt; 5km downstream.</p> <p>Species such as Grey Heron may use the Bride within the footprint of the works, (outside of the SPA) however the main site for designated roosting and foraging sites is within the SPA.</p> <p>Reduction in sediment road as a result of sediment traps on the River Bride is not likely result in any changes to the sediment accumulation in roosting sites within the SPA. The sediment trap is designed to intercept fluvial sediments (primarily small cobble sized material) that does not significantly contribute to the wetland habitat/ roosting habitat for which the SPA is designated.</p>	<b>of sediment or pollution runoff or spread of invasive species. Potential disturbance to birds using the River Bride (North).</b>
	A005	great crested grebe ( <i>Podiceps cristatus</i> )		
	A017	cormorant ( <i>Phalacrocorax carbo</i> )		
	A028	grey heron ( <i>Ardea cinerea</i> )		
	A048	shelduck ( <i>Tadorna tadorna</i> )		
	A050	wigeon ( <i>Anas penelope</i> )		
	A052	teal ( <i>Anas crecca</i> )		
	A054	pintail ( <i>Anas acuta</i> )		
	A056	shoveler ( <i>Anas clypeata</i> )		
	A069	red-breasted merganser ( <i>Mergus serrator</i> )		
	A130	oystercatcher ( <i>Haematopus ostralegus</i> )		
	A140	golden plover ( <i>Pluvialis apricaria</i> )		
	A141	grey plover ( <i>Pluvialis squatarola</i> )		
	A142	lapwing ( <i>Vanellus vanellus</i> )		
	A149	dunlin ( <i>Calidris alpina</i> )		
	A156	black-tailed godwit ( <i>Limosa limosa</i> )		
	A157	bar-tailed godwit ( <i>Limosa lapponica</i> )		
	A160	curlew ( <i>Numenius arquata</i> )		
	A162	redshank ( <i>Tringa tetanus</i> )		
	A164	greenshank ( <i>Tringa nebularia</i> )		
A179	black-headed gull ( <i>Chroicocephalus ridibundus</i> )			
A182	common gull ( <i>Larus canus</i> )			
A183	lesser black-backed gull ( <i>Larus fuscus</i> )			
A193	common tern ( <i>Sterna hirundo</i> )			

Site Name	Code	Conservation Objectives / Qualifying Interest	Potential connectivity / source pathway receptor link	Potential impact on QI
	A999	wetland habitat in Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it	Wetland habitat within the SPA present > 5km downstream. Intercepted fluvial sediments (primarily small cobble sized material) that does not significantly contribute to the wetland habitat for which the SPA is designated.	
001058 Great Island Channel SAC	1140	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater	No habitat present within the works area. Known habitat is present > 9km downstream of the works.	<b>Yes, potential impact as a result of sediment or pollution runoff or the spread of invasive species.</b>
	1130	To restore the favourable conservation condition of Atlantic salt meadows ( <i>Glauco Puccinellietalia maritimae</i> )	Intercepted fluvial sediments (primarily small cobble sized material) that does not significantly contribute to the mudflat and sandflat or saltmarsh habitat for which the SAC is designated.	

### 4.3 APPROPRIATE ASSESSMENT SCREENING CONCLUSION

The risk of potential pathways for impacts is slight, however, there are potential pathways for significant impacts to the conservation objectives of both European sites (Cork Harbour SPA and Great Island Channel SAC), in the absence of any best practice and pollution control, avoidance and mitigation measures, by impact and via the release of suspended solids or hydrocarbons or spread of invasive species that may enter the River Lee via the Bride (North) and have a negative impact on qualifying habitats and species. Therefore, applying the Precautionary Principle and in accordance with Article 6(3) of the Habitats Directive, the proposed River Bride (Blackpool) Certified Drainage Scheme has the potential to impact on the Qualifying Interests of European sites and should therefore be subject to a **Stage 2 Appropriate Assessment (NIS)**.

### 4.4 PURPOSE OF THE NATURA IMPACT STATEMENT

The Natura Impact Statement shall identify, in light of the best scientific knowledge in the field, all aspects of the Works that have the potential, either individually or in combination with other plans and projects, to affect the Cork Harbour SPA and Great Island Channel SAC in the context of its Conservation Objectives. In order to facilitate the competent authority in its Appropriate Assessment of the proposed Works, the Natura Impact Statement must contain complete, precise and definitive findings and include an examination, analysis, evaluations, findings, conclusions and a final determination.

## 5 IMPACT ASSESSMENT

In this stage the River Bride (Blackpool) Certified Drainage Scheme (either alone or in combination with other plans and projects) impact on the integrity of any European Site is considered with respect to the conservation objectives.

### 5.1 TYPES OF IMPACTS ARISING FROM THE WORKS

Potential significant impacts on habitats and species of conservation importance for European sites screened in during Stage 1 are examined, analysed and evaluated in this section. The types of impact identified, e.g. direct and indirect impacts, short- and long-term impacts, construction and operational phase impacts etc. arising from the Project are assessed in light of the COs set out for the QIs of those European sites.

#### Cork Harbour SPA

There will be no direct habitat loss within European sites as a result of the River Bride (Blackpool) Certified Drainage Scheme as the nearest site, i.e. Cork Harbour SPA is located > 5km downstream of where the River Bride meets the River Lee. Similarly, there will be no disturbance to the wintering and breeding bird species which are Special Conservation Interests for Cork Harbour SPA. Protected foraging and roosting sites for these species within the SAC are located >5km downstream of the proposed works. Any disturbance of foraging grounds will be temporary and small scale given the overall availability of habitat in the River Lee and downstream in the SPA.

Cork Harbour SPA could potentially be impacted by the proposed Project via surface water pathways e.g. silt laden run off or other pollutants from the site which may enter watercourses or which may enter the storm drain network out falling into adjacent watercourses or via groundwater pathways e.g. percolation of pollutants into groundwater bodies. Cork Harbour SPA is connected to the proposed works areas by the adjacent River Lee.

#### Great Island Harbour SAC

Great Island Harbour SAC is located a minimum distance of 9.5 km by surface water from the proposed works. Great Island Channel SAC is also connected to the proposed works on the River Bride (via the River Lee). The River Bride (North) supports a number of water dependent Annex I habitats and Annex II species, however, it does not support any Qualifying Interests which are listed in the conservation objectives for Great Island Channel SAC. Potential impacts, if any, on the habitats of Qualifying Interest in the Great Island Channel SAC, over 9km downstream from a project of this nature and scale, would be as a result of sediment runoff and pollution spills as a result of construction phase works.

#### Potential Impacts

Significant short-term impacts are predicted on a number of QIs for which Cork Harbour SPA and Great Island Channel SAC are designated as a result of the proposed works. These predicted impacts fall into the categories:

- Damage and disturbance or loss of habitat as a result of pollution events;
- Habitat degradation, e.g. sedimentation during construction or reduction in sediment supply at operational phase;
- Spread of invasive alien plant species.

## 5.2 POTENTIAL IMPACTS ON BIRDS AND WETLAND HABITAT FOR WHICH CORK HARBOUR SPA IS DESIGNATED

Construction of the proposed scheme creates the potential for habitat degradation downstream of the construction site through accidental input of sediment and/or construction material(s) into the watercourse. Pressure-grouting pose particular threats to the quality of the aquatic environment as the materials used are highly alkaline and, thus, can cause harm to fish and invertebrate prey necessary for maintaining bird populations. In addition, it is not always possible to predict if/where these materials will leak through cracks and fissures in the walls into the watercourse during injection. However, IFI (2016) contains best practice guidelines in relation to these issues and their inclusion in the Methods Statement will prevent any significant impacts of sedimentation/pollution on habitat quality.

The conservation objectives of Cork Harbour SPA include a number of bird species that use Cork City and the River Lee as foraging and roosting sites during high tide, in the area around the River Bride (North) the number of birds is relatively low. Species such as grey heron are found throughout the city. These species are highly habituated to disturbance and urbanisation. The construction phase of the work will result in some birds moving away from the works location, however this is temporary in nature and birds will habituate to this disturbance as well as returning to the site outside of construction hours and upon completion of the contract. In addition, given the number of SPA birds using the River Bride (North) area it is considered that there is sufficient foraging and roosting sites available outside of the working zone.

A sediment trap constructed as part of the River Bride (Blackpool) Certified Drainage Scheme will intercept fluvial sediments (primarily small cobble sized material), to help minimise the risk of large sediments settling in the Blackpool culvert system. These sediments do not significantly contribute to the makeup of wetlands within Cork Harbour SPA. The impact of the loss of intercepted materials at Blackpool is not considered to be of significance to the function of the site due to the material being intercepted and the scale of the SPA in the context of the works.

Invasive species are found along the Scheme footprint, a management programme is in place along the Glenamought and Bride (North) and annual treatment for their management is currently in place. There is some risk of invasive species spread as a result of the works and biosecurity measures will be required as both species are known to colonise along the edge of these mudflats and sandflats.

In consideration of the above, the construction and operation of the Project, in the absence of appropriate mitigation measures, will be likely to have significant direct and indirect negative impacts on Bird Species using the wetland area downstream in Cork Harbour SPA.

## 5.3 POTENTIAL IMPACTS ON MUDFLATS AND SANDFLATS NOT COVERED BY SEAWATER AT LOW TIDE AND ATLANTIC SALT MEADOWS FOR WHICH GREAT ISLAND CHANNEL SAC IS DESIGNATED

Construction of the proposed scheme creates the potential for habitat degradation downstream of the construction site through accidental input of sediment and/or construction material(s) into the watercourse. Instream works, dredging and regrading of the river bed, use of cement and pressure-grouting all pose a threat to water quality should works be carried out inappropriately and can cause harm to fish and invertebrate populations that make up these habitats. However, IFI (2016) contains best practice guidelines in relation to construction and their inclusion in the Methods Statement will prevent any significant impacts of sedimentation/pollution on habitat quality.

A sediment trap constructed as part of the River Bridge (Blackpool) Certified Drainage Scheme will intercept fluvial sediments (primarily small cobble sized material), to help minimise the risk of large sediments settling in the Blackpool culvert system. These sediments do not significantly contribute to the makeup of mudflats and

sandflats within Great Island Channel SAC and are unlikely to contribute in any way to saltmarsh habitat within the SAC. The impact of the loss of intercepted materials at Blackpool is not considered to be of significance to the function of the site due to nature of the material being intercepted, the distance to the SAC and the scale of the SAC in the context of the works.

As for Cork Harbour SPA, it is noted that invasive species are present along the Scheme footprint. There is some risk (all-be-it limited) of these Japanese Knotweed and Giant Rhubarb spreading to the marine environments as they have been known to grow on the edges of coastal habitats. In order in order to avoid any spread as a result of the works biosecurity measures will be required.

Therefore, it is considered that the construction and operation of the Project, in the absence of appropriate mitigation measures, would be likely to have significant negative impacts downstream on the qualifying interests of Great Island Channel SAC.

## 6 CUMULATIVE IMPACTS WITH OTHER PLANS/PROJECTS

In order to fully assess the potential impact of the proposed development on European sites, the project must be assessed alone or in combination with existing activities and proposed plans for the region. The main driver for addressing plans in combination is to ensure that cumulative effects are captured. For example, the effects of a plan on water quality may be insignificant when considered alone, but when in combination with the effects of increased pollution from other plans or projects, may lead to significant adverse impacts on site integrity.

Determining which plans and projects to consider requires a pragmatic approach given the nature and scale of development; proximity to European Sites; and the potential pathways of risk. Current best practice and available guidance suggests a staged approach, as follows:

- if it can be clearly demonstrated that the plan will not result in any effects at all that are relevant to European site integrity, then the plan should proceed without considering the in-combination test requirement in the Screening further; or,
- if there are identified effects arising from the plan, even if they are perceived as minor and not likely to have a significant effect on the European site alone, then these effects must be considered in combination with the effects arising from other plans and projects.

Individual elements of a project or plan for which there is predicted be no effects at all or inconsequential effects on the European site or because those elements are too general in nature do not require an in-combination assessment since, clearly, they will either have no cumulative effects or cumulative effects cannot be identified.

In the case of the proposed Works for the River Bride (Blackpool) Certified Drainage Scheme, the Works provide for potentially significant adverse effects on species listed as QIs of the Cork Harbour SPA and Great Island Channel SAC. Therefore, an assessment of the potential cumulative impacts of the Project with other plans or projects in the likely zone of impact must be undertaken.

Myplan.ie, Cork County Development Plan 2014 – 2020 and Cork City Development Plan 2015 - 2021 were consulted in order to determine if there were any other plans or projects in the area which could result in cumulative impacts.

The River Bride (Blackpool) Certified Drainage Scheme previously formed part of the larger Lower Lee (Cork City) Drainage Scheme, which is now divided into two Schemes. The Lower Lee (Cork City) Drainage Scheme is currently at design stage with a proposed submission to DPER in 2019. Both schemes are outside of any European site and will include measures for the avoidance and prevention of deterioration to water quality during construction. With mitigation in place the River Bride (Blackpool) Certified Drainage Scheme will have no significant impact on water quality or downstream habitats and species associated with European Sites.

The Lower Lee (Cork City) Drainage Scheme and the River Bride (Blackpool) Certified Drainage Scheme are identified within the Cork City Development Plan in order to address the flooding in the lower reaches of the River Lee and the River Bride in Blackpool and Ballyvolane. The Plan has been subject to Flood Risk Assessment and Appropriate Assessment Screening. Morrison's Island Public Realm and Flood Defences also makes up part of the city's flood alleviation and is subject to Appropriate Assessment for the project.

Other Flood Schemes in Cork City which linked to the River Lee and consequently downstream European Sites include Glashaboy Flood Relief Scheme which is currently awaiting confirmation. The project documents include a Natura Impact Statement with a suite of mitigation measures to ensure the prevention of impact on downstream European Sites. inage Scheme will not have an adverse effect on the integrity of the above Natura

2000 sites. There will be no significant change to the physical and hydrological regimes of the Glashabouy River and the impact on the habitats and species of the European sites will be negligible. The report concludes that the proposed project will not have an adverse effect on the integrity of Cork Harbour SPA and Great Island Channel SAC.

An AA Screening Report was carried out for the Douglas Flood Relief Scheme in 2017. The report concluded that based on the proposed design that the project does not present any risk of a directly adverse impact on habitats for the downstream European Sites (Cork Harbour SPA and Great Island Channel SAC) and NIS was not required.

An AA Screening report was prepared for the Cork City Development Plan which identified the following potential impacts on the Cork Harbour SPA and the Great Island Channel SAC as a result of the implementation of the development plan:

- Direct loss of habitat from construction of new residential and other developments to cater for an increasing population within Cork's administrative area;
- Reduction in water quality due to new WWTP;
- Damage / Degradation of Habitats and Disturbance to Species due to construction and development activities in close proximity to Cork Harbour SPA;
- Reduction in water flows;
- Spread of invasive alien species disturbed during construction activities.

No developments within the Cork City Development Plan are proposed for within the boundaries of Cork Harbour SPA, therefore no direct loss of habitat through land take or fragmentation is anticipated. There are no plans for the construction of any major infrastructure. According to the AA Screening report *"it is the aim of the Council to ensure that the EU Water Framework Directive is implemented. This objective is to ensure that development would not have an unacceptable impact on water quality and quantity, which includes surface water, ground water, designated source protection areas, river corridors and associated wetlands, estuarine waters, coastal and transitional waters. Such water quality objectives will ensure that the River Lee, its tributaries, Cork Harbour SPA and Great Island Channel SAC are protected, and therefore, will not result in any indirect impacts on the Natura 2000 sites"*. Measures to control and prevent the introduction and establishment of ecologically damaging alien invasive species, such as good site hygiene practices for the movement of materials into, out of and around the site and ensuring that imported soil is free of seeds and rhizomes of invasive plant species, will also be implemented as part of the development plan. The AA Screening concluded that there would be no negative impacts on Cork Harbour SPA or Great Island Channel SAC as a result of the development plan. Cork City Development Plan identified and support proposal for the redevelopment of the Port of cork.

Cork Harbour SPA and Great Island Channel SAC were brought forward for NIS due to the potential for impacts identified relating to Port Activities. A series of objectives and policies have been put in place in order to protect the site from activities and development. Objective TM 5 -2 ensures no adverse effect on European sites by the following *"The Council is committed to engage with the Port of Cork and other relevant stakeholders in achieving this objective in a manner that is compatible with environmental, landscape and nature conservation designations that pertain to the harbour area."*

There is no in combination impact as a result of the proposed Project.

A separate Local Area Plan, (LAP) exists for the North Blackpool area of the city which provides for the development and rejuvenation of the north Blackpool area over the six-year LAP timeframe but also sets out the longer term strategic development framework for the area. The plan study area includes the former

Sunbeam site and adjoining lands, Blackpool Shopping Centre and Retail Park, the Kilbarry rail site and Kilbarry IDA industrial estate, extending northwards along Old Whitechurch Rd, southwards to the North City Link Rd 'fly-over,' eastwards to Ballyvolane Rd, and west/northwest to Commons Rd and Fitz's Boreen. An AA Screening report was prepared for the project which concluded that further appropriate assessment was not required and that the Blackpool Local Area Plan was unlikely to have a significant negative impact on Cork Harbour SPA. Given that Cork Harbour SPA is located > 5km downstream of the proposed River Bride (Blackpool) Certified Drainage Scheme and the scale of the project; there is unlikely to be any cumulative impacts as a result of the proposed works considered in combination with the Blackpool Local Area Plan 2001-2015.

Other plans and projects within the region include:

- Regional Planning Guidelines for the South-West Region 2010-2022;
- South-Western River Basin Management Plan 2009-2015;
- Cork Area Strategic Plan Update 2008;
- Draft Mahon Local Area Plan 2014-2020;
- South Docks Local Area Plan 2008-2018;
- Farranferris Local Area Plan 2009-2015;
- North-West Regeneration Masterplan 2011;
- Water Services Investment Programme;
- IPPC Programme;
- Local Authority Discharge;
- Groundwater Pollution Reduction Programmes;
- Surface Water Pollution Reduction Programmes;
- Draft Lee Catchment Flood Risk Assessment and Management Study.

The plans identified above include policies and objectives aimed at protecting the natural environment, including Natura 2000 sites and all projects likely to have a significant effect on Natura 2000 sites will be subject to Appropriate Assessment Screening and projects will only be approved if they comply with the Habitats Directive. No other pathway has been identified by which any of the plans and programmes identified could have a significant 'in combination' effect on any of the Natura 2000 sites identified.

Furthermore, project/site specific best practice measures will be implemented for any further site investigation and construction works of the River Bride (Blackpool) Certified Drainage Scheme in order to avoid pollution and/or sedimentation of watercourses as a result of run-off from construction activities. Measures will also be put in place to ensure non-native invasive species within the works area are not disturbed and spread as a result of the proposed works. Where required, an invasive species management plan will be prepared with proposals for advanced works contracts (where necessary) in order to manage existing invasive species infestations. Therefore, no "in-combination" effect on any Natura 2000 site is anticipated as a result of the proposed project.

## 7 MITIGATION MEASURES

The significant impacts predicted in Section 5.0 require appropriate mitigation measures so that the project will not lead to significant effects on Cork Harbour SPA and Great Island Channel SAC in light of their conservation objectives.

Section 7.1 and 7.2 recommends mitigation measures for each of the QIs considered likely to be affected by the Works. The measures outlined in the following sections are recommended in light of significant effects likely to arise from the Works where impacts are predicted.

Therefore, it is considered that the construction and operation of the Project, in the absence of appropriate mitigation measures, would be likely to have significant negative impacts downstream on the qualifying interests of Great Island Channel SAC.

### 7.1 Mitigation for Bird Species and Wetlands of Cork Harbour SPA and protected habitats in Great Island Channel SAC

The impact of temporary habitat loss within the SPA for birds and their associated wetlands during the construction phase has the potential to give rise to significant effects. Similarly, there is risk of temporary impact on saltmarsh and mudflats habitats as a result of construction runoff and pollution. However, provided that works include best practice pollution control measures there will be no significant effect. The potential for habitat degradation through input of sediment and/or construction material(s) into the harbour during the works shall be managed by strict adherence to standard best practice guidance, i.e. IFI (2016) and NRA (2008). Particular attention shall be paid to Section 10.4 of IFI (2016). There are not predicted to be any significant long-term effects as a result of the works. Therefore, no specific measures to mitigate for long-term effects on these bird species are proposed.

**Mitigation for Sedimentation:** In light of the potential abiotic changes to the River Bride (North) and the downstream River Lee and harbour area as a result of sedimentation during the construction stage, it is considered prudent to require the Contractor to prepare and implement a Construction Pollution Control Plan (CPCP) as part of the Construction and Environmental Management Plan. This plan shall include the following elements:

1. Limiting of site works to the minimum area and timescale required to undertake the necessary elements of the Works;
2. Formulation of a Dust Minimisation Plan for the Works;
3. Direction of site drainage through a settlement facility prior to discharge and provision of temporary facilities to trap any accidental spillage;
4. A Method Statement for the Works to be submitted to IFI to ensure that the proposed methods satisfy fisheries requirements;
5. Promotion of awareness of the importance of site management and the freshwater environment amongst site personnel; Toolbox talks to be given by a qualified ecologist to all contractor personnel.
6. Restriction of topsoil stripping to dry weather conditions;
7. Pouring of concrete, sealing of joints, application of water-proofing paint or protective systems, curing agents etc. to be completed in the dry;
8. Storage of oils, fuel, chemicals, hydraulic fluids etc. to be located at least 10 m from the stream on an impervious base within a bund and appropriately secured; and,

9. All machinery operating in and near the River Bride (North) to be steam-cleaned in advance of Works and routinely checked to ensure no leakage of oils or lubricants and all fuelling of machinery to be undertaken a minimum of 10 m from watercourses.

It is considered that the implementation of such a CPCP will mitigate against any residual adverse effects arising from the Works on the integrity of Cork Harbour SPA and Great Island Channel SAC in terms of its structure and function.

## 7.2 Mitigation to avoid the spread of Invasive Plant Species

An Invasive Species Management Plan is currently underway along the River Bride (North) and Glenamought. The plan is currently chemically treating plants to prevent further spread.. The removal and / or disturbance of soil contaminated with invasive species as a result of the works will require biosecurity measures and management.

The following measures will be implemented to avoid the spread of invasive plant species:

- A survey will be carried out to map the extent of invasive species and an Invasive Alien Plant Management Plan will be put in place prior to commencement of construction. The survey will have regard to previous surveys carried out and any recently treated infestations which may have no above ground plant visible.
- A management programme will be put in place which will also prevent spread during construction.
- Treatment will be carried out by a suitably qualified person and will involve the use of herbicides approved for working in proximity to an aquatic environment.
- A bio-security protocol will be put in place during the construction phase of the development. This will ensure that all plant machinery and equipment will be thoroughly cleaned and inspected for any fragments of knotweed prior to leaving site.
- All construction staff will receive training in the identification and management of the invasive species, including identification of knotweed rhizomes, to verify the clearance of any area.

**Table 7.1: Assessment of potential impacts on Natura 2000 sites**

European Sites (SAC, SPA)	Qualifying Interest (Conservation Objective)	Presence within the SPA/Zone of influence	Potential Impact	NIS Conclusion
Cork Harbour SPA	Little grebe ( <i>Tachybaptus ruficollis</i> )	Foraging and roosting sites within the SPA > 5km downstream. Species such as Grey Heron are likely to use the River Bride (North) in proximity of the works, (outside of the SPA) however the main site for designated roosting and foraging sites is within the SPA.	SPA site is located 5 km downstream of where the River Bride (North) flows into the River Lee. Best practice pollution control measures and mitigation as identified in Section 7 above will result in reductions in pollution and sediment release and spread of invasive plant species. While a limited number birds protected within the SPA will be found using the River Bride, where works are proposed they are habituated to disturbance and will not be significantly impacted by disturbance during the construction phase.	No potential Impact
	Great crested grebe ( <i>Podiceps cristatus</i> )			No potential Impact
	Cormorant ( <i>Phalacrocorax carbo</i> )			No potential Impact
	Grey heron ( <i>Ardea cinerea</i> )			No potential Impact
	Shelduck ( <i>Tadorna tadorna</i> )			No potential Impact
	Wigeon ( <i>Anas penelope</i> )			No potential Impact
	Teal ( <i>Anas crecca</i> )			No potential Impact
	Pintail ( <i>Anas acuta</i> )			No potential Impact
	Shoveler ( <i>Anas clypeata</i> )			No potential Impact
	Red-breasted merganser ( <i>Mergus serrator</i> )			No potential Impact
	Oystercatcher ( <i>Haematopus ostralegus</i> )			No potential Impact
	Golden plover ( <i>Pluvialis apricaria</i> )			No potential Impact
	Grey plover ( <i>Pluvialis squatarola</i> )			No potential Impact
	Lapwing ( <i>Vanellus vanellus</i> )			No potential Impact
	Dunlin ( <i>Calidris alpina</i> )			No potential Impact
	Black-tailed godwit ( <i>Limosa limosa</i> )			No potential Impact
	Bar-tailed godwit ( <i>Limosa lapponica</i> )			No potential Impact
	Curlew ( <i>Numenius arquata</i> )			No potential Impact
	Redshank ( <i>Tringa tetanus</i> )			No potential Impact
	Greenshank ( <i>Tringa nebularia</i> )			No potential Impact
Black-headed gull ( <i>Chroicocephalus ridibundus</i> )	No potential Impact			
Common gull ( <i>Larus canus</i> )	No potential Impact			
Lesser black-backed gull ( <i>Larus fuscus</i> )	No potential Impact			
Common tern ( <i>Sterna hirundo</i> )	No potential Impact			

European Sites (SAC, SPA)	Qualifying Interest (Conservation Objective)	Presence within the SPA/Zone of influence	Potential Impact	NIS Conclusion
	Wetlands	Wetland habitat within the SPA present > 5km downstream	No potential impact downstream. No wetland habitat present within the works area. Best practice pollution control measures and mitigation as identified in Section 7 above will result in reductions in pollution and sediment release and the spread of invasive plants species.	No potential Impact
Great Island Channel SPA	Mudflats and sandflats not covered by seawater at low tide	Protected wetland habitats over 9km from the River Bride (North)	SAC site is located > 9 km downstream of the proposed works. Best practice pollution control and mitigation measures as identified in Section 7 above will result in reductions in pollution and sediment release and the spread of invasive plant species.	No potential Impact
	Atlantic salt meadows (Glaucopuccinellietalia maritimae)			No potential Impact

## 8 CONCLUSIONS

Potential impacts during the proposed River Bride (Blackpool) Certified Drainage Scheme Construction and Operational Stage have been considered in the context of 2 European sites: Cork Harbour SPA and Great Island Channel SAC and their Conservation Objectives.

It has been concluded that, taking a precautionary approach, in the absence of pollution control and mitigation measures, significant adverse effects on the Qualifying Interests of Cork Harbour SPA and Great Island Channel SAC and their respective Conservation Objectives could arise from the Project. The likely significant effects of the proposed Works are limited to input of pollution spills, sediment and/or construction material(s) and the spread of invasive plant species on the Qualifying Interests of the sites. The Natura Impact Statement has proposed appropriate mitigation measures intended to eliminate these effects or, where this is not possible, to minimise these effects such that they can no longer be judged to be significant. These measures include:

Implementation of a Construction Pollution and Sediment Control Plan and the implementation of an Invasive Alien Plants (IAPs) Management Plan. Any residual effects remaining after the implementation of the mitigation measures proposed have been assessed as being insignificant in light of the site's Conservation Objectives.

Having had due regard to all current guidance on the assessment of plans and projects that would be likely to have significant effects on European sites and having prepared this Natura Impact Statement, it has been concluded, in view of best scientific knowledge and on the basis of objective information, that the proposed Project, either on its own or in combination with other plans and projects and given adherence to best practice guidelines and implementation of the mitigation measures proposed, would not give rise to any direct or indirect significant adverse effects on any European Site designated for nature conservation.