



Plate 9.15: View of bridges over River Bride from behind the N20 and Fitz's Boreen



Plate 9.16: River Bride in grounds of Dulux Paints to the east of the N20

Further south the river passes through Sunbeam Industrial Estate and then through Blackpool Retail Park where it runs through an area of open space. The river is clearly visible here from the buildings, the open space and play area and the walkways along the river. Considerable vegetation and trees are also evident. This is one of the areas in the Study Area where the river is most visible to the public.

However only a small section of the river is visible from the N20 as it is at a lower level from the road and screened by vegetation. This is shown in Plate 9.17 below.



Plate 9.17 Views towards the River Bride in Blackpool Retail Park

South of the Blackpool Retail Park, and Shopping Centre, the river is culverted in sections and is visible in the residential development at Orchard Court. Here, views to the river are restricted by dense vegetation along the riverbank, and views of the river itself are intermittent. Built form also restricts views from outside the immediate vicinity, as shown in Plates 9.18 and 9.19 below, with views from the immediate vicinity of the river available. Concrete barriers obstruct the footpath along the river at Orchard Court.

Further downstream, Plates 9.20 and 9.21 show views of the river where the river flows adjacent to Blackpool Church. Plate 9.20 shows the hard surfaced plaza where the river shows underneath, while Plates 9.21 shows that the river is visible downstream of the plaza. Plate 9.22 illustrates the southern end of the study area, where the river flows under the Watercourse road and is not visible.



Plate 9.18 Intermittent views towards the River Bride in Orchard Court



Plate 9.19 Views from bridge over River Bride in Orchard Court



Plate 9.20 Views from plaza adjacent to Blackpool Church where River Bride flows underneath



Plate 9.21 Views to river downstream of plaza in Plate 9.19 above



Plate 9.22 Views towards junction of Watercourse Rd and N20 where the River Bride flows under the road

In summary, the text and images above illustrate that views of the River Bride, Glenamought and Glen within the study area are intermittent and are confined to the immediate vicinity of the river. There are no long distance views of the river. The river Bride flows largely to the rear of the buildings along the Commons road and many sections of the river are screened by buildings (and some vegetation) along the Commons Road.

Areas where the river Bride is most clearly visible include the area close to the junction of Fitz's Boreen and the N20, as well as the Blackpool Retail Park where the river flows through an open space. The river also is visible but intermittently so through Orchard Court, and a small section it is visible adjacent to the Blackpool Church where it emerges from underneath the plaza.

9.5 PHOTOMONTAGES

9.5.1 Limitations of Photomontages

Photomontages are visualisations that superimpose an image of a proposed development upon a photograph or series of photographs. They are intended as graphical representations of the likely appearance of the proposed development in the existing landscape.

Visualisations such as photomontages are tools that can represent the likely effect of a development at a particular time and are used to inform the viewer's prediction of how that development will appear. In terms of impact quality however, i.e. whether a visual impact is deemed to be positive, negative or neutral, this involves a degree of subjectivity.

9.5.2 Location of Photomontages

A series of 14 photomontages has been prepared as part of the EIS, which show the proposed scheme from different locations in the receiving environment. The photo-locations are illustrated in Figure 9.4.

Map Legend


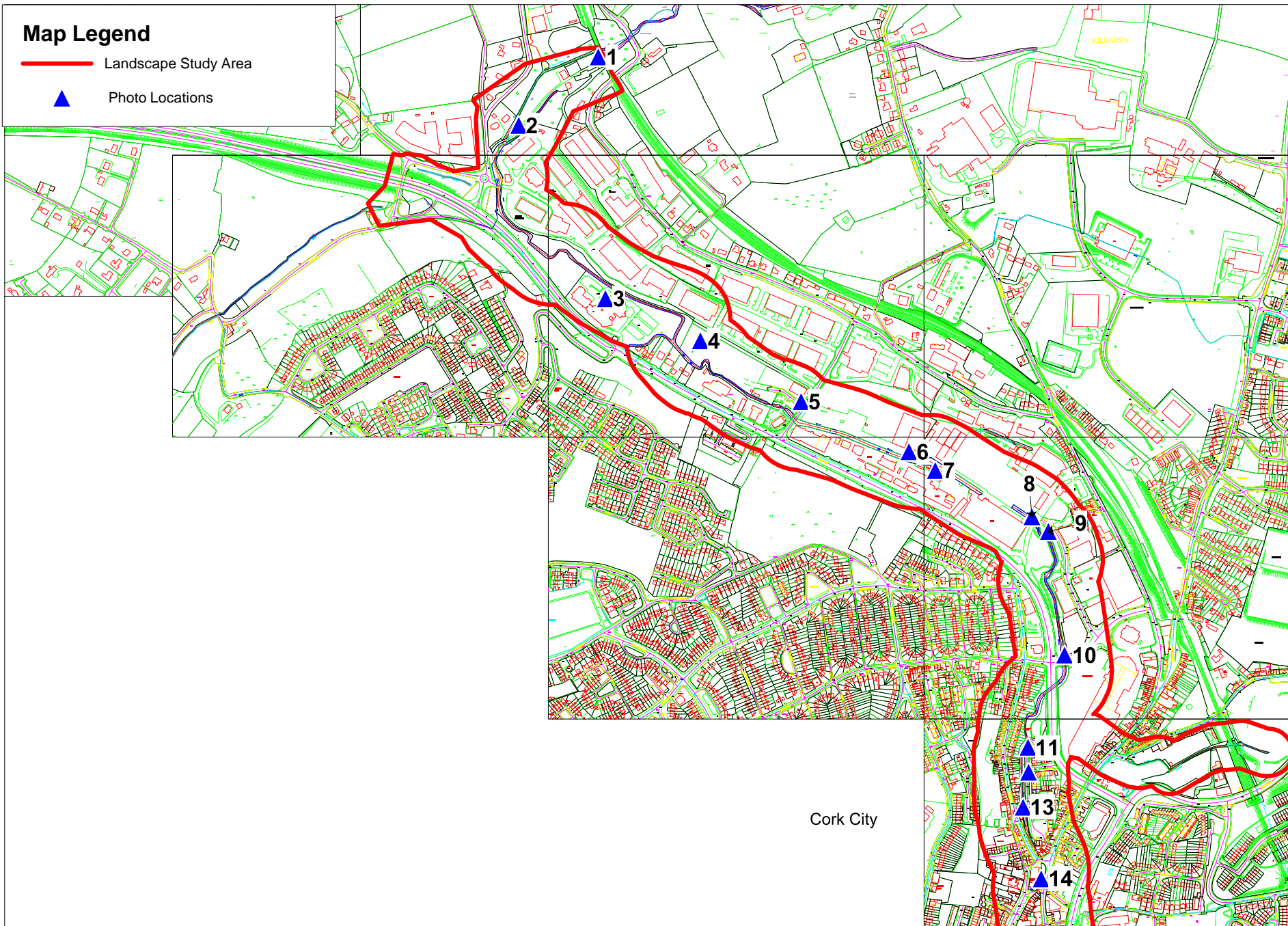
 Landscape Study Area

 Photo Locations



 McCarthy Keville O'Sullivan	MAP TITLE: Photo Locations Map		MAP NO.: Figure 9.4	SCALE: 1:11000
	PROJECT TITLE: 121004a - River Bride (Blackpool) Certified Drainage Scheme			DATE: 28-10-2015
	DRAWING BY: Evelyn Sikora	CHECKED BY: Michael Watson		ISSUE NO.: 121004a-2015.10.28-D1
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These locations were chosen to represent a number of views throughout the study area. These represent views from both private and public land, as the works will be carried out on both public and private lands, including areas close to residences.

The photomontages represent views which may be available to a large number of people from public areas such as roads and walkways, and also represent views from retail and industrial parks, including areas in Blackpool Retail Park and outside Blackpool Church. Views which illustrate the potential impacts on residential areas are also included - Orchard Court in the south of the study area and Kilnap Glen House in the north of the study area. Photomontages from areas where public access is restricted such as the Dulux Paints factory are also represented.

Also included area areas such as those represented in Photomontage 4 which are not publicly accessible but where views from residences will be subject to change.

An existing view is shown from each photo-location to provide a representation of the current view, and then a proposed view is presented in order to illustrate the difference. A brief description of each view is also included.

Photo Location 1



Plate 9.23: Photo Location 1 – Existing View



Plate 9.24: Photo Location 1 – Proposed View showing proposed embankment

Photo Location 1 - Existing View

The existing view above shows a view towards Kilnap Glen House and its gardens in the north of the study area. The River Glenamought flows to the right of the image. This area is designated as an Area of High Landscape Value and is characterised by mature gardens, with trees to the left and right of the house, and grass with a gentle slope towards the riverbank and a slight embankment to the right of the house.

Photo Location 1 - Proposed View

The proposed view shows the low grass embankment to the left of the image which wraps around the rear and side of the house. The grass embankment blends in well with the surroundings and represents a minor change in the character of the surroundings, as the Existing View shows that a grass embankment is already a feature of this landscape. There are no significant vegetation removal associated with the proposed embankment and this minimises the visual impact.

Photo Location 2



Plate 9.25: Photo Location 2 – Existing View looking towards bridge in grounds of Kilnap Glen House



Plate 9.26: Photo Location 2 – Proposed view looking towards Replacement Bridge in grounds of Kilnap Glen House

Photo Location 2 - Existing View

The existing view looks towards an existing bridge is an area characterised by mature trees, grass lawns which is relatively private and enclosed in the grounds of Kilnap House, but close to the junction with Sweeney's Hill. The main elements of the view include a grass lawn in the foreground, and a bridge and track with considerable mature trees in the background.

Photo Location 2 – Proposed View

The proposed works will result in the loss of some mature trees along the bridge, and this will result in some opening of views of buildings and landscape beyond. As many trees are to be retained as possible to maintain privacy and the character of the area. The bridge itself is more visible but not considered unduly obtrusive – the main difference is the vegetation removal and the change in level, which consists of re-grading of the ground levels which are then grassed. While these changes will be noticeable, tree loss will be minimised

Photo Location 3



Plate 9.27: Photo Location 3 – Existing View looking towards riverbank and vegetation at Commons Inn car park



Plate 9.28: Photo Location 3 – Proposed View looking towards proposed wall and grass embankment

Photo Location 3 - Existing View

The existing view is towards the riverbank at the rear of the Commons Inn car park. The main elements are the semi mature trees and dense vegetation which line the riverbank. There are considerable areas of grass, and an embankment planted with shrubs to the right of the image. In the background, a glimpse of an industrial unit is visible across the river.

Photo Location 3 – Proposed View

The proposed works will result in the loss of some semi mature trees along the river bank and in the grassed area, however a large number are to be retained and will maintain the screening effect. The proposed embankment will be grassed and will blend in to the surroundings, and is low enough to allow visibility. Vegetation re-growth is to be allowed to further minimise visual impact. The proposed wall ties in with the embankment and is relatively low, allowing views. The changes are noticeable but constitute a minor change in the overall character of the environment.

Photo Location 4



Plate 9.29: Photo Location 4 –Existing View



Plate 9.30: Photo Location 3 – Proposed View

Photo Location 4 - Existing View

The existing view is taken from an area of currently disused land which has restricted access but which looks towards the backs of houses along the river Bride. The view shows low and medium vegetation in the foreground, and the River Bride, though not visible, flows to this side of the wall which is topped by a metal railing. Behind this wall, screening vegetation is evident and prevents views to the wider landscape, but some glimpses of buildings are visible through gaps in the screening.

Photo Location 4 – Proposed View

The proposed view shows that the foreground is undisturbed. The vegetation along the river, close to the wall, has been removed, which results in opening up views to the houses and back gardens. However the existing wall is replaced by a concrete wall with a timber panel fence on top to assist screening. It should be noted that the side of the wall which faces the rear gardens will be clad in sandstone to reduce visual impact. This view is not one which is currently publicly accessible.

Photo Location 5



Plate 9.31: Photo Location 5 – Proposed View looking towards river from Fitz’s Boreen



Plate 9.32: Photo Location 5 – Proposed View looking towards river with proposed bridge replacement

Photo Location 5 - Existing View

The existing view shows the view from Fitz's Boreen towards the N20 with the McDonald's Drive Thru and bridge in the foreground. The urban and industrial character of the area is evident, and the Commons Ridge is visible in the background. There are no clear views of the river itself, and the railings allow views of the buildings across the river.

Photo Location 5 – Proposed View

The proposed view shows the replaced bridge and slight re-grading of the road. Low flood walls on the opposite bank (to the rear of the filling station) are barely visible due to the railings. There is a small amount of vegetation removal evident to the right of the filling station along the river, which is due to the proposed flood wall but the majority of the vegetation is to be retained.

The proposed photomontage illustrates that although the changes are noticeable they are not significant and are in keeping with the urban character of the area.

Photo Location 6



Plate 9.33: Photo Location 6 –Existing View



Plate 9.34: Photo Location 6 – Proposed View

Photo Location 6 - Existing View

This view is taken from within the Dulux Paints yard so access to this location is restricted. The view shows a concrete yard in the foreground with an industrial building in the background, and the river, though not actually visible, flows in the middleground, where it flows in a concrete channel. A metal railing and a low concrete wall surrounds the river channel.

Photo Location 6 – Proposed View

The proposed view shows the railing had been removed and the proposed flood defence wall is constructed. There is no change in visibility in this location as the river is not visible in the existing view. The proposed wall is clearly noticeable, however it is entirely in keeping with the industrial character of the yard and does not represent a major change in the character or views at this location.

Photo Location 7 - Existing View



Plate 9.33: Photo Location 7 –Existing View



Plate 9.33: Photo Location 7 –Proposed View

Photo Location 7 - Existing View

The existing view is taken from an industrial location - the Dulux Paints yard - and shows a concrete yard with a concrete wall in the foreground, with concrete post and wire fencing on top of this. The river is behind this wall and not visible from this location. Some vegetation is visible to the right in the foreground. In the background, a concrete yard is visible, with industrial units, dwellings interspersed with trees on the sloping land in the distance.

Photo Location 7 – Proposed View

The proposed view illustrates the proposed works, which show the existing river wall to be retained (subject to assessment). On the opposite river bank, the ramp and walls of the proposed sediment trap are visible from this location. The height wall of the sediment trap will reduce views to the yard behind, and will result in the removal of some vegetation, however views to the river are unchanged as the river is not visible in the existing view. The views to the landscape in the background are unchanged. The character of the proposed works are compatible with that of the industrial character of the location and the changes to this view, while noticeable, are not considered to be major change at this location.

Photo Location 8



Plate 9.34: Photo Location 7 –Existing View looking from bridge in Sunbeam Industrial Estate



Plate 9.35: Photo Location 7 – Proposed View looking from bridge in Sunbeam Industrial Estate

Photo Location 8 - Existing View

The existing view from the bridge in the Sunbeam Industrial Estate shows the river channel in the centre of the view, which is lined with vegetation growing at the water's edge. The river is contained within a concrete channel in the foreground, and further upstream, a culvert is visible, although vegetation partially obscures this. To the right is a concrete yard, while to the left are the buildings to the rear of the sunbeam industrial estate.

Photo Location 8 – Proposed View

The proposed view shows the railings and vegetation along the river channel have been removed. The bridge parapet and flood walls have been removed and replaced with low concrete walls along with railings and a crash barrier is visible to the right of the image. The culvert has been removed and replaced with an open channel, so that a greater extent of the river is now visible. To the right of the river channel, a new access road is visible. The vegetation removal results in a greater amount of hard surface visible, however the river is increasingly visible and more open in nature. The changes, while clearly noticeable, are consistent with the industrial character of the area.

Photo Location 9 - Existing View



Plate 9.36: Photo Location 9 –Existing View from Blackpool Retail Park



Plate 9.37: Photo Location 7 –Proposed View from Blackpool Retail Park

Photo Location 9 - Existing View

The existing view is taken from the open space in Blackpool Retail Park. The view shows a grassed area in the foreground, with a railing and dense vegetation which screen the River Bride from view. Mature trees are visible to the right of the image. The buildings of the Retail Park and Shopping Centre are clearly visible to the left and centre of the image, and the Ballyvolane ridge is just visible in the distance.

Photo Location 9 – Proposed View

The proposed view shows the vegetation and railings along the river are removed, with the result that and the river and proposed trash screen are clearly visible. The removal of mature trees allows views to the wider cityscape.

The open space has been re-graded, and some areas are surfaced in re-inforced grass. Pedestrian access has been re-organised and the bridge in the centre of the view is evident. The changes are clearly noticeable in this area and the addition of the trash screen

Photo Location 10 - Existing View



Plate 9.38: Photo Location 10 –Proposed View towards Blackpool Retail Park



Plate 9.38: Photo Location 10 –Proposed View towards Blackpool Retail Park

Photo Location 10 - Existing View

The existing view shows the view looking north along the river Bride. To the right are the buildings of Blackpool Retail Park, while to the left of the image the B20 road is visible. The river here is a narrow channel with grassed and vegetated embankments, and a pedestrian walkway is visible on the right, separated from the river by a railing. In the background the pedestrian bridge is visible, as well as the trees in the Retail Park.

Photo Location 10 – Proposed View

The proposed view shows the proposed flood wall and metal railing which replaces the railing along the riverbank, while the pedestrian bridge has been removed. Some vegetation has also been removed to allow the construction of the flood wall. The flood wall is of a height that allows views to the river, and views are available through the railing. The wall is clad in sandstone which is a stone found throughout the local area and which assists in improving the appearance of the wall. The width of the pathway has not been affected.

Photo Location 11 - Existing View



Plate 9.39: Photo Location 11 –Existing View looking north from Orchard Court



Plate 9.40: Photo Location 11 –Proposed View looking north from Orchard Court

Photo Location 11 - Existing View

The existing view shows the open space to the north of Orchard Court. This view shows the road in the foreground, with a concrete barrier and metal railings. To the right, a gate is visible. An open grassed space, surrounded by mature trees, is partially visible. Some dense vegetation is visible behind the railing to the left of the image, and a section of timber fencing is also visible. The backs of houses are partially glimpsed to the left of the image.

Photo Location 11 – Proposed View

The proposed view shows the removal of the concrete barrier and the replacement of the metal railings. Some of the vegetation and trees to the left of the image have been removed, and replaced with grass, and the timber fence has been replaced with a hedge. A paved hard surface is now visible to the left of the image.

The proposed view shows that there is increased visibility of the grassed open space from this location, due to the removal of the barrier and vegetation. The backs of houses are also more visible to the left of the image. These elements and the hard surfaced pedestrian areas combine to create more open feel to the view and can be described as enhancing the character of the open space.

Photo Location 12 -



Plate 9.41: Photo Location 12 – Existing View looking towards river from Orchard Court



Plate 9.42: Photo Location 12 –Proposed View looking towards culvert from Orchard Court

Photo Location 12- Existing View

The existing view is taken looking towards the existing river Bride in Orchard Court. In the foreground a concrete barrier is visible with metal railings behind, while dense trees and shrubs line the riverbank on both sides. There are no views available to the river itself. Some buildings are visible to the left of the image.

Photo Location 12– Proposed View

The proposed view shows that a considerable amount vegetation along the river has been removed, along with the metal railings and concrete barriers. A new pedestrian hard surface is visible in the foreground which replaces the river (which has been culverted). A wall, with a dense hedge, forms a barrier between the walkway and the backs of the houses which are now visible. Proposed trees and shrubs in planters are also included.

The proposed view shows a much more open area, due to the culverting of the river and the removal of the barrier, railings and vegetation. The area still has an urban character and the proposed vegetation will balance the hard surfaces which are proposed. While this view represents a considerable change in the appearance of the area, it is one which is in keeping with the urban character of the area and which can be seen as improving the quality of the public realm.

Photo Location 13



Plate 9.43: Photo Location 13 –Existing View looking towards Blackpool Church from Orchard Court



Plate 9.44: Photo Location 13 –Proposed View looking towards Blackpool Church from Orchard Court

Photo Location 13- Existing View

The existing view shows a view taken from a bridge between Orchard Court and the Old Commons Road, looking towards Blackpool Church. The river Bride is clearly visible in this view, and it is lined with vegetation. Buildings are visible to the left (at the end of Orchard Court) and to the right, the rear of buildings are visible. Blackpool Church is the focal point in this view.

Photo Location 13– Proposed View

The proposed view shows the view of the river has been replaced with a hard surface for pedestrian use, and the dense vegetation is removed. A hedge with a wall behind is visible to the right, separating the open space from the houses. The proposed changes are clearly noticeable, and create a more open character to the space, while improving the quality of the public realm. The Church remains visible in the centre of the image.

Photo Location 14



Plate 9.45: Photo Location 14 – Existing View looking towards the river from Blackpool Church plaza



Plate 9.45: Photo Location 14 – Proposed View looking towards the river from Blackpool Church plaza

Photo Location 14- Existing View

This view is taken from the existing plaza adjacent to Blackpool Church in the centre of Blackpool. This view shows an open section of the river which is bordered on all sides by walls and some railings. The river then flows under the road in the centre of the image. The riverbed is partially visible as the water is relatively low. The river is visible but the quality of the view is not considered to be high. In the background the buildings of Blackpool are visible, with the Church partially visible to the right of the image.

Photo Location 14– Proposed View

The proposed view shows the plaza adjacent to the Church is extended to the south and covers the river, which is now shown as culverted. A proposed hard surface with seats and planted containers is shown. The river is no longer visible, however the extension of the plaza is in keeping with the character of the urban area and provides a larger areas of public space, and allows views of the surrounding streets and buildings.

9.6 LIKELY AND SIGNIFICANT IMPACTS AND ASSOCIATED MITIGATION MEASURES

9.6.1 'Do-Nothing' Scenario

If the proposed development were not to proceed, the existing river channel would remain as it is, resulting in many of the same potential impacts on human beings as have occurred previously.

There would also be potential for impact on:

- Residential and commercial properties
- Pedestrian walkways
- Open spaces

In the event that the proposed drainage scheme were not to proceed, the landscape of the Study Area would evolve based on current trends and views to and from the Study Area would remain unaltered. In the event of further major flood events, the visual amenity of the area would be temporarily affected as flood levels increase and flood damage affects Blackpool and environs.. Potential landscape impacts caused by flooding include flood damage to structures and vegetation as well as erosion.

9.6.2 Impacts During the Construction Phase

The removal of bankside trees vegetation and habitats is dealt with in the relevant sections of the Operational Phase Impacts below.

9.6.3 Site Investigation and Construction works -Construction Traffic, Materials and Temporary Site Buildings

Potential Impact

The construction works will be preceded by geotechnical investigations, which will consist of a mixture of shell and augur boreholes, cable percussive boreholes, rotary drilled boreholes, trial pits and slit trenches at the locations of the proposed structures. The construction works themselves will last approximately eighteen months and will be subject to the following programme constraints. This will be temporary.

The construction phase of the proposed scheme will involve the movement of construction vehicles into and out of the working area, and a temporary construction works facilities for storage of materials on a brownfield location in the immediate vicinity of the works. This may have to be moved during the construction period. Construction is expected to last approximately 18 months.

The construction phase of the proposed scheme will have a slight negative impact on the landscape character of the Study Area, as construction noise and activity will all impinge on the landscape amenity of certain parts of the Study Area. The slight negative impact on landscape character will, however, be a localised, temporary impact and will decrease with distance from the site. These activities will have a **Temporary to Short Term Slight Negative Impact** on the surrounding area in terms of landscape and visual impact.

Mitigation Measures

Any negative impact associated with the proposed works on the visual amenity and landscape within the study area, will be minimised through the implementation of an Environmental Management Plan (EMP) and a Traffic Management Plan. A construction compound will be used to house materials, plant and machinery, welfare facilities and site offices as part of the EMP and traffic movements will be subject to regulation through the traffic management plan. Best practice measures for noise control will be adhered to onsite during the construction phase of the proposed development, as described in Chapter 8 of this EIS on Air Quality and Climate/Noise and Vibration. These measures will mitigate the slight temporary to short-term negative impact associated with construction phase noise.

Residual Impact

The residual impact will be a **temporary to short-term slight negative impact**.

9.6.4 Impacts During the Operational Phase

The works described in Chapter 3 with potential landscape and visual impacts are grouped into a number of categories below.

9.6.4.1 Construction of flood defence walls and embankments

Potential Impacts

The proposed drainage works are set out in detail as described in Chapter 3, include the construction of flood defence walls and embankments along several sections of the River Bride, River Glenamought and Fairhill Stream. The height of the proposed flood defence walls, also outlined in Chapter 3, varies throughout the Study Area. In some areas the walls are topped with metal railings.

In most areas the proposed walls are less than 1.34 metres in height, with the exception of Lower Killeens Road where the wall reaches a typical height of 1.7 m. In this location, the predicted impacts of the flood defence walls, along with the reinstated boundary wall and vehicle access gate will result in a flood wall to the rear of Rose Cottage on Lower Killeens Road. Some of the wall will be behind the building and partially screened by the existing wall which prevents views to the land behind. The height of the wall varies but will be approximately 1.7 metres in height and will match existing wall height. Another relatively short section (approximately 45m) of the proposed wall on the left bank will be a height of approximately 1.53 metres above existing ground level between Blackpool Shopping Centre car park and the Commons Road. At the majority of locations therefore the height will allow some visibility.

In the northwest of the study area, along the Glenamought River, a grassed embankment is proposed in the grounds of Kilnap House. This will be a low (approximately 1.1m high) embankment, blending in with the existing grass lawn, and will have a **Permanent Imperceptible Neutral impact**. Photomontage 1 illustrates the proposed embankment.

Further downstream, another section of wall behind the Commons Inn is to be constructed (this is shown in Photomontage 3) to tie in with the proposed embankment at this location, at an approximate height of 0.45 metres. While both will be visible from the car park, neither wall nor embankment is not above eye level and these works will result in a **Permanent Imperceptible Neutral Impact**.

A longer section of wall is proposed on the right bank of the River Bride and Fairhill Stream from between the rear of the Commons Inn and the Sunbeam Industrial Estate. This wall will run along the river bank to the rear of some residences, and will vary in height, with a maximum height of up to 1.34 metres. The wall construction will necessitate the removal of some vegetation along the riverbank and the backs of houses

as shown in Photomontage 4. The first section of the wall ends at the McDonald's Drive Thru. Some of this section of proposed works will be visible by the public, from the Fitz's Boreen area, however there will not be much visibility from the N20 and the impacts will be minor. Existing vegetation on the opposite bank of the river from these houses will be retained and will assist in providing screening and minimise the visual impact, which is judged to be **Permanent Slight Negative Impact** where vegetation removal opens up views.

Further downstream, flood defence walls are proposed on both sides of the River Bride, to the rear of the Dulux Paints factory and the Sunbeam Industrial Estate, vary throughout the length to a maximum height of approximately 1.27 metres above ground level. Photomontages 6, 7, and 8 represent the likely appearance of these works. This section of the river is not all publicly accessible, and is screened by the N20 by the buildings so views will be localised. There are some few of vegetation along this section of the river, with most of the adjacent areas hard surfaced. The potential impact here ranges from **Permanent Slight Neutral Impact** in areas seen in Photomontage 7 and 8 where the proposed walls are in keeping with the existing character and the views of the river are not affected, to **Permanent Slight Negative Impact** where the proposed wall restricts views of the river.

An embankment and flood walls are also proposed in Blackpool Retail Park. The embankment will be constructed along the left bank, located in the grassed area, and will appear as a low grassy mound parallel to the river, of a height of approximately 1.15 metres above ground level. In addition, the re-grading of the ground will add to the change in level and character. While the embankment will be clearly visible, it will increase the extent of the river visible. Some re-grading of the ground will also occur. Access to the trash screen is facilitated by the addition of reinforced grass.

The flood wall will be located between the river and the front of the Heron Gate and River House buildings, and there is already existing timber fencing to the rear of some of the buildings. The view of the river will be maintained at all times in this location. Photomontage 10 illustrates the proposed view of this location. The potential impact is judged as **Permanent Imperceptible to Slight Negative Impact**.

A small section of flood wall is to be constructed in front of the Blackpool Shipping Centre carpark, and this will be at a height above ground level of approximately 1.53 metres.

In most locations views will not be obstructed due to the walls. In addition, many of the proposed walls are not in heavily used public areas, and some are in private areas. Views are restricted by built form and vegetation. Although the impacts vary depending on the area, the potential impact of the flood walls and embankments range from **Permanent Imperceptible to Moderate Negative Impact**.

Mitigation Measures

In most public areas (see drawings in Appendix 3A), the proposed walls are to be clad in sandstone, a material which is found in the urban environment of Blackpool and this will lessen the potential visual impact and improve the appearance of the floodwalls. In certain areas, where existing concrete walls exist, the proposed flood walls will match these existing materials. The earth embankments are to be grassed and these will blend in with the vegetation in the surroundings and lessen any potential visual impact.

The section of wall which is proposed along the front of the Heron Gate/River House buildings in Blackpool Retail Park will be integrated with the existing timber boundary fence, which will also reduce potential visual impacts.

Residual Impacts

The residual impacts once the mitigation measures are carried out are **Permanent, Imperceptible to Slight Negative Impact**.

9.6.4.2 Replacement of Bridges and Bridge Parapets and removal of bridges

Potential Impacts

The proposed works include the replacement of a number of bridges, one over the Glenamought River at the entrance to Kilnap House, which will be replaced with a reinforced concrete bridge as shown in Photomontage 2. This will involve the removal of some trees and vegetation during construction but will not change the overall character of the area. Another bridge is to replace pipe culverts close to the entrance to the North Point Business Park. A bridge is also to be replaced on Fitz's Boreen, and a handrail to a height of 1.2 metres will allow views to the river to be maintained. This is shown in Photomontage 5. The bridge to the rear of the Sunbeam Industrial Estate is to be replaced with a reinforced concrete bridge. The proposed bridges over the River Bride will all be located in a largely industrial urban area and will this will assist in absorbing them into the surroundings.

Several bridge parapets are also to be constructed in a variety of locations along the river. This will include repairs to existing parapets, replacement of parapets and construction of parapets. The potential impact is considered **Permanent, Slight Negative impact**.

A number of pedestrian bridges are to be removed or replaced as part of the proposed works. Bridges to be removed include two bridges in the open space at Blackpool Retail Park. One replacement bridge is proposed as part of the works. The removal of the bridge closest to the N20 (visible in Photomontage 10) result in a change of pedestrian circulation. The predicted impacts are **Permanent, Slight Negative Impact**.

Two bridges are to be removed along the river in Orchard Court, where the river Bride is to be culverted, and these are to be replaced with hard surfaced pedestrian areas. Therefore while the views to the river will be lost, the access previously provided by the bridges will remain. The bridge parapets which were previously in poor condition, are to be replaced by a continuous paved surface which will constitute a positive change to the character of these areas. The predicted impacts are **Permanent, Slight Positive Impact**.

Mitigation Measures

The mitigation measures have been included in the design process.

Residual Impacts

The residual impacts range from **Permanent Slight Negative to Slight Positive Impacts**.

9.6.4.3 Construction of new and replacement culverts and backfilling of existing watercourse

Potential Impacts

The proposed works include construction of new culverts, the longest of which (342 metres) is to be constructed downstream of the N20 Blackpool Bypass, at Orchard Court, as far as the Old Commons Road north of Blackpool Church. This will replace the open channel of the river which presently exists. A section of the river Bride to the rear of Goldenvilla Terrace, will also be infilled. The river currently runs close to the green area at Orchard Court, and concrete step barriers are located along the footpath at edge of the river in Orchard Court, and these along with dense vegetation combine to restrict views. The concrete

barriers currently prevent access to the footpath. The proposed culvert will result in a hard surface over the river, which will not be visible due to the culvert. This will result in a noticeable change in the landscape and visual character of the area, and while there will be some vegetation removal along the channel, and result in increased views from and to the houses on the western bank. The bridges parapets will be removed and this will also open up views to the south towards Blackpool Church. On completion of works, the area over the proposed culvert will be hard surfaced and will result in a wider public footpath. Photomontages 11, 12 and 13 represent views of the proposed hard surface on top of the culvert. The potential impact in this area is considered to be **Permanent, Slight Positive Impact** due to the vegetation removal and construction of hard surfacing, however it is noted that the opening of views to Blackpool and the creation of a public footpath are positive impacts.

A culvert is also to be constructed south of the existing plaza adjacent to Blackpool Church. This will be surfaced by a plaza which will be designed to integrate with the existing public plaza. This will result in an improvement in this area as the open section of river is currently in poor condition and the proposed works will have a positive impact in this area.

A number of other culverts are to be replaced and realigned but these will not have noticeable landscape and visual impacts.

Mitigation Measures

Vegetation is to be retained and replanted where possible. Fences to rear gardens are to be constructed where necessary. Pedestrian surfaces are surfaced in a suitable material.

Residual Impacts

The residual impacts are range from **Permanent , Imperceptible to Slight Negative Impacts** due to the loss of the view of the river and increase in hard surfacing, to **Permanent Slight Positive Impacts** due to the increased pedestrian space and open views towards Blackpool church to the south.

9.6.4.4 Construction of Winter Channel

A winter channel is proposed along the River Bride to the east of the Commons Inn, where there is a sharp bend in the river. This is located in the corner of the Commons Inn car park and is bordered by an area of rough grass and scattered trees. This will involve an excavation (to a maximum of 7 to 10 metres) along the right bank only – there are no works to the left bank at this location, as shown in Section CO6.3 in Appendix 3A.

The excavated bank will have a slope similar to the existing slope and a hand rail is to be constructed at the top of the slope. Some vegetation removal will be required to complete the excavation and the potential impact will be **Permanent Slight Negative Impact** due to vegetation removal.

Mitigation Measures

Vegetation is to be where possible. Following the excavation, the surface is to be covered with a biodegradable membrane to protect the exposed soil while vegetation is re-established in the months following completion of works. The vegetation will assist in reducing the visual impact.

Residual Impacts

Following mitigation, the residual impact will be **Permanent Slight Negative Impact**.

9.6.4.5 Restoration of Open Channel and Sedimentation Traps

Potential Impacts

The proposed works involve the removal of a section of culvert (approximately 100m) and the restoration of open channel in the Sunbeam Industrial Estate, which is bordered by a parking area the industrial estate. The proposed works are shown in Photomontage 8. The views of the river will be restored. Additionally, a sediment trap, along with a maintenance platform and access ramp are to be constructed.

A sediment trap consists of an excavation in the existing channel, of approximately 25 m wide and 63 m long and (dimensions to be finalised following site hydraulic analysis) and constructed of either reinforced concrete sheet pile walls and concrete floor. Pedestrian and vehicular access is to be provided on the left (north) bank of the river. This area is not a heavily trafficked public area and impacts will be localised. The area is industrial in character and the proposed works and materials will be consistent with the character of the area. The proposed works will have a **Permanent Slight Negative impact, however** the opening of the river channel as well as the associated access on the opposite bank of the river is described as a potential **positive** impact.

A further sediment trap is proposed north of the Commons Inn, and this involved flood scalping and lowering of the inside channel to create a second stage channel, as well as landscaping of deposition areas to match existing ground.

Mitigation Measures

Materials used will be appropriate to the industrial character of the area. For the sedimentation trap north of the Commons Inn, the landscaping will assist in assimilating the works into the existing area, and re-vegetation will be allowed where possible.

Residual Impact

The proposed works will have a **Long Term, Slight Negative impact, however** the opening of the river channel and access to the south side of the river is described as a potential **positive** impact.

9.6.4.6 Trash Screen and Roughing Screens

Three roughing screens are proposed as described in Chapter 2, with predicted **Permanent Slight Negative** impacts.

A trash screen is proposed within the River Bride in the open space in Blackpool Retail Park. An illustration of the likely appearance is shown in Photomontage 9 (which is shown without any debris in the trash screen). Along with the trash screen itself, associated works include re-grading of the ground levels in the vicinity and provision for access to the screen for maintenance. In addition, pedestrian access is being redesigned and will include a bridge adjacent to the trash screen.

The proposed trash screen and associated works in Blackpool Retail Park will be noticeable and the predicted impacts is **Permanent, Moderate Negative Impact**.

Mitigation Measures

The screen is to be maintained and debris removed on a frequent basis, once a month as a minimum, and more frequently if necessary.

Residual Impact

Permanent Term, Moderate Negative impact.

9.6.4.7 Removal of Vegetation and bankside habitat

There will be the loss of some vegetation and screening in certain areas. In particular, vegetation is to be removed in the following key areas.

Vegetation will be removed north of the Commons Inn where the proposed (provisional) sedimentation trap is to be located. Replacement planting is to be carried out where possible and the embankments are to be re-vegetated.

Areas of vegetation to be removed include areas along the river to the rear of the Commons Inn and residences along the Fairhill Stream (adjacent to the Commons Inn) however vegetation will be retained wherever possible and in certain areas, replacement planting will be carried out where possible. In these location the vegetation on the opposite bank is to be retained to minimise visual impact.

Removal of vegetation will also occur in Blackpool Retail Park. This will constitute a change in the environment, opening up views and reducing the tree cover. While trees will be retained where possible, and only some are to be removed, this will result in a change in the character of the open space. This will have a **Permanent Moderate Negative Impact**.

Vegetation removal in Orchard Court will also be considerable, consisting of removal of vegetation on both sides of the river along the lone of the proposed culvert.

Some vegetation may be removed in the vicinity of the Glen River to facilitate the works.

Predicted Impact: **Permanent, Slight to Moderate Negative Impact.**

Mitigation

Trees and vegetation are to be retained where possible and replanting will occur where possible.

In certain locations, walls and hedging are to be constructed to prevent views to houses and the backs of houses and increase privacy.

Residual Impact

Permanent, Slight to Moderate Negative Impact.

9.6.4.8 Other Works

There are a number of other works which have been considered. These include the re-grading of ground levels at various locations, which are considered to have a **Permanent Imperceptible to Slight Impact**.

Other works with potential landscape and visual impacts include the construction of pumping stations in seven locations, which may include an above ground element likely to resemble a kiosk. This is subject to confirmation, but in these locations the pumping stations are considered to have a **Permanent Imperceptible Negative Impact**.

Certain other works described in Chapter 3 such as below surface works and minor works were assessed and these in general have potential **Permanent Imperceptible to Slight Neutral to Negative impacts**.

9.6.4.9 Conclusion – Landscape and Visual Impacts

In conclusion, there are a number of proposed types of flood defence works and these types of works and locations vary throughout the Study Area. Likewise, the impacts of these works vary and range from

Imperceptible impacts where there is little change, to Moderate impacts in some areas where works are more apparent and result in greater changes to the visual environment.

Impacts are both positive and negative. Negative impacts include vegetation removal and the increase in views due to this, particularly in terms of residential areas, and construction of flood walls and track screens in certain areas. Positive impacts include areas such as Orchard Court which will benefit from an improved public realm and openness of views while maintaining access to the Old Commons Road. The extended plaza adjacent to Blackpool Church also represents a positive impact on the urban fabric.

Overall, however, the location of the works are away from public areas, and in locations screened from view behind the Commons Road.

The most noticeable locations of the works, where they will be noticed by the largest amount of people are likely to be in the areas of Blackpool Retail Park, Orchard Court and Blackpool Church. The height of the walls allow the retention of views in most areas, and the extent of vegetation to be removed will be minimised where possible. In general the impacts will be localised and only visible in the immediate vicinity of the works.

The proposed works will not conflict with the City Council objectives identified in Section 9.3 and as the proposed changes will be localised in nature, they will not affect the landscape characteristics identified in the City Development Plan.

Chapter 10:

Cultural Heritage

10 CULTURAL HERITAGE

10.1 INTRODUCTION

This chapter assesses the potential cultural heritage impacts of the proposed River Bride (Blackpool) Certified Drainage Scheme and, based on this assessment, a number of appropriate mitigation measures are presented. The term 'cultural heritage' is used to encompass the archaeological, architectural, historical and folklore heritage resource. As described in Chapter 2, the Preferred Option for the River Bride (Blackpool) Certified Drainage Scheme comprises of a combination of flood walls, culverting a section of open channel, bridge replacement, embankment construction and other minor works. The nature and extent of the proposed works for the River Bride (Blackpool) Certified Drainage Scheme are presented in Chapter 3.

10.2 ASSESSMENT METHODOLOGY

10.2.1 Introduction

The methodology used for this assessment is based on the EPA (2003) Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) on Cultural Heritage, including folklore/tradition, architecture/settlements and monuments/features, following a baseline study of the existing cultural heritage features in the area of the proposed development, as well as per the Institute of Archaeologists (IAI) Good Practice Guidelines.

The chapter presents the results of a desk top survey which aims to identify all recorded and potential archaeological, architectural and other cultural heritage sites within the study area. The results of a field survey of the footprint of the scheme undertaken in August and October 2015 are provided as are extracts from the photographic record compiled during the survey (Appendix 10A).

10.2.2 Desktop Study

The principal sources reviewed for the assessment of the known archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP) for County Cork. These provide comprehensive lists of the known archaeological resource and their legislative basis is outlined below (Section 10.3.2). The Record of Protected Structures (RPS) and the National Inventory of Architectural Heritage (NIAH) were the main sources consulted for assessing the protected architectural heritage resource. The following sources were also consulted:

Database of Irish Excavation Reports

The Database of Irish Excavation Reports contains summary accounts of all archaeological excavations carried out in Ireland – North and South – from 1970 to 2015. The database contains summaries of a number of excavations within the vicinity of the additional works and the relevant information is incorporated into this chapter.

Development Plans

The local authority development plan relevant to the study area was consulted as part of this assessment. These plans outline the local authorities' policies for the conservation of the archaeological and architectural heritage resource and include the Record of Protected Structures (RPS) and designate Architectural Conservation Areas (ACA). The relevant development plans for the study area comprise the Cork City Development Plan (2014) and the North Blackpool Local Area Plan (2011).

Cartographic Sources

The detail on cartographic sources can indicate past settlement and land use patterns in recent centuries and can highlight the increased impact of modern developments. This information can aid in the identification of the location and extent of unrecorded, or partially levelled, features of archaeological or architectural interest. A range of available cartographic sources were examined for the study area and included the 1st editions of the 6-inch OS maps (surveyed and published in the 1830s & 1840s) and the 25-inch OS maps (surveyed and published 1887-1913). A number of photographic sources were consulted as a means of identifying possible cultural heritage sites, including the Digital Photographs database of the National Library of Ireland (<http://www.nli.ie/>).

Literary Sources

Literary sources are a valuable means of completing the written archaeological, historical and architectural record of study area and gaining insight into the history of the environs of the proposed scheme. A list of all literary sources consulted is provided in the bibliography.

Placenames Database of Ireland

The Placenames Branch (Department of Arts, Heritage and the Gaeltacht) provides a comprehensive management system for data, archival records and placenames research conducted by the State. Its primary function is to undertake research in order to establish the correct Irish language forms of the placenames of Ireland and to publish them on a public website (www.logainm.ie).

10.2.3 Field Survey

The inspections of the areas to be impacted by the proposed scheme were undertaken in August and October 2015. A photographic record of the survey was compiled during the survey and extracts are provided in Appendix 10A.

10.2.4 Cultural Heritage Impact Criteria

The assessment of the significance and impacts on Cultural Heritage Assets incorporate various criteria guidelines published by the National Monuments Service (NMS), the Environmental Protection Agency (EPA) and the National Road Authority (NRA).

10.3 THE EXISTING ENVIRONMENT

10.3.1 Introduction

The proposed scheme will primarily involve a series of interventions along the line of the River Bride as it extends through a study area dominated by commercial/industrial premises in the north end while the south end extends through the centre of Blackpool village. As will be described below, this area was developed as one of the main early industrial centres on the outskirts of the city during the 18th and 19th centuries. The siting of various water-powered industries in this area was largely due to the presence of the River Bride, which provided a consistent water supply not afforded by the tidal channels of the River Lee within the low-lying city centre. The study area has been extensively impacted by modern road, commercial and residential schemes during recent decades and these have resulted in the widespread removal of the historical industrial building stock within the area. The channel of the River Bride has also been subject to widespread modern impacts including the installation of concrete channels/culverts,

diversion channels and the replacement of masonry bridges with modern concrete structures. The section of the watercourse within the study area has also been subject to cleaning projects in recent decades many of which were undertaken following flooding events.

10.3.2 Legal Status

The management and protection of cultural heritage in Ireland is achieved through a framework of international conventions and national laws and policies. This is undertaken in accordance with the provisions of the 'European Convention on the Protection of the Archaeological Heritage' (the Valletta Convention) and 'European Convention on the Protection of Architectural Heritage' (Grenada Convention). Cultural heritage can be divided loosely into the archaeological resource covering sites and monuments from the prehistoric period until the post-medieval period and the architectural heritage resource, encompassing standing structures and sites of cultural importance dating from the post-medieval and modern period. In addition, local place-names, folklore and traditions are considered part of our cultural heritage.

The legislation; national policy statements, guidelines and advice notes relevant to this assessment include:

- National Monuments Act 1930 (and amendments in 1954, 1987, 1994 and 2004).
- Heritage Act (1995).
- National Cultural Institutions Act (1997)
- Policy for the Protection of the Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands 1999).
- Architectural Heritage (National Inventory) and National Monuments (Misc. Provisions) Act (1999).
- Local Government (Planning and Development) Act (2000).
- Department of Environment, Heritage, and Local Government's Architectural Heritage Protection: Guidelines for Planning Authorities (2004).

Archaeological Resource

The Minister for Arts, Heritage and the Gaeltacht (DAHG) is presently responsible for the statutory functions and the administration of the national policy in relation to archaeological heritage management. The National Monuments Act 1930 (and subsequent amendments in 1954, 1987, 1994 and 2004), the Heritage Act 1995 and relevant provisions of the National Cultural Institutions Act 1997 are the primary means of ensuring the satisfactory protection of archaeological remains, which are held to include all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. A national monument is described as 'a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto' (Section 2, National Monument Act, 1930).

There are a number of mechanisms under the National Monuments Act that are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places (formerly the Sites and Monuments Record), and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

National Monuments

National monuments may be acquired by the Minister whether by agreement or by compulsory order. The State or Local Authority may assume guardianship of any national monument (other than dwellings) and they may not be interfered with without the written consent of the Minister. There are no National Monuments within the study area.

Register of Historic Monuments

Historic monuments and archaeological areas listed on the register are afforded statutory protection under the 1987 National Monuments (Amendment) Act. The register was made largely redundant with the establishment of the Record of Monuments and Places (RMP) under the National Monuments (Amendment) Act, 1994.

Preservation Orders and Temporary Preservation Orders

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act, which makes make any interference to the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. Work may only be undertaken on or in the vicinity of sites under Preservation Orders by the written consent of the Minister. There are no listed preservation orders on any sites within the study area.

Record of Monuments and Places (RMP)/Sites & Monuments Record (SMR)

The 1994 Act provides that the Minister shall establish and maintain a Record of Monuments and Places (RMP) that comprises lists and maps of known monuments and relevant places. The RMP is based on the Sites and Monuments Record (SMR) files maintained by the National Monuments Services (NMS) which comprise lists with accompanying maps and files of all certain or possible archaeological sites and monuments mainly dating to before 1700 AD for all counties in the State. Archaeological sites listed in the RMP receive statutory protection under the National Monuments Act 1994 (Section 12 (3)) of the 1994 Act which requires that the Minister be given two months advance notice in advance of any works to the RMP site.

There are three RMP sites within the study area and these entail the two former mills and a distillery (Table 10.1). It should be noted that while these are recorded archaeological sites, it is possible that further archaeological sites and artefacts still remain undetected below the present ground surface or river sediments. The locations are shown relative to the permanent works in Appendix 10B.

Table 10.1 Recorded Archaeological Monuments within vicinity of scheme

RMP/SMR	Classification/Townland	ITM	ING
CO074-116----	Distillery/Cork City Ward	567462, 573068	167505, 73006
CO074-115----	Mill/Kilnap	567326, 574182	167369, 74120
CO074-112	Mill/Kilnap	566437, 575024	166479, 74960

Architectural Heritage Resource

Protection of architectural heritage is provided for through a range of legal instruments that include the Heritage Act, 1995, the Architectural Heritage (National Inventory) and National Monuments (Misc. Provisions) Act, 1999, and the Local Government (Planning and Development) Act 2000. Section 2.1 of the 1995 Heritage Act describes architectural heritage as:

'all structures, buildings, traditional and designed, and groups of buildings including streetscapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents, and, without prejudice to the generality of the foregoing, includes railways and related buildings and structures and any place comprising the remains or traces of any such railway, building or structure'.

Record of Protected Structures (RPS)

Under the Local Government (Planning and Development) Act, 2000, all Planning Authorities are obliged to keep a 'Record of Protected Structures' of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. As of the 1st January 2000, all structures listed for protection in current Development Plans, have become 'protected structures'. Since the introduction of this legislation, planning permission is required for any works to a protected structure that would affect its character. If a protected structure is endangered, planning authorities may issue a notice to the owner or occupier requiring works to be carried out. The Act contains comprehensive powers for local authorities to require the owners and occupiers to do works on a protected structure if it is endangered, or a protected structure or a townscape of special character that ought to be restored.

The Cork City Development Plan states that the Council will maintain a Record of Protected Structures, which shall include structures or parts of structures and their curtilage which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest, and which it is an objective to protect (Objective 9.23). The development plan lists five protected structures within the study area for the scheme: James Barry House (PS666), The Church of the Annunciation (PS1139), Madden's Buildings (PS491), Kilnap House (PS616) and Kilnap Viaduct (PS617). The proposed scheme will not result in any direct physical impacts on or any material alteration to any of these structures although elements of the proposed works will be undertaken in their vicinity. Potential impacts on protected features and associated curtilage features are assessed below. The locations are shown relative to the permanent works in Appendix 10B.

Architectural Conservation Areas

Architectural Conservation Areas (ACA) within Cork City are defined in the City Development Plan 2014 as a place, area, group of structures or townscape that is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or contributes to the appreciation of protected structures. The Blackpool ACA as defined in the Cork City Development Plan 2014 encompasses the area centred on the main thoroughfare running south-north from Old Chapel Lane and Cathedral Street to Thomas Davis Street and the Link Road. It is bounded to the east by the western boundary of Watercourse Road and to the west by the rear of properties fronting onto the area's central spine of Gerald Griffin Street, Great William O'Brien Street and Thomas Davis Street (Figure 10.8 in Appendix 10A). It also takes in the terraces and narrow laneways of the area's southwest section radiating out from Farren Street, the buildings fronting onto Seminary Road, Arthur Villas and Foley's Row to the east of Watercourse Road, and the buildings to the east of Thomas Davis Street. The following objectives presented in the City Development Plan outline Cork City Council's policies in relation to developments within ACAs.

Objective 9.29 Architectural Conservation Areas

To seek to preserve and enhance the designated Architectural Conservation Areas in the City.

Objective 9.30 Demolition in Architectural Conservation Areas

Demolition of structures and parts of structures will in principle only be permitted in an Architectural Conservation Area where the structure, or parts of a structure, are considered not to contribute to the special or distinctive character, or where the replacement structure would significantly enhance the special character more than the retention of the original structure.

Objective 9.31 Recording of Structures in Architectural Conservation Areas

Where in exceptional circumstances a structure or a part of a structure which is considered to contribute to the special character of the area, is permitted to be demolished, it should first be recorded prior to demolition, and where appropriate should be monitored during demolition.

Objective 9.32 Development in Architectural Conservation Areas

Development in ACAs should take account of the following:

- Works that impact negatively upon features within the public realm such as paving, railings, street furniture, kerbing etc. shall not be generally permitted;*
- Acceptable design, scale, materials and finishes for new developments;*
- Original materials and methods of construction should be retained. For example, timber barge boards, windows and doors should not be replaced with PVC, original roofing material types should be retained along with original forms and locations of openings etc.;*
- Features of historic or architectural value should not be removed.*

Other Elements of Built Heritage

9.60 Many non structural elements such as curtilage features, historic gardens, stone walls, historic ironwork, historic plaques and street furniture (post boxes, horse troughs etc.) contribute to our built heritage. These items are often an integral part of the urban landscape or provide significant historic references which contribute to the character of an area. These elements can be vulnerable to needless, partial or total destruction and theft as well as poor reconstruction due to carelessness and a lack of awareness.

National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage (NIAH) identifies a range of built heritage structures within the Republic of Ireland and it is used to advise local authorities on compilation of a Record of Protected Structures (RPS) as required by the Local Government Planning and Development Act, 2000. Five of the buildings in the general environs of the proposed scheme are included in the NIAH and the published inventory descriptions of these buildings are presented below. The Cork City Development Plan (2014) undertakes to protect structures listed in the NIAH and other structures of built heritage interest (Objective 9.28).

10.3.3 Desktop Study

The following section presents the results of a desktop study on the archaeological, architectural and historical heritage of the study area which was undertaken in order to inform assessment of the potential impacts of the proposed scheme.

Archaeological and Architectural Context

There are no recorded prehistoric sites within the study area although there is evidence that the lands surrounding the area now occupied by Cork City have been settled by human communities since the Stone Age. While it is probable that the development and expansion of the urban area in recent centuries has removed the surface traces of earlier occupation sites the potential presence of unrecorded sub-surface prehistoric features and/or artefacts within urban contexts cannot be discounted.

The early medieval period began with the introduction of Christianity in Ireland and continued up to the arrival of the Anglo-Normans (c.400–1169 AD). This period saw the emergence of the first Irish urban centres, which developed around the large monasteries and the Hiberno-Norse ports. The first account of Viking raiders in Cork dates to 821 AD and by the middle of that century they had established a settlement centred on the river banks around South Main Street. The presence of three holy wells (CO074-028001-, CO74-062---- & CO74-074----) in the North Mall and Shandon areas may form the remnants of early ecclesiastical activity within the hills to the north of the newly developing town. While there are no surviving traces of early medieval settlement sites within northern suburbs of the city, the Gaelic origins of a number of place names in the area indicate that it was occupied during this period, e.g. Kilnap (Cill na nAp - the church of the abbots) and Shandon (Sheandúin – old fort) while the Blackpool area was known as Foithrigh Aedha during the early medieval period, which translates as ‘place of the wooded glen’ (Johnson 2005). The Hiberno-Norse settlement developed during the centuries following their arrival and had expanded into a town by the time the Anglo-Normans arrived in 1177 AD. The construction of town walls around the South Main Street area had been completed by the early 13th century while the North Main Street area was walled during the late 13th/early 14th centuries. A number of monasteries were founded in the lands outside the Anglo-Norman city during the late 12th and 13th centuries, including a Franciscan friary constructed in the North Mall area in approx. 1229 AD.

While the Shandon area developed as a separate borough outside the North Gate of the walled city during the 13th and 14th centuries there is no evidence that the settlement had expanded into the Blackpool area during that period. There are references to the northern suburbs being burnt in 1379 AD; abandoned by 1400 AD and a study of historical deeds indicates that the lands in the area were then occupied by gardens and orchards until the late 16th century (Johnson 2005). The city began to spread northwards back into the Shandon area during the 17th century while the detail on Roque’s map of 1759 indicates that the outer suburbs had begun to extend into the south end of the study area by the second half of the 18th century. The majority of the study area remained within the agricultural hinterland on the northern outskirts of the city until the 19th century although the detail on Beaufonds 1801 map demonstrates that a number of streets had been constructed in Blackpool village by that time. The natural topography and drainage of the study area comprises a valley setting which contains the confluence of a number of non-estuarine watercourses and these provided a consistent flow of water that was highly advantageous for the water-powered industries that began to develop in the area during the 18th century. By the 19th century the wider Blackpool area contained ten mills, five distilleries and several tanneries and had developed into one of the most important industrial centres in Cork city and arguably in the entire country (Downey 2005, 2). The dramatic increase in the amount of industries all feeding of the

same rivers and streams in this area began to result in water shortages as the 19th century continued and this coincided with the widespread adoption of steam powered machinery at the same time. The Blackpool industries went into decline towards the end of the 19th century as the presence of suitable water supply became less critical to factories and mills and allowed the development of new industrial centres closer to the loading areas on the River Lee docks. The origins and development of the industrialisation of the Blackpool area have been subject to a detailed archaeological and historical review (Hurley et al 2005) and has been sourced to provide relevant information site specific background information in the field survey section of this chapter (10.3.4).

The historic industrial core of Blackpool was radically altered during the 20th century when many of the industrial complexes were demolished during the construction of the Blackpool Bypass and the development of extensive residential and commercial estates. This work also saw the removal of various elements of the historic streetscape including former laneways; boundary walls and the replacement of stone bridges with modern concreted structures. The City Development Plan lists the following three protected structures within the Blackpool village section of the study area for the scheme: James Barry House (PS666), The Church of the Annunciation (PS1139) and Madden's Buildings (PS491). The 20th century redevelopment of Blackpool and its northern outskirts also had significant impacts on the watercourses that flow through the study area as they also involved extensive channel diversions and the creation of culverts under the modern streetscape. The Cork City Development Plan describes the surviving building stock within Blackpool village as follows:

“(it) ranges from the eighteenth to twentieth centuries, but is mainly characterised by the nineteenth century residential two and three-storey buildings that line the principle thoroughfare. Several examples of eighteenth century buildings are also evident, identified by their steeply pitched roofs and narrower openings on the upper floors. As is traditional in the area, buildings are generally constructed of rubble-stone or brick, usually rendered and painted. Smaller one and two storey dwellings are located in the laneways off the main street, indicative of the type of building and plot layout prevalent in the eighteenth and nineteenth centuries. The Church of the Annunciation dominates the streetscape of the village centre and is significant as the work of the sculptor Seamus Murphy who served his apprenticeship in a Blackpool stone yard. There are a number of traditional timber shopfronts in the area that have been retained even in cases where the buildings no longer serve as commercial premises. Where buildings have retained their original features and finishes, they have painted plastered facades, roofs of natural stone slate, cast-iron rainwater goods, and painted timber doors and sash windows.

The locations of the abovementioned Protected Structures are shown relative to the permanent works in Appendix 10B.

The National Inventory of Architectural Heritage includes the following five entries for structures within the vicinity of the proposed scheme:

Kilnap Viaduct, Mallow Road

Reg. No.: 20858005

Date 1840 - 1850

Townland CARHOO

Coordinates 166514, 75015

Categories of Special Interest ARCHITECTURAL SOCIAL TECHNICAL

Rating: Regional

Description: Eight-arch railway viaduct, built 1845, carrying Great Southern & Western Railway line to Cork over valley of Glennamought River and Mallow Road. Rock-faced ashlar limestone piers with cut stone impost supporting squared coursed limestone spandrels with dressed limestone string course. Rock-faced limestone voussoirs to round-headed arches. Ashlar limestone vaults to barrels. Squared coursed limestone parapet with cut stone coping.

Appraisal: This impressive viaduct is among a group of railway structures dating to the mid nineteenth-century which attest to the high standard of engineering and stone masonry employed in their construction. The viaduct forms an impressive addition to the landscape with the variety of stone treatments used adding a sense of permanence and robustness. The development of a vast railway network across Ireland during this era brought a revolution in the transport of people and goods, and consequently great social change.

Kilnap Bridge

Reg. No.: 20858004

Date: 1820

Townland: CARHOO

Coordinates: 166578, 75046

Categories of Special Interest ARCHITECTURAL SOCIAL TECHNICAL

Rating: Regional

Description: Six-arch road bridge, built c.1820, to carry Cork to Mallow road over valley of Glennamought River. Coursed rubble stone walls with squared stone voussoirs to round-headed arches. Putlog holes and corbels to walls of barrels. V-shaped buttresses to spandrels. Coursed rubble stone parapets with soldier coping and drainage holes at lower level to west. Parapet repaired to east. Tarmacdam carriageway with footpath to east.

Appraisal: This substantial road bridge, spanning a deep river valley, represents a major feat of engineering on the part of its builders. Interestingly, the technology utilised in the construction of the towering spandrel walls is clearly visible in the surviving putlog holes

Kilnap Glen House, Mallow Road

Reg. No. 20858003

Date 1820 - 1850

Townland KILNAP

Coordinates 166434, 74971

Categories of Special Interest ARCHITECTURAL ARTISTIC

Rating: Regional

Description: Detached three-bay two-storey house, built c.1830, with advanced end bays having canted bay windows added to west (front) elevation c.1880 and advanced central bay to east (rear) elevation. Hipped slate roof with smooth-rendered chimneystacks. Projecting timber battened eaves with replacement rainwater goods. Roughcast-rendered walls with raised plinth, moulded render continuous sill course to centre bay west elevation and east elevation and cornice with fascia above to eaves. Decorative render plaques with hood mouldings to west and east elevations. Square-headed window openings with splayed sills timber mullions and transoms and timber four-over-four sliding sash windows c.1880. Pointed arch sliding sash windows to canted bays with decorative overlights. Square-headed openings flanking main door and to east elevation with timber mullions and transoms, pointed-arch sliding sash windows having decorative overlights and hood mouldings with label stops. Tudor arch door opening with chamfered reveals, hood moulding with decorative stops and limestone threshold. Timber double doors with stained glass lights and carved lower panels set in carved timber architrave. Door accessed via limestone steps flanked by piers surmounted by limestone flower pots. House set on own grounds.

Appraisal: This distinctive house displays a well-proportioned design accentuated by the varied treatment of its fenestration. The timber windows with decorative tracery add artistic interest, which is enhanced by the decorative render plaques, moulding stops and stained glass to the door

19 Watercourse Road

Reg. No. 20862096

Date: 1840 – 1860

Townland: FARRANFERRIS

Coordinates: 167419, 72847

Categories of Special Interest: ARCHITECTURAL ARTISTIC

Rating: Regional

Description: Pair of terraced two-bay three-storey houses, built c.1850. Now with commercial premises at ground floor to south house. Attached to houses to north and south. Pitched artificial slate roof with rendered chimneystacks and aluminium gutters on moulded eaves course. Roughcast rendered walls having render platband at sills level on first and second floors. Square-headed window openings in moulded render surrounds with splayed sills and two-over-two timber sash windows with replacement timber casement windows at second floor level of south house. Wrought-iron window guards at ground floor level. Square-headed door openings in moulded render surrounds with plain glazed overlights and timber panelled doors. Recent signage indicates commercial outlet. Street-fronted.

Appraisal: A fine pair, of restrained composition and form, which retains most of its timber sliding sash windows, simple render surrounds and wrought-iron window guards. This pair makes a positive contribution to the streetscape.

The Church of the Annunciation

Reg. No. 20862036

Date: 1940 – 1950

Townland: FARRANFERRIS

Coordinates: 167434, 73263

Categories of Special Interest: ARCHITECTURAL ARTISTIC SOCIAL

Rating: Regional

Description: Freestanding gable-fronted Roman Catholic church, commenced 1945, having three-stage square-plan entrance tower to south, two towers to the rear (north) elevation forming transepts, eight-bay nave side elevations, east and west aisles and flat-roofed sacristy to north. Pitched pantiled roofs, copper-clad pyramidal roofs to towers, copper crucifix finial to front tower, profiled metal rainwater goods. Painted stippled render walling with smooth render dressings, smooth render crucifix to south tower wall. Paired round-headed window openings to clerestory, square-headed openings to side aisles, in smooth render block-and-start surrounds with splayed sills and leaded stained glass windows. Square-headed door opening in round-headed dressed limestone surround having carved Portland stone tympanum and timber matchboard double doors, accessed via set of steps from street level. Interior with painted coffered ceiling, painted stippled render walls, carpeted flooring. Choir to south, round-headed arches to side aisles, central aisle between timber pews, marble altar and rails to side chapels. Street-fronted, located in central island between streets.

Appraisal: The Church of the Annunciation is a notable example of mid-twentieth-century ecclesiastical architecture. Designed by noted Irish sculptor and Blackpool native, Seamus Murphy, along with architect E.P. O'Flynn, it is of concrete block construction and very characteristic of its period. Built on the site of a former church, St Nicholas', dating from the 1890s, it was built with funds donated entirely by William Dwyer, Managing Director of Sunbeam Ireland and his staff. The contribution to its design and the striking stonework, tabernacle, lamp, candlesticks and other brasses designed by Seamus Murphy and stained glass windows by the Harry Clarke Studios contribute to its artistic significance. Prominently sited, this church forms a local landmark in the area.

The locations of the abovementioned structures are shown relative to the permanent works in Appendix 10B.

Excavations Database

The Database of Irish Excavation Reports contains summary accounts of all the excavations carried out in Ireland and lists ten archaeological site investigations in the Blackpool area between 1997 and 2015 (Table 10.2). These range in scale from small test investigations within individual properties to the archaeological monitoring of the extensive ground works undertaken during the construction of the Blackpool Bypass. While the majority of these site investigations uncovered nothing of archaeological significance a number of industrial heritage features were uncovered during the monitoring of the construction of the road bypass.

Table 10.2: Extracts from Excavations Database entries for townlands within the Study Area

Licence	Address	Excavator	Results
97E0457	Blackpool Bypass	Cathryn Power	<p>Phase III of this road project involved the construction of a culvert from the Glen Road to Brewery Corner. The route of the culvert passes through sites dating to the 18th/19th centuries, such as Green's Distillery, a tannery at Corkeran's Quay, a mill at Assumption Road, Hewitt's Watercourse Distillery (now an industrial estate), Dunn's Tannery and Water's Mill. Construction work uncovered the remains of the 18th-century corn- and flour-mill at Assumption Road and a row of 19th-century houses demolished in this century at Farrangleary Place. Following demolition of buildings associated with the distillery, the foundations of a steam mill and the structure of a chimney were recorded. A group of five wooden tanning pits of plank-and-post construction was uncovered and excavated... A Georgian halfpenny coin, dating from between 1769 and 1805, was found in the silty clay in which the pits were set...The sill-beam and other timbers of a sluice-gate were found in situ at the outlet of a culverted channel on the north side of the Back Watercourse below Hewitt's Watercourse Distillery probably of late 18th-/early 19th-century date.</p> <p>Archaeological monitoring also uncovered the foundations of a substantial limestone, sandstone and red brick building with an industrial stack in the former Hewitt's Watercourse Distillery. On the evidence of the roof construction of a surviving part of the building, it was dated to the late 18th century</p>
-	Broad Lane	Dan Noonan	Testing of the archaeological potential of a brownfield redevelopment site at Broad Lane, Great William O'Brien Street, Blackpool, Cork, was carried out and no finds or features of archaeological significance were uncovered.
03E1244	Millfield (or Polefield), Kilnap, Blackpool	Avril Purcell	Monitoring was carried out on ground works during development. No features or finds were revealed. A metal detector survey was carried out on the portion of the bed of the River Bride which ran through the site which had been diverted from its original course (licence 03R118). The partially dried-up riverbed was investigated with a metal detector following its diversion. A significant amount of modern rubbish was revealed; no finds of archaeological significance were identified.
99E0373	15-16 Watercourse Rd	Rose Cleary	Trial-trenching uncovered no archaeological features. Some iron slag was recovered from the base of one trench at a depth of 1m below ground level.

Licence	Address	Excavator	Results
03E0183	Watercourse Road	Sheila Lane	The development site was once a part of the extensive 18th-century Watercourse Distillery. Two features were exposed during testing, a section of drain and part of a wall, both likely to have been a part of the distillery. The remains of the grain store building destroyed by fire in the 1950s and subsequently demolished were also found.
03E0293	29 Watercourse Road	Sheila Lane	The proposed development stands on the site of a former 19th-century tannery. Seven features were exposed during testing: three sides of a possible stone-lined pit, a section of brick wall on a sandstone foundation, an area of cobbled flooring, two deposits of lime, one within a possible brick enclosure, a sandstone wall with concentrated lime deposit, a section of north-south sandstone wall and two sides of a possible brick-lined pit. All these features are likely to have been part of the tannery.
04E0838	38 Watercourse Road	Tony Cummins	Testing was carried out following the demolition of an existing building and prior to the construction of a new retail outlet. However, following the removal of the existing building the ground levels throughout the site were found to have been extensively reduced below the natural subsoil level. A trench was opened across the base of the demolished building and this confirmed that the levels within the site had been reduced to the sterile natural boulder clay.
-	Kilnap	Tony Cummins	Unlicensed archaeological monitoring of the construction of a single house within the garden of an existing house was undertaken in 2005 to comply with a planning requirement. The site is within the zone of potential surrounding a former corn mill (CO074-112). Nothing of archaeological significance was encountered.
04E1027	98 Gerald Griffin St	Colm Moloney	Testing was undertaken as a condition of planning for the construction of eighteen residential apartments. No archaeological deposits or artefacts were identified.

Potential unrecorded archaeological sites

It is possible that unrecorded, sub-surface archaeological sites and artefacts may still remain undetected below the present ground surface within the study area. Irish riverine locations have been utilised as food and transport resources since the arrival of the first hunter-gatherer groups in the early prehistoric period while they were also occasionally used as the sites of ritual deposition during the following Bronze and Iron Ages. As noted above, the presence of the watercourses within the Blackpool area has resulted in the area being exploited as a milling centre in recent centuries and there is the potential for the survival of unrecorded features associated with the early industrial development of Cork City within the study area. The absence of archaeological remains noted during many of the archaeological investigations previously carried out within the study area indicate that this potential may be limited in part due to the extensive

20th century interventions in this area. Two of the site investigations listed above are of particular interest to the present assessment. A programme of archaeological investigations adjacent to a section of the River Bride within the study area (Kilnap townland) included a metal-detecting survey of the channel (see Table 10.2; Purcell 2003). Nothing of archaeological significance was uncovered and the only inclusions within the channel comprised modern rubbish material. Archaeological monitoring of the construction of a residential house adjacent to the Kilnap Glen House property and within the zone of potential surrounding the corn mill (RMP CO074-112----) uncovered nothing of archaeological significance (see Table 10.2: Cummins 2005).

Placename evidence

The boundaries and nomenclature of the Irish townlands were recorded and standardised by the Ordnance Survey of Ireland during the 19th century. The Irish roots of townland names often refer to natural topographical features but some name elements may also give an indication of the presence of past human activity within the townland, e.g. dun, lios, rath indicate the presence of a ringfort while names such as temple, saggart, termon, kill suggest an association with a church site. A number of the townland names within the study area indicate the presence of early medieval settlements, both secular and ecclesiastical, e.g. Kilnap, Kilbarry and Rathpeacon.

Table 10.3 Translation of Townland Names in vicinity of study area (Source: www.logainm.ie)

Townland	Translation
Kilnap	Coill Chnap (church of the abbot)
Commons	An Coimín (associated with Fair Hill)
Ballyvollane	Baile Uí Mhaoláin (O'Bolands town)
Kilbarry	Cill Bharra, 'Barra's church' (associated with a holy well)
Farranferris	Fearann Phiarais (Pier's land)
Rathpeacon	Ráth Phéacáin (Becan's ringfort)
Carhoo	An Cheathrú (quarterland)

10.3.4 Field Survey

This section presents the results of the field survey of the footprint of the proposed scheme undertaken by JCA staff in August and October 2015 and incorporates site specific background information. The following description of the survey begins at the south end of the proposed works and then continues northwards thereby mirroring the chainage sequence for the scheme. A visual inspection of the watercourses to be impacted by in-channel works was carried out from the banks although, as described below, the presence of overgrowth restricted access in a number of areas.

The south end of the scheme will entail localised regrading and culverting works within the Blackpool Architectural Conservation Area (Figure 10.8) and in the vicinity of two protected structures: Madden Buildings (RPS PS491) and the Church of the Annunciation (RPS PS1139). No works are proposed to these protected structures or any features within their property boundaries. The existing watercourse in the public area to the east of the church is contained within a concreted channel (Plate 10.2) and the proposed works will entail the creation of a covered culvert within this channel. The watercourse then extends outside the ACA and northwards through the modern Orchard Court housing estate where it runs along the end of

the back gardens of a terrace of houses that face onto Commons Road to the west. This terrace is not present on the 1st edition 6-inch map (Figure 10.2) but is shown on the later 25-inch edition, indicating that it dates to the second half of the 19th century. A tannery shown at the north end of the terrace on both maps is absent on the 6-inch edition map published in the 1940s where its site is shown occupied by houses that still stand in this area. This area of the channel is heavily overgrown but, where visible, it is lined with sections of modern blockwork walls and embankments of concrete construction (Plates 10.3, 10.4 and 10.5). The east side of the channel is bounded with modern railings and these have been augmented with metal panels and concrete barriers as temporary flood defences. The proposed scheme will entail covering this section of the channel within a culvert structure and the removal of two modern concrete bridges. There were no recorded or potential features of archaeological or architectural significance noted in area, which has been extensively impacted by modern in-channel works.

As the channel extends northwards from Orchard Court it continues upstream through a culvert under the Blackpool Bypass road and emerges adjacent to the northwest corner of the Blackpool Shopping Centre car park. The channel then continues north along the west side of the landscaped grounds of Blackpool Retail Park in an area shown as undeveloped land on the historic OSI maps (Figure 10.2). No potential features of archaeological/architectural heritage were noted in this area during the site inspection (Plate 10.6). The proposed works in the retail park will entail the construction of a combination of flood defence walls, embankments and ground re-grading in the landscaped ground between the channel and the retail buildings, which will result in avoidance of in-channel works.

The channel then bends to the northwest as it enters the grounds of the former Sunbeam complex, which occupies the former site of a flax mill listed in the RMP (CO074-115----). The north end of this site was initially developed as a distillery by Morgan Coldwell in 1783 and was re-developed as a milling complex after it was sold in 1831. The historic core of the mill complex continued to develop during the 19th and 20th centuries until it burnt to the ground during a fire in 2003 (Figures 10.3, 10.4 and 10.5 in Appendix 10A). The site has been cleared and no surface traces of the structures listed in the RMP survive. The proposed works in this area will entail the construction of flood defence walls on top of the existing retaining concrete walls on both sides of the channel, the removal of a modern culvert and railings (Plates 10.7 and 10.8 in Appendix 10A). Works on the north side of the channel will entail the excavation of an in-channel sediment trap (measuring 15m x 30m), with an associated ramp, at the west end of the property close to the boundary with the adjacent paint factory (Plate 10.9 in Appendix 10A). Works in this area will also entail the creation of new access road and footpath measuring 202m long x 9m wide parallel to the north side of the channel. The consulted historical OSI maps show the former mill buildings located approx. 40m to the northeast of the area to be impacted by the proposed road and sediment trap (Figures 10.3 and 10.4 in Appendix 10A). The detail on these maps also indicates that the existing line of the channel within this property comprises a 20th century diversion. There are no structures indicated at the proposed location of the sediment trap, ramp or access road on the historic mapping and no surface features of archaeological/architectural heritage significance were noted during the site inspection.

The channel then continues in a broadly western direction through the Dulux Paints Factory. This site was initially developed as the Shandon Chemical Works in the 19th century although it was extensively modernised during the 20th century. The slightly meandering channel indicated on the historic OSI mapping is no longer evident within the concreted section of the channel that now extends through the factory boundary, indicating that this section of the channel was also impacted during the 20th century. The proposed works within the Dulux Factory property will entail the construction of flood defence walls on top of the existing retaining walls thereby minimising in-channel impacts (Plate 10.10 in Appendix 10A). The

proposed scheme will also require the removal of an in-channel sluice near the east end of the site. This concreted feature is not present on the historic OSI maps and appears to be associated with the 20th century channel (Plate 10.9 in Appendix 10A).

As the channel emerges from the northwest end of the Dulux Factory the concreted channel ceases and it is flanked by a grass verge as it continues westwards through an area occupied by a modern car dealership, a McDonald's restaurant and other 20th century commercial units. The proposed scheme in this area will entail the construction of a flood defence wall set back from the south bank. The historic OSI mapping indicates that this area remained as undeveloped land until the 20th century although the maps do show the line of a millrace running parallel to the River Bride in the area now occupied by modern commercial properties to the north. The proposed scheme will entail the removal of an existing masonry road bridge on a local road known as Fitz's Boreen (@ ITM 566879, 547302). A roadway and bridge over the river channel are shown on the first edition 6-inch map suggesting at least an early 19th century construction date. The existing bridge comprises a two-arched structure of random rubble construction and the parapets have been replaced by a combination of modern railings and a concrete wall along a pedestrian footpath on the west side (Plate 10.11). While the road bridge is not a protected structure it is deemed to be of architectural heritage interest and a proposed mitigation measure is outlined below (Section 10.5). A modern bridged culvert located to the west forms part of a modern McDonald's restaurant development which has impacted on both sides of the river channel (Plate 10.12). The remainder of the proposed works in this area will entail the construction of a flood defence wall within the wooded area to the south of the channel as it extends along the boundary of the Westlink Business Park and no recorded or potential features of archaeological or architectural significance were noted in this area (Plate 10.13).

The channel then extends along the north side of the Common Inn Hotel car park and this section appears to comprise a 20th century diversion of the River Bride to the north where it connects with the line of the millrace shown on the historic OSI maps (Figure 10.1). The narrow channel in this area is obscured by a thick overgrowth of trees and bushes and only a limited area was accessible for inspection (Plates 10.14, 10.15 and 10.16). No traces of a channel revetment or any other features were noted along the overgrown earthen banks. The proposed in-channel works in this area will entail the excavation of a 'winter channel' in the northeast corner of the car park while a proposed embankment in the northwest corner will impact on developed ground within the car park. While no potential archaeological features were noted and the line of the overgrown former millrace is not a protected structure, this feature is deemed of cultural heritage significance and site specific mitigation measures are proposed below (Section 10.5). Localised works to a section of the Fairhill stream extending along the south end of the car park will entail a combination of flood walls and a concrete pipe culvert. No potential archaeological or architectural heritage features were noted in this area.

The remainder of the works to the River Bride in the north end of the study area will entail the creation of localised flood defence measures in areas now mainly occupied by modern retail parks and a modern road. The creation of flood defence works is proposed within a property known as Kilnap Glen House which is located to the south of a section of the Glenamought River in Kilnap townland (Plate 10.19). Kilnap Glen House is a 19th century structure listed in the NIAH for Cork City (ref. 20858003) and its published description is provided above. The City Development Plan refers to a Protected Structure in this townland named 'Kilnap House' (PS616). This is the name of a house formerly located in the adjoining property to the south which was demolished during the 20th century (see Figures 10.6 and 10.7). It is probable that the City Development Plan has used its name to refer to Kilnap Glen House and it is

concluded that the house in this property is Protected Structure PS 616. This property also contains the roofless remains of a former corn mill listed in the RMP (CO074-112----) (Plate 10.20). These remains are located adjacent to the southeast of the house garden and comprise the remains of a late 19th-century corn mill which was built on the site of any earlier structure known as Shaw's Mill (Power 1994). Kilnap Viaduct extends along the east end of the property and this structure is listed as a protected structure in the City Development Plan (PS617) and is also included in the NIAH (ref. 20858005). This rusticated stone viaduct structure was constructed to form a crossing over the Glenamought in 1849 and a number of the footings extend across the margin between the garden and a wooded area to the east (Plate 10.21).

The detail on the 1st edition 6-inch and 25-inch OS maps indicates that the garden area to be impacted by the creation of the proposed flood defence embankment to the east and north of the house (Plate 10.22) was also occupied by a garden during the mid-19th century (Figure 10.6 and 10.7). While no recorded features associated with the house, mill or viaduct will be physically impacted by the construction of the proposed embankment there will be ground works carried out in their close vicinity and mitigation measures are proposed below (Section 10.5). The proposed works in this property will also entail the reuse of an existing trackway that extends along the east boundary in order to provide access for the creation of an access ramp and a proposed roughing screen to be installed immediately downstream of Kilnap Bridge. This track extends from the road to the south and continues along the east side of the mill and underneath the viaduct. Its line is indicated on the 1st edition 6-inch and 25-inch OS maps (Figures 10.6 and 10.7), the latter of which also shows the site of the proposed location of the ramp and screening near Kilnap Bridge as part of a late 19th century mill pond. The detail on the 20th century OSI maps indicate that the pond was infilled and the channel reinstated during the early decades of that century and its former location is now occupied by a small wooded area. The proposed scheme will also entail the removal of an existing stone-built bridge located along the driveway leading to the house from the southwest. This small structure consists of three random rubble in-channel piers spanned by flat stone slabs which are sealed by road gravels (Plates 10.17 and 10.18). There is no parapet and the north side is lined with a metal railing while a number of mature trees have been planted along the south side. An access route and stream crossing are shown in this area on the 1st edition 6-inch OS map, indicating that the bridge has a historical association with Kilnap Glen House (Figure 10.6). While the bridge is not itself listed as a protected structure it is located within the attendant grounds of Kilnap Glen House property and mitigation measures are proposed below (Section 10.5).

Localised works in the north end of the scheme will also entail the construction of a flood defence wall within a green field area surrounding a residential house located in Commons townland and on the west side of the N20 road (Plate 10.23). This residential house is not present on the first edition 6-inch OS map and is not a protected structure. Nothing of archaeological or architectural significance was noted in the area to be impacted by the construction of the proposed flood defence wall surrounding this property.

10.4 POTENTIAL IMPACTS

10.4.1 Works Areas in General

Potential Permanent Significant Negative Impact

The study area contains one of the main early industrial centres in Cork City although, as detailed above, extensive modern development has resulted in the removal of the majority of the structures associated with the 18th and 19th century mills, distilleries and bridges. The watercourses within the study area have also been impacted by extensive modern culverting, diversion channels and periodic cleaning schemes. The design of the proposed scheme has, nonetheless, endeavoured to minimise the impact on potential unrecorded elements of the archaeological and architectural heritage resource wherever possible. Where it has not been possible to avoid all potential adverse impacts, mitigation measures are proposed below. The creation of flood defence walls and embankments along the majority of the north end of the proposed scheme will largely impact on areas that have either been impacted by modern interventions or have remained as undeveloped green field areas until the present day. Any proposed in-channel impacts or ground works within undeveloped green field areas are assessed as having the potential to create **permanent significant negative impacts** on any unrecorded sub-surface archaeological features or artefacts that may exist on their footprint.

Mitigation

Archaeological monitoring will be undertaken in all areas to be impacted by ground reduction works and in-channel works. The removal of vegetation overgrowth from both within and adjacent to the channels will also be carried out under archaeological supervision. In the event that any potential features of architectural and/or archaeological heritage are encountered in any areas the Archaeologist will consult with the appropriate authorities in order to determine the further mitigation measures.

Residual Impacts – Permanent Imperceptible Negative Impact

All potential cultural heritage impacts will be addressed during the construction phase with the enactment of appropriate further mitigation in the event that unrecorded features are identified. The permanent negative impact is therefore likely to be imperceptible.

10.4.2 Blackpool Village

Potential Permanent Slight Negative Impact

The construction of a new section of culvert within the channel of the River Bride in the Orchard Court area will result in a direct impact on this section of the watercourse. Much of the channel in this area appears to have been previously impacted by the construction of modern retaining walls and also includes areas where the river bed has been impacted by the installation of sections of concrete surfaces along the river bed. The former masonry bridges within this area have also been replaced with modern concrete structures and this section of the channel has also been subjected to cleaning protects in recent decades. The presence of overgrowth within the section of channel that extends through the Orchard Court area hindered inspection in this area. The existing modern retaining concrete retaining walls and bridges to be impacted in the Orchard Court area are outside the Blackpool ACA and are not considered to contribute to the special or distinctive character of this area.

The only protected structures within close vicinity to proposed scheme works within the village are the Church of the Annunciation (PS1139) and Maddens Buildings (PS491). The proposed works to existing culverts within the vicinity of Maddens Buildings and the localised regrading of ground levels to divert surface water would have a **permanent neutral impact** on these protected structures and associated curtilage features such as garden plots. The alleviation of flood events in the vicinity of Madden's Buildings is assessed as resulting in a **permanent slight positive impact** on this element of the cultural heritage resource. The proposed excavation and covering of the open channel in the public space adjacent to the church property could have a **permanent slight negative impact** on the setting of this protected structure but will not materially impact on the character of the church or any associated curtilage features. The alleviation of flood events in the vicinity of the church is assessed as resulting in a **permanent slight positive impact** on this protected structure and its environs.

The alleviation of flooding events within the Blackpool ACA will not result in the removal of features of historic or architectural value and will reduce potential flood damage to the building stock within the village. Given the extent of modern interventions within the channel and the village streetscape it is concluded that the proposed culvert upgrades and localised regrading works will have an **imperceptible negative impact** on the character of the Blackpool ACA. The alleviation of the potential for flood damage within the ACA is assessed as having a **permanent slight positive impact** on the architectural heritage resource.

Mitigation

Archaeological monitoring will be undertaken in all areas to be impacted by ground reduction works and in-channel works. The removal of vegetation overgrowth from both within and adjacent to the channels will also be carried out under archaeological supervision. In the event that any potential features of architectural and/or archaeological heritage are encountered in any areas the Archaeologist will consult with the appropriate authorities in order to determine further mitigation measures.

Residual Impacts – Permanent Slight Positive Impact

All potential cultural heritage impacts will be addressed during the construction phase with the enactment of appropriate mitigation in the event that unrecorded features are identified during monitoring. A **permanent slight positive impact** will result from the alleviation of flooding.

10.4.3 Sunbeam Industrial Park and Dulux Factory

Potential Permanent Moderate Negative Impact

An 18th/19th century mill complex, formerly located within the Sunbeam Industrial Park, is listed in the RMP (CO074-115---). This complex was destroyed by a fire in 2003 and no surface traces of the former mill are visible within the open brownfield area to be impacted by the scheme. The detail on the consulted historic maps indicates that no mill buildings were located within 40m of the nearest element of the proposed scheme. Given the prior destruction of the buildings during the fire, and subsequent site clearance works, the proposed scheme is deemed to have a **permanent neutral impact** on the former mill site. However, the ground works necessitated by the creation of a sediment trap, ramp and access road along the north side of the present line of the channel, which appears to be a 20th century diversion, has the potential to create a **permanent moderate negative impact** in the event that any unrecorded sub-surface archaeological features associated with the former mill site that may exist on their footprint.

The adjacent Dulux Paint Factory is sited on the former location of a 19th century chemical works which was extensively modernised during the 20th century. Given the disturbed nature and scale of modern interventions in both properties the proposed construction of flood defence walls on top of the existing 20th century channel retaining walls will not negatively impact on any features of cultural heritage significance. The proposed scheme will also require the removal of a 20th century sluice and associated metal footbridge within the section of the channel adjacent to the paint factory. While this feature is not a protected structure it is deemed to have a general cultural heritage significance as it relates to the industrial development of the watercourse and its removal therefore has the potential to result in a resulting in a slight cultural heritage impact.

Mitigation

Archaeological test trenching will be undertaken in all areas to be impacted by ground reduction works within the Sunbeam site during the preconstruction phase. Archaeological monitoring will also be carried out within the wider area during the construction phase. In the event that any unrecorded features of architectural and/or archaeological heritage are encountered in any areas the Archaeologist will consult with the appropriate authorities in order to determine further mitigation measures.

Residual Impacts – Permanent Slight Negative Impact

All potential cultural heritage impacts will be addressed during the preconstruction and construction phases with the enactment of appropriate further mitigation in the event that any unrecorded features are identified. There will be a **permanent slight negative impact** following the construction phase.

10.4.4 Fitz's Boreen Road Bridge

Potential Permanent Moderate Negative Impact

The existing masonry bridge at this location is not listed in the RMP, RPS or NIAH. While it is not a protected feature it appears to be depicted on the 1st edition 6-inch map and is deemed to be of minor cultural heritage significance. The removal of this structure therefore has potential to comprise a **permanent moderate negative impact** to the cultural heritage resource of the area.

Mitigation

A detailed architectural heritage survey of the unnamed masonry bridge to be removed by the proposed works at Fitz's Boreen will be undertaken to ensure its preservation by record. This record will comprise detailed written, drawn and photographic surveys of the structure and will be undertaken in consultation with the heritage staff of Cork City Council. A detailed record of the sluice and associated industrial features in the section of the channel within the Dulux Paint Factory will also be carried out during the preconstruction phase. All ground works in this area will be archaeologically monitored during the construction phase.

Residual Impacts – Permanent Slight Negative Impact

All potential cultural heritage impacts will be addressed during the preconstruction and construction phases with the enactment of appropriate further mitigation in the event that any unrecorded features are identified. There will be a **permanent slight negative impact** following the construction phase.

10.4.5 Kilnap Glen House Property

Potential Permanent Moderate Negative Impact

This property contains three protected cultural heritage structures including the remains of a corn mill listed in the RMP (CO074-112----) and a viaduct listed in the RPS (ref PS617).). As noted above, Kilnap Glen House is listed in the RPS (ref. PS616) as 'Kilnap House' and is also included in the NIAH (ref. 20858003). Kilnap Road Bridge on the public road in the area outside the northeast end of the property is also listed in the NIAH (20858004).

The proposed construction of a flood defence embankment within the house garden will not physically impact on any of the protected cultural heritage structures, or curtilage structures, within the property. The proposed creation of an earth embankment within the garden is deemed consistent with a landscaped garden intervention and will not create any material alteration to the protected structure. The construction of the proposed embankment is therefore deemed to result in a **permanent slight negative impact** on the setting of the protected structure and adjacent mill. The proposed embankment will alleviate potential flood damage to the protected structure and the adjacent mill and aspects of its impact on this element of the cultural heritage resource are, therefore, assessed as positive in nature. However, ground works for the creation of the embankment within the garden will have the potential to create a **permanent moderate negative impact** on any unrecorded sub-surface archaeological features or artefacts that may exist on its footprint and mitigation is recommended below.

The proposed scheme will require the removal of a small masonry bridge along the present line of the house driveway in the south end of the property, at a distance of approx. 180m from the house. This is not a protected structure and it is not present on the 1st edition 6-inch map, which shows the access to Kilnap Glen House extending along the area to the north of the river in an area now occupied by a modern house. A crossing point is shown at this location on the 25-inch map and this is on the line of a new access road to the mill property to the east of the house, which is still accessed via the area to the north. This indicates that the bridge post-dates the construction and use of Kilnap Glen House during the first half of the 19th century. It appears to have been built to provide access to the neighbouring mill property, perhaps when the original Shaw's mill was replaced with a new mill building in the late 19th century. The bridge is, nonetheless, deemed to be an ancillary feature of minor cultural heritage significance due to its historical association with the mill site and present location within the southern end of the Kilnap Glen House property. The removal of this structure will not materially impact on the character of the protected structure and will therefore comprise a **permanent slight negative impact** within the curtilage of the protected structure.

The reinstatement of the existing trackway to provide access to the proposed screen downstream of the Kilnap Bridge will avoid the requirement for ground works associated with the construction of a new access route through the property. This element of the proposed works is, therefore, **deemed to be neutral in nature**. The proposed screen, and associated ramp, will also have a neutral impact on the setting and character of the Kilnap Viaduct and Bridge structures, any associated curtilage features. The proposed works will also avoid the location of a late 19th century weir feature shown in the area to the southwest on the 25-inch OS map.

Mitigation

Archaeological test trenching will be undertaken in all areas to be impacted by ground reduction works for the earth embankment during the preconstruction phase. Archaeological monitoring will also be carried out within this area during the construction phase. In the event that any unrecorded features of architectural and/or archaeological heritage are encountered in any areas the Archaeologist will consult with the appropriate authorities in order to determine further mitigation measures. A detailed architectural heritage survey of the late 19th century masonry bridge will be undertaken to ensure its preservation by record. This will comprise detailed written, drawn and photographic surveys of the structures and will be undertaken in consultation with the heritage staff of Cork City Council.

Residual Impacts - Permanent Slight Negative Impact

All potential cultural heritage impacts will be addressed during the preconstruction and construction phases with the enactment of appropriate further mitigation in the event that any unrecorded features are identified. The permanent impact is therefore likely to be slightly negative.

Chapter 11:

Material Assets Impact Assessment

11 MATERIAL ASSETS IMPACT ASSESSMENT

The Study Area, for the purposes of this Chapter, refers to the area in which works are proposed for the River Bride (Blackpool) Certified Drainage Scheme as described in Chapter 3.

Material assets are generally considered to be the physical resources in the environment, which may be of human or natural origin. This chapter details the impact of the proposed River Bride (Blackpool) Certified Drainage Scheme on these resources, namely transport infrastructure, subterranean infrastructure, traffic and the management of waste.

The impact assessment is based on a desk study, with details of major utilities taken from information supplied by Cork City Council, Cork County Council, Arup and the service providers. The road network was identified using Ordnance Survey Ireland (OSi) discovery series mapping along with an examination of aerial photography.

A number of documents were consulted in the preparation of this assessment, as follows;

- (i) Cork City Development Plan, 2015 – 2021
- (ii) Cork County Development Plan, 2014
- (iii) Cork City Waste Management Plan, 2004
- (iv) Cork County Council, Waste Management Plan, 2004
- (v) EPA, Guidelines on the information to be contained in Environmental Impact Statements

11.1 RECEIVING ENVIRONMENT

The River Bride (Blackpool) Certified Drainage Scheme, described in Chapter 3, comprises mainly of works to and in the vicinity of the River Bride North and Glenamought River. As such, potential impacts to material assets are restricted to these areas. The proposed scheme will have potential to impact on the following;

- Roads Network (incl. increased traffic);
- Existing Bridges;
- Drainage Network;
- Water Distribution Network;
- Bord Gáis Distribution Network;
- Electricity Network;
- Broadband Network;
- Telecommunications Network.

11.2 TRAFFIC AND ROADS

The construction phase of the River Bride (Blackpool) Certified Drainage Scheme will have a temporary impact on traffic volumes in Blackpool and its environs. Hauling of excavated material which is not reused on site, combined with the delivery of materials and work force traffic will be assessed in relation to existing traffic volumes and mitigation measures proposed.

11.2.1 Description of Project and Roads Network

The majority of the proposed works under the River Bride (Blackpool) Certified Drainage Scheme are contained within a 3.5 km stretch of the River Bride. The proposed works are located in the vicinity of the river and comprise the following as detailed in Chapter 3:

- Construction of new culverts,
- Replacement of four 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 3A),
- Construction of a sedimentation trap on the left bank of the River Bride,
- Removal of approximately 100m of existing culvert and restoration of open channel (River Bride) at this location,
- Construction of a new trash screen, and replacement of an existing trash screen on the River Glen with a roughing screen,
- Modifications to the existing foul and surface water collection networks in the vicinity of the proposed works 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 to facilitate pedestrian/ vehicular access around flood defences, and
- Regular maintenance of the river channel and pumping stations.

Detailed site investigation will also be required at the location of all proposed works. These proposed works are detailed in the scheme drawings in Appendix 3A.

The road network within the study area comprises a national road (N20), regional and local roads. The main artery through Blackpool is the national primary route (N20) which conveys traffic from Patrickswell in County Limerick to Cork City.

The River Bride (Blackpool) Certified Drainage Scheme, as described above and detailed in Chapter 3, is mainly concerned with works to and in the vicinity of the River Bride (North), and therefore generally will not have any permanent impact on the road network. The potential impacts of the River Bride (Blackpool) Certified Drainage Scheme on the road network are as follows:

- Temporary impact during construction due to the replacement of two existing bridges/culverts on the Glenamought River with new reinforced concrete bridges between Sweeney's Hill and the North Point Business park;
- Temporary impact during construction due to the replacement of two existing bridges/culverts on the River Bride with new reinforced concrete bridges between the North Point Business Park and Commons Road (N20);

- Temporary impact during construction due to the construction of 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;
- Temporary impact during construction due to the replacement and slight realignment of 16m of existing culvert (approximate internal dimensions 5.5m x 2.1m) on Old Commons Road upstream of Blackpool Church;
- Temporary impact during construction due to the rehabilitation of 17m of existing culvert on Old Commons Road upstream of Blackpool Church and 163m of existing culvert on Watercourse Road upstream of Madden's Buildings;
- Temporary impact during construction due to the 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;
- Temporary impact during construction due to the 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 modifications to the existing weir structure within the 'Brewery' culvert, which runs under Watercourse Road.

A further impact on the road network as a result of the proposed works is a temporary increase in traffic volumes as a result of construction activity. This section assesses this impact on the traffic in the study area and provides associated mitigation measures.

11.2.2 Existing Traffic

Traffic data for routes within the study area was obtained from traffic surveys carried out by Cork City Council and Transport Infrastructure Ireland. The traffic surveys provide a baseline for the traffic impact assessment of the River Bride (Blackpool) Certified Drainage Scheme. The Cork City Council traffic survey locations are shown on drawing TA001 in Appendix 11A.

The annual average daily traffic (AADT) data and the percentage of heavy goods vehicles for the N20 between Blarney and Blackpool is presented in Table 11.1.

Table 11.1 Traffic flows on the N20 between Blarney and Cork (Source: www.nrtrafficdata.ie)

	2015	2014	2013
AADT	20997	20748	20652
% HGV	4.5%	4.5%	4.6%

A traffic survey carried out on 04/12/2014 on the North Ring Road/N20 Junction is presented in Table 11.2

Table 11.2 Traffic flows on the North Ring Road/N20 Junction

Road Name	Daily Traffic Count	Peak Hourly Flow (8 – 9 am)	Peak Hourly Flow (5 – 6 pm)
North Ring Road (R653)	25059	2073	1911
Blackpool Bypass (N20) towards New Mallow Road	30325	2441	2407
Blackpool Bypass (N20) towards Carroll's Quay	23396	2407	1810

Traffic surveys were carried out on the 21/11/2013 at the Commons Road/Bolands Industrial Estate Junction and the Mallow Road/Bolands Industrial Estate Junction. The results of the traffic surveys are provided in Tables 11.3 and 11.4.

Table 11.3 – Recorded Traffic Flows on the Commons Road/Boland Industrial Estate Junction

Road Name	Traffic Count (7am – 7pm)	Peak Hourly Flow (8 – 9 am)	Peak Hourly Flow (5 – 6 pm)
Commons Road Junction: Towards Bolands Industrial Estate (Fitz's Boreen)	4725	380	509
Commons Road Junction: Commons Road West	20483	2082	2250
Commons Road Junction: Commons Road East	19278	1932	2061

Table 11.4 – Recorded Traffic Flows on the Mallow Road/Boland Industrial Estate Junction

Road Name	Traffic Count (7am – 7pm)	Peak Hourly Flow (am)	Peak Hourly Flow (pm)
Mallow Road Junction: Towards Bolands Industrial Estate (Fitz's Boreen)	4116	386 (9 – 10am)	419 (1 – 2 pm)
Mallow Road Junction: Mallow Road West	3741	319 (8 – 9am)	438 (5 – 6 pm)
Mallow Road Junction: Mallow Road East	5829	521 (8 – 9am)	624 (5 – 6 pm)

The busiest area recorded during the traffic surveys was the Commons Road section of the N20 from the North Ring Road/N20 junction towards the New Mallow Road.

11.2.3 Construction Traffic

Construction related traffic will be used for delivery of materials to site, removal of surplus excavated material from site and transport of employees to/from site and throughout the site. The main materials to be delivered include concrete, clay, stone, pipes and culvert sections. The estimated number of round trips

(to/from site) for delivery of materials is approximately 1,440 spread over the anticipated construction period of 18 months.

The removal of surplus material will comprise principally of material excavated for foundations for walls and embankments and material excavated from culverts and the sediment trap. The estimated number of round trips to/from the site for the removal of surplus material is 1,080 over the anticipated 18 month programme.

The estimated number of round trips for construction personnel employed on site is approximately 20 round trips per day over the construction period. It is estimated that construction of the scheme will take 360 working days (18 month programme working 5 day weeks) to be completed.

Table 11.5 gives a breakdown of the estimated construction traffic.

Table 11.5 – Estimated Construction Traffic

Description of Trip	Total Round Trips	Round Trips Per Day*
Delivery of Materials	1,440	4
Removal of Excavated Material	1,080	3
Workforce	7,200	20
Total		27

*Trips per Day calculated based on total works programme of 360 working days

11.2.4 Potential Impacts on Traffic and Transport Infrastructure

11.2.4.1 Potential Impact on Transport Infrastructure

Potential Temporary Moderate Impact

The proposed scheme has the potential to impact on the transport infrastructure in the area, most significantly during the construction phase. This impact is likely to occur in the following areas;

1. Replacement of two masonry bridges on the Glenamought River between Sweeney's Hill and the North Point Business Park (C08-B01 and C08_B02)
2. Replacement of two masonry bridges on the River Bride between the North Point Business Park and Commons road (C06_B01 and C06_B02)
3. Culvert at the northern end of Orchard Court, constructed off line of existing open channel (C06-B03)
4. Culvert replacement at Blackpool Church (C06_B07)
5. Culvert replacement on the Old Commons Road (C06_B05)
6. Culvert reconstruction at the junction at Watercourse Road and the Blackpool Bypass (C01_B03)

The proposed replacement of the four masonry bridges with reinforced concrete bridges will result in a temporary negative impact during the construction phase of the drainage scheme. It will be necessary to limit vehicular and pedestrian access across the river during the construction stage to facilitate the

construction of the new culvert. These access points will be fully restored on construction of the works and will result in a permanent slightly positive impact following the construction phase of the drainage scheme.

The new proposed culvert of the existing open channel from downstream of Blackpool Bypass through Orchard Court will have a temporary negative impact due to temporary restriction of access to Orchard Court. Access will be reinstated over the culvert following completion of the works.

The replacement of the existing culverts will have a temporary impact on transport in these areas during the construction phase. The proposed works will not have a permanent impact as the transport infrastructure should be backfilled or reinstated completely.

Mitigation Measures

The construction of the reinforced concrete bridges will be carried out by a suitably qualified and experienced contractor who will be supervised to ensure that the works are carried out correctly. This will ensure that the bridges will be constructed safely and ensure the structural integrity of the structure.

Excavation and reinstatement of the Watercourse Road and Blackpool Bypass culvert trenches will be carried out in consultation with the Local Authority, and will also follow the Department of Transport, Tourism and Sport published document entitled 'Guidelines for Managing Openings in Public Roads'. These works will be designed and supervised by a suitably qualified and experience professional to ensure they are carried out correctly.

Residual Impacts - Potential Temporary Slight Impact

Taking into account the abovementioned mitigation measures, the residual impact of the proposed scheme on the transport infrastructure will be imperceptible.

11.2.4.2 Potential Impact of Construction Traffic

Neutral Impact

Taking into account the large numbers of existing vehicles using the road network in and in the vicinity of Blackpool, it is unlikely that traffic generated during the construction phase will have a significant impact on traffic flow in the town.

It is possible to quantify the predicted impact the construction traffic will have on the flow of traffic by calculating maximum hourly flows of construction traffic. These calculation are based on a working day of between 8am and 6pm. It was also assumed that the workforce will arrive during peak morning traffic and leave during peak evening traffic (10 round trips morning and evening). A conservative value of 2 deliveries in any one hour was taken as these trips are not likely to be spread evenly throughout the day. A conservative value of 2 removals of surplus materials in one hour was taken. Each round trip was calculated as two trips, to site and from site.

Table 11.6 compares the construction traffic generated to the existing traffic flows.

Table 11.6 – Recorded Traffic Flows on Anticipated Construction Traffic Routes

Road Name	Existing Maximum Hourly Traffic Flow	Construction Traffic	
		Maximum Hourly Traffic Flow*	As a Percentage of Existing Traffic
North Ring Road/N20 Junction: N20 Commons Road towards New Mallow Road	2441	28	1.1%
North Ring Road/N20 Junction: N20 Commons Road towards Carroll's Quay	2407	28	1.2%
Commons Road Junction: Towards Bolands Industrial Estate (Fitz's Boreen)	509	28	5.5%
Commons Road Junction: Commons Road West	2250	28	1.2%
Commons Road Junction: Commons Road East	2061	28	1.4%
Mallow Road Junction: Towards Bolands Industrial Estate (Fitz's Boreen)	409	28	6.8%
Mallow Road Junction: Mallow Road West	438	28	6.4%
Mallow Road Junction: Mallow Road East	624	28	4.5%

*Maximum construction hourly traffic flow based on working day from 8am to 6pm, with workforce arriving during morning peak flow and leaving during evening peak flow.

Of the locations for which traffic data is available, it is predicted that the largest increase in traffic volume as a result of the River Bride (Blackpool) Certified Drainage Scheme will occur on Fitz's Boreen. The predicted increase is as a result of the relatively low volume of traffic currently using this road and not as a result of a larger volume of construction traffic in this area. Similar increases in traffic volumes can be expected on minor roads with relatively low traffic volumes, such as Sweeney's Hill.

It is not anticipated that the construction traffic will significantly affect the flow of traffic through Blackpool village. The impact of construction traffic will be short term.

11.2.4.3 Potential Impact of Works in the Vicinity of Road Network

Potential Temporary Slight Impact

Localised traffic disruption is also likely to occur at locations of proposed works on, or in the immediate vicinity of the road network. These works include the replacement of existing masonry bridges upgrading of existing culverts. Detailed site investigation works will also be carried in the vicinity of all proposed works.

Mitigation Measures

The localised traffic disruptions as a result of other proposed works throughout the scheme will be mitigated through the use of industry standard traffic management measures. These traffic management

measures should be designed in accordance with the 'Guidance for the Control and Management of Traffic at Roadworks – Second Edition'.

Residual Impact – Potential Temporary Imperceptible Impact

Relatively short, localised delays are likely to be encountered by motorists at the locations of proposed works in the immediate vicinity of the road network. This impact will be a short term impact and there will be no residual impact on completion of the proposed works.

11.2.4.4 Potential Impact of Road Closures

Potential Temporary Significant Impact

It is likely that temporary road closures will be required during the construction phase of the works at the following locations:

- Private access to Woodview House (C08_B01) – the road closure is envisaged to last approximately 2-3 months. An alternative temporary access will be provided to facilitate the property owners.
- Access to North Point Business Park (C08_B02) – a temporary bailey bridge will be put in place if it is not possible to keep one lane open during construction.
- Commons Inn – access to the hotel may be impacted temporarily during construction works, a temporary alternative access will be put in place.
- Dulux/AkzoNobel – a temporary access and traffic management measures will be required to the site from the Commons Road during the construction works.
- Sunbeam Industrial Estate (C06_B02) – the existing alternative accesses from the Redforge Road and the main shopping centre access will be used to mitigate the temporary closure of the bridge during construction.
- Orchard Court Bridge (C06_B03) – temporary closure of the bridge for a period of 1 to 2 months may be required to facilitate the construction of the proposed pumping station and culvert. A temporary vehicular access to Orchard Court will be provided over the new culvert near the existing pedestrian bridge downstream of the works.
- Thomas Davis St. and Old Commons Road Junction (C06_B07) – closure of one lane of Watercourse Road outside Blackpool Church is likely to facilitate the construction of the new culvert section is envisaged.
- Madden's Buildings – partial closure of the Watercourse Road at Madden's Buildings is envisaged to facilitate the proposed replacement of the concrete culvert. The construction will be phased to allow at least one lane of traffic to remain open at all times. The partial closure will result in temporary traffic disruptions in the area

The partial closures of the Watercourse Road at Blackpool Church and at Maddens Buildings will cause significant disruption to the traffic flow in the Blackpool area.

Mitigation Measures

Construction works in the vicinity of Blackpool Church and Maddens Buildings along Watercourse Road will be planned to take place over the summer in order to minimise traffic disruption. Any road and lane closures will be timed to minimise the impact to the flow of traffic, and if possible work will be carried out at off peak times to reduce the impact, particularly on heavy goods vehicles. All residents and interested parties should be consulted when planning these road closures to optimise the timing of same. A complete

schedule of road closures should be published in advance of the works commencing to facilitate residents in making alternative arrangements where necessary.

Residual Impact – Potential Temporary Moderate to Significant Impact

The closure of the Watercourse Road at Blackpool Church and Maddens Buildings to facilitate the proposed works is likely to cause a moderate to significant temporary impact to the flow of traffic in Blackpool. However, there will be no residual impact once the proposed scheme is completed.

11.3 POTENTIAL IMPACTS ON SERVICES AND PROPOSED MITIGATION MEASURES

The majority of proposed works pertaining to the River Bride (Blackpool) Certified Drainage Scheme, described in detail in Chapter 3, are located in or in the vicinity of River Bride. This section will explore the potential impact the scheme could have on existing services, and propose necessary mitigation measures.

Detailed Site Investigation will also be carried out in the vicinity of all proposed works. These works have the potential to impact existing services however standard industry methodologies will mitigate this impact. As such, the detailed site investigation has not been assessed in the individual sections below.

11.3.1 Potential Impacts on Drainage Network

Potential Temporary Significant Impact

The drainage network currently includes fifteen locations where pipes cross under or in close proximity to the proposed works locations. These crossings are detailed on Table 11.7 below and shown on Drawing MA001 in Appendix 11A.

Table 11.7 – Drainage Network Crossings

Crossing Type	Diameter	Location	Works Schedule Ref.
Interceptor	300mm	X=166402.2, Y=74933.3	C08_E01
Interceptor	Unknown	X=166353.9;Y=74618.5	C06_C01a
Interceptor	450mm	X=166537.2, Y=74514.3	C06_E01
Interceptor	450mm	X=166675.7, Y=74423.4	C06_C01
Storm	450mm	X=166535.;1Y=74401.7	C07_R01
Interceptor	450mm	X=166878, Y=74269.5	C06_L03a
Storm	750mm	X=167194.4, Y=74156.1	C06_L12
Foul	225mm	X=167475.8;Y=74005.6	C06_B06
Unprocessed	Unknown	X=167499.4, Y=73739.1	C06_L17
Interceptor	675mm	X=167455.7, Y=73650.73	C06_B03
Foul	375mm	X=167431.5, Y=73596.2	C06_B03
Interceptor	675mm	X=167425.9, Y=73557.1	C06_B03
Foul	530mm	X=167405.1, Y=73420.9	C06_B03

Crossing Type	Diameter	Location	Works Schedule Ref.
Interceptor	750mm	X=167417.3, Y=73408.6	C06_B03
Interceptor	825mm	X=167450, Y=73249	C06_B07
Storm	Unknown	X=167499.2, Y=73299.3	C06_B07
Storm	Unknown	X=167461.3, Y=73057.8	C01_B03
Storm	Unknown	X=167454.4, Y=73040.1	C01_B03

The proposed scheme has potential to have a significant impact on the crossings identified in Table 11.7. In the absence of mitigation measures, these pipes may be exposed or damaged during excavation works at the locations identified in Drawing MA001. This would lead to pollution of the Glenamought and Bride Rivers and disruption of the wastewater collection system.

Mitigation Measures

Prior to tendering the Contract, the Employer's Representative (Consultant Engineer) will assess the drainage network drawings and the detailed site investigation reports in order to determine the exact depth and location of the drainage network within the works area. The locations of the drainage network pipework relative to the proposed works will be confirmed as part of the Design Phase. Should it be anticipated that the excavation for the proposed works will impact on this pipework, this will be taken into consideration at detailed design stage and any diversions necessary to avoid accidental clashes during construction phase will be designed, planned and agreed with Irish Water and Cork City Council in advance of the construction phase. Planned diversions will be included in the works requirements or carried out in advance as appropriate.

Prior to excavation, the Contractor will assess record drawings and the results of the Site Investigation Contract. The Contractor will carry out additional site investigation to confirm the location of the existing pipework. This will further reduce the risk of striking the drainage network and causing interruption to the system during the construction phase.

Residual Impact – Neutral Impact

Taking into account the abovementioned mitigation measures the residual impact of the proposed scheme on the wastewater collection network and treatment process will be imperceptible.

11.3.2 Potential Impact to the Water Distribution Network

Potential Temporary Moderate Impact

The proposed scheme will potentially impact the water distribution network in the locations identified in Table 11.8 below and as shown on Drawing MA002 in Appendix 11A.

Table 11.8 – Water Distribution Pipework Crossings

Crossing Type	Diameter	Location	Works Schedule Ref.
Watermain - Ductile Iron	300mm	X=166554.4, Y=74394.8	C07-B01

Crossing Type	Diameter	Location	Works Schedule Ref.
Watermain - Ductile Iron	150mm	X=166826.7, Y=74280.4	C06_L03
Watermain - Ductile Iron	150mm	X=166844.7, Y=74272.5	C06_L03
Watermain - Ductile Iron	150mm	X=166864.5, Y=74266.4	C06_L03a
Watermain - Ductile Iron	150mm	X=167447.5; Y=74024.4	C06_B02
Watermain - Ductile Iron	250mm	X=167501.9 Y=73733.1	C06_L17
Watermain - Ductile Iron	800mm	X=167502.5, Y=73711.7	C06_L18
Watermain - Ductile Iron	600mm	X=167493.2, Y=73679.8	C06_L18
Watermain - Ductile Iron	150mm	X=167407.3, Y=73416.1	C06_P06
Watermain - Ductile Iron	250mm	X=167458.4, Y=73238.2	C06_B07
Watermain - Ductile Iron	250mm	X=167470.8, Y=73056.9	C01_B03
Watermain - Ductile Iron	250mm	X=167463.6, Y=73065.7	C01_B03

Watermains may be encountered during excavation works for the proposed flood defence walls and culverts at the locations identified in drawing MA002. It is possible that watermains could be damaged during the construction phase, resulting in distribution to the potable water supply in the area. The impacts are predicted to be moderate and temporary.

Mitigation Measures

The Employer's Representative (Consultant Engineer) will assess the water distribution drawing and detailed site investigation in order to determine the locations of watermains relative to the proposed works as part of the Design Phase. Any anticipated clashes between the water distribution network and the proposed works will be identified during the design phase and any diversions necessary to avoid accidental clashes during the construction phase will be designed, planned and agreed with Irish Water in advance of the construction phase of the Scheme.

The Contractor will be supplied with record service drawing and the results of the Site Investigation prior to excavation in order to determine the location of existing watermains within the works area. The Contractor will carry out additional site investigation in order to confirm the location of the watermains. This will further reduce the risk of striking the watermains and causing unscheduled interruption to the potable water supply in the area.

Residual Impact - Neutral Impact

Taking into account the abovementioned mitigation measures, no residual impact to the watermains following the construction phase is predicted.

11.3.3 Potential Impact to the Gas Network

Potential Temporary Moderate Impact

There is an extensive gas distribution network throughout Blackpool which intersects or lies in close proximity to the proposed scheme at the locations identified in Table 11.9, as shown on Drawing MA003 in Appendix 11A.

Table 11.9 – Gas Pipework (Distribution) Crossings

Crossing Type	Location	Works Schedule Ref.
Gas Distribution	X=166139.9, Y=74755.2	C09_R01
Gas Distribution	X=166090.0, Y=74785.4	C09_R01
Gas Distribution	X=166070.0, Y=74693.1	C06_R02
Gas Distribution	X=166551.8, Y=74395.5	C07_B01
Gas Distribution	X=166923.6, Y=74239.9	C06_B01
Gas Distribution	X=167339.5, Y=74079.6	C06_L15
Gas Distribution	X=167370.2, Y=74056.2	C06_L14/L15
Gas Distribution	X=167428.3, Y=74018.8	C06_L14/L15
Gas Distribution	X=167481.9, Y=73858.6	C06_L17
Gas Distribution	X=167502.4, Y=73.821.6	C06_L17
Gas Distribution	X=167407.6, Y=73421.9	C06_P06
Gas Distribution	X=167421.7, Y=73343.2	C06_B03
Gas Distribution	X=167433.8, Y=73317.5	C06_B03
Gas Distribution	X=167447, Y=73294.2	C06_B07
Gas Distribution	X=167457.2, Y=73235.6	C06_B08
Gas Distribution	X=167469.6, Y=73055.1	C01_B03
Gas Distribution	X=167472.8, Y=73027.5	C01_B03

Excavation for the culverts and flood defence wall foundations could encounter a gas main at the locations identified in drawing MA003. It is possible that this gas main could be damaged during the construction phase, affecting the supply to properties in the area and potentially causing a fire or explosion.

The impacts described above are predicted to be temporary and significant.

Mitigation Measures

The locations of the gas pipelines relative to the proposed works will be confirmed as part of the Design Phase. The Employer's Representative (Consultant Engineer) will assess the gas network drawings and result of the detailed site investigation in order to determine the exact depth and location of the existing gas pipelines within the works area. Should it be anticipated that the excavation for the proposed works will

impact on this pipework, this will be taken into consideration at detailed design stage and any diversions necessary to avoid accidental clashes during construction phase will be designed, planned and agreed with Bord Gáis in advance of the construction phase. Planned diversions will be include in the works requirements or carried out in advance as appropriate.

The Contractor will be supplied with the site investigation report and record drawings of the gas distribution network. Prior to excavation the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the gas pipelines in close proximity to the works area. This will ensure that the gas distribution network will not be damaged during the construction phase.

Residual Impact - Neutral Impact

Taking into account the abovementioned mitigation measures, there will be no residual impact to the gas mains following the construction phase.

11.3.4 Potential Impact to Electricity Network

Potential Temporary Moderate Impact

The proposed scheme may impact on the underground and overground electricity network at the locations detailed in table 11.10 and on Drawing MA004 in Appendix 11A.

Table 11.10 – ESB Cable Crossings

Crossing Type	Location	Works Schedule Ref.
ESB Underground Cable	X=166284.0, Y=74786.1	C08_B02
ESB Overground Cable	X=166063.7, Y=74714.3	C12_L01
ESB Overground Cable	X=166361.9 Y=74623.0	C06_C01a
ESB Overground Cable	X=166606.7, Y=74411.7	C06_L01/R01
ESB Overground Cable	X=166773, Y=74320.8	C06_L03
ESB Underground Cable	X=166781.3, Y=74329.8	C06_L03
ESB Underground Cable	X=166923.3, Y=74240.1	C06_B01
ESB Underground Cable	X=167159.8, Y=74152.2	C06_L14
ESB Underground Cable	X=167495.2, Y=73907.9	C06_R03
ESB Underground Cable	X=167496.3, Y=73828.9	C06_L17
ESB Underground Cable	X=167396.5, Y=73415.2	C06_P06
ESB Underground Cable	X=167424, Y=73343.1	C06_B03
ESB Underground Cable	X=167446.8, Y=73297.5	C06_B07
ESB Underground Cable	X=167456.6, Y=73266.8	C06_B08
ESB Underground Cable	X=167432, Y=73241	C06_B08
ESB Underground Cable	X=167473.1 Y=73046.8	C01_B03

Crossing Type	Location	Works Schedule Ref.
ESB Underground Cable	X=167467.6, Y=73026.1	C01_B03

Electricity cable laid in close proximity to the location of the proposed culverts and flood defence walls and embankments has the potential to be damaged during excavation works. This would result in a loss of power in the area. The striking of an underground electricity cable during construction operations could potentially result in serious injury or death of site staff.

There are also a number of overground electricity cabling crosses in the vicinity of the works.

The potential impact to the electricity infrastructure as a result of the construction of the proposed works is predicted to be temporary and significant.

Mitigation Measures

The locations of the electricity network relative to the proposed works will be confirmed as part of the Design Phase. The Employer's Representative (Consultant Engineer) will assess the service drawings and results of the detailed site investigation in order to determine the exact depth and location of the existing electricity cables within the works area. Should it be anticipated that the excavation for the proposed works will impact on the electricity network, this will be taken into consideration at detailed design stage and any diversions necessary to avoid accidental clashes during construction phase will be designed, planned and agreed with the ESB in advance of the construction phase. Planned diversions will be include in the works requirements or carried out in advance as appropriate.

The Contractor will be supplied with the site investigation report and record drawings of the electricity network. Prior to excavation the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the electricity network in close proximity to the works area. This will ensure that the underground electricity network will not be damaged during the construction phase.

The Contractor will be supplied with the information obtained in the slit trenches and the electrical cable locations will be marked prior to excavation in the area. The Contractor will carry out additional site investigation to determine the exact location of the electrical cables in the vicinity of the proposed works. This will further reduce the risk of striking the cables and causing damage during the construction phase.

It is considered that any likely impacts to or from the overhead cables will be mitigated by applying standard construction practices. The Contractor must adhere to the ESB Code of Practice for Avoiding Danger from Overhead Electricity Lines, 2008 and the HSA Code of Practice for Avoiding Danger from Underground Services, 2010.

Residual Impact - Neutral Impact

Taking into account the abovementioned mitigation measures there will be no residual impact to the electrical infrastructure following the construction phase.

11.3.1 Potential Impact to Broadband Network

Potential Temporary Slight Impact

The broadband network intersects the proposed scheme in five locations, as detailed in Table 11.11 and shown on Drawing MA005.

Table 11.11 – Broadband Network Crossings

Crossing Type	Location	Works Schedule Ref.
Broadband Duct	X=166925.2, Y=74234.7	C06_B01
Broadband Duct	X=166111.3, Y=74783.1	C09_R01
Broadband Duct	X=167441, Y=74011.3	C06_B02
Broadband Duct	X=167409.5, Y=73419.2	C06_P06
Broadband Duct	X=167475.2, Y=73050	C01_B03
Broadband Duct	X=167473.4, Y=73034	C01_B03

Excavation works for the proposed culverts and flood defence walls has the potential to damage broadband cables at the locations identified in drawing MA005. This would result in the loss of service in the area. The potential impacts are considered to be slight and temporary.

Mitigation Measures

Prior to tendering Contract, the Employer's Representative (Consultant Engineer) will assess the broadband network drawings and the detailed site investigation reports in order to determine the exact depth and location of the broadband network within the works area. The locations of the drainage network pipework relative to the proposed works will be confirmed as part of the Design Phase. Should it be anticipated that the excavation for the proposed works will impact on this pipework, this will be taken into consideration at detailed design stage and any diversions necessary to avoid accidental clashes during construction phase will be designed, planned and agreed with the service provider in advance of the construction phase. Planned diversions will be included in the works requirements or carried out in advance as appropriate.

The Contractor will be supplied with the information obtained in the slit trenches and the electrical cable locations will be marked prior to excavation in the area. The Contractor will carry out additional site investigation to determine the exact location of the broadband cables in the vicinity of the proposed works. This will further reduce the risk of striking the cables and causing damage during the construction phase.

Residual Impact - Neutral Impact

Taking into account the abovementioned mitigation measures there will be no residual impact to the broadband infrastructure following the construction phase.

11.3.2 Potential Impact to Telecommunications Network

Potential Temporary Slight Impact

The telecommunications network intersects the proposed scheme at the locations shown on Drawing MA006 in Appendix 11A and listed in Table 11.12 below.

Table 11.12 – Telecommunications Network Crossings

Crossing Type	Location	Works Schedule Ref.
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Crossing Type	Location	Works Schedule Ref.
Overground Cable	X=166307, Y=74829	C08_B01
Underground Cable	X=166294, Y=74733	C08_B02
Overground Cable	X=166043.7, Y=74691	C06_L01
Underground Cable	X=166571.4, Y=74392.7	C07_B01
Overground Cable	X=166768.7, Y=74331.5	C06_L03
Underground Cable	X=166927.6, Y=74238	C06_B01
Overground Cable	X=167431.4, Y=74019.5	C06_B02
Underground Cable	X=167485.3, Y=73956.3	C06_E02
Overground Cable	X=167488.1, Y=73897	C06_L17
Overground Cable	X=167488.1, Y=73850.9	C06_L17
Underground Cable	X=167500.8, Y=73723.5	C06_L17/L18
Overground Cable	X=167445.5, Y=73626.7	C06_B03
Overground Cable	X=167438.7, Y=73561.9	C06_B03
Underground Cable	X=167440.8, Y=73305.1	C06_B06
Underground Cable	X=167454.4, Y=73232.1	C06_B06
Underground Cable	X=167470.8, Y=73053.1	C01_B03
Underground Cable	X=167475.6, Y=73021	C01_B03

Works are proposed at the locations identified in MA006 where telecommunication cables are present both above and below ground. Should these cables clash with the works they could become damaged during construction phase.

The potential impacts are considered to be temporary and moderate.

Mitigation Measures

Prior to tendering Contract, the Employer's Representative (Consultant Engineer) will assess the telecommunications network drawings and the detailed site investigation reports in order to determine the exact depth and location of the existing network within the works area. The locations of the telecommunications cable locations relative to the proposed works will be confirmed as part of the Design Phase. Should it be anticipated that the excavation for the proposed works will impact on this cabling, this will be taken into consideration at detailed design stage and any diversions necessary to avoid accidental clashes during construction phase will be designed, planned and agreed with the service provider in advance of the construction phase. In the case of the proposed flood defence walls where the cables potentially run along the proposed wall route, these cables will have to be taken into consideration at detailed design stage. Planned diversions will be included in the works requirements or carried out in advance as appropriate.

The Contractor will be supplied with the information obtained in the slit trenches and the telecommunication cable locations. Prior to excavation the Contractor will carry out additional site investigation in order to determine the exact location of any underground telecommunications cables. This will further reduce the risk of striking the cables and causing damage during the construction phase.

It is considered that any likely impacts to the overhead cables will be mitigated by applying standard construction practices.

Residual Impact - Neutral Impact

Taking into account the abovementioned mitigation measures there will be no residual impact to the telecommunications infrastructure following the construction phase.

11.4 WASTE MANAGEMENT DURING CONSTRUCTION

It is anticipated that the River Bride (Blackpool) Certified Drainage Scheme will produce a significant volume of waste material during the construction phase. Through an extensive document review combined with information received from the scheme designers this section will examine the potential impacts associated with this waste and any mitigation measures required.

11.4.1 Background Information

'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects (2006)' were published by the DoEHLG. These Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion.

Best Practice Guidelines sets thresholds to ascertain which projects require the preparation of C&D plans. The proposed development, exceeds the following threshold and therefore requires a C&D Waste Management Plan;

- Civil Engineering projects producing in excess of 500m³ of waste, excluding waste materials used for development works on the site.

As outlined in Chapter 6, excavated material will be reused on site as much as practicable. Where this is not possible, the recycling rates for the C&D waste produced throughout the construction of the River Bride (Blackpool) Certified Drainage Scheme should be maintained at or above 85%, if possible, as outlined in the Waste Management (Planning) Regulations 1997.

11.4.2 Classification Of Waste

Excavation for flood defence foundations, pipe trenches and culverts will give rise to a volume of material during the construction phase of the proposed scheme. The excavated material will be reused where possible, however approximately 10,000 m³ will have to be exported from the site.

The European Waste Codes (EWC) for typical waste materials that may possibly be generated during the construction phase are outlined in Table 11.13.

Table 11.13 – Applicable European Waste Codes

Waste Material	EWC
Soil, stones and dredged spoil	17 05

Waste Material	EWC
Bituminous mixtures, coal tar and tarred products	17 03
Concrete, Bricks, Tiles and Ceramics	17 01
Metals (including their alloys)	17 04
Waste Hydraulic Oils*	13 01
Wastes of Liquid Fuels*	13 07
* Denotes Hazardous Materials	

A breakdown of the estimated volumes of waste, origin of waste, and European Waste Codes are shown on Table 11.14.

Table 11.14 – Estimated C&D Waste resulting from the proposed scheme

Origin of Waste	EWC	Estimated Volume of Waste
Wall Foundations	17 05/17 03	2,200m ³
Culverts	17 05/17 03	6,000m ³
Embankment Foundations	17 05/17 03	500m ³
Pipe Trenches	17 05/17 03	500m ³
Miscellaneous	17 05/ 17 04/17 03/17 01/ 13 01/ 13 07	4,500m ³
Total		13,700m³

11.4.3 Potential Impact during Construction Phase

Potential Temporary Moderate Impact

Poor management of excavated waste could lead to the disposal of waste deemed unsuitable for reuse or recycling in facilities that do not carry the appropriate licenses.

In addition, if waste is not managed and stored correctly on site, it has the potential to cause nuisance and environmental impact. Litter may be generated from packaging taken from materials, mixed waste produced by the construction workers (lunches, cigarette waste etc.), or from debris from leftover/damaged construction materials. Poor management of waste may also result in water and ground pollution on the site or adjacent to the site.

Fuels and hydraulic oils/lubricants that will be used during the construction phase are classed as hazardous. There will be fuels stored on site for machinery and construction vehicles along with oils and lubricants. Should any spillages, waste or surplus liquids be disposed of incorrectly it could cause serious harm to the surrounding environment.

The potential impacts of construction and demolition waste on the environment are predicted to be short term and moderate.

Mitigation Measures

All current and applicable waste management legislation will be applied and adhered to. Contractors that are engaged in the transport of waste off-site will comply with the provisions of the Waste Management Act (1996) (as amended), associated Regulations and the Waste Management Plan prepared in accordance with 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects (2006)'. As such, the Contractor must handle, transport and dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities. A collection permit to transport waste must be held by the relevant contractor which has been issued by the Local Authority where the waste has been generated i.e Cork City Council and Cork County Council.

Waste receiving facilities must also be appropriately licensed or permitted for the waste being received. Operators of such facilities cannot receive any waste, unless in possession of a waste permit granted by the Local Authority under the 'Waste Management (Facility Permit & Registration) Regulations 2007' (as amended) or a waste license granted by the EPA. The permit/license held will specify the type and quantity of waste able to be received, stored, sorted, recycled and/or disposed of at the specific site. It has been confirmed that there are appropriate facilities in the area available to receive and process waste material.

The construction compound for the proposed scheme should have a dedicated Waste Storage Area (WSA) for any construction waste generated. Receptacles/skips or bays will be provided for each recyclable material. Dedicated waste bins should also be provided on any water going vessel/platform to prevent litter from contaminating the River.

Bedrock, Block and Concrete

It is reasonable to assume that gravels and bedrock may be encountered during the excavation of foundations, culverts and pipe trenches. Any material which is not reused will be separated out and sent to the appropriate recycling facility or waste facility if deemed unsuitable for recycling.

During construction of flood defence walls and works to bridges and culverts it is reasonable to assume that there will be some waste concrete and blocks generated. This waste will be adequately contained and stored within the WSA of the construction compound. It will then be disposed of to a permitted or licensed facility.

Soil/Subsoil

Soils generated from excavations carried out throughout the scheme will be stored separately from the gravels and bedrock and will be transported to an appropriately licensed facility by permitted contractors. It is not considered likely that these materials will be hazardous, but should a portion of it be deemed to be contaminated they will be stored separately to the inert material. Samples will be taken and tested in order to appropriately classify the material as non-hazardous or hazardous to establish the criteria for the acceptance of waste at landfills. They will then be transported to an appropriately licensed facility by permitted contractors.

Scrap Metal

Reinforced concrete is likely to be used as part of the construction of the flood defence walls and sediment trap. As such it is reasonable to assume that a small amount of scrap metal be generated.

Scrap metal is highly recyclable and as such it will be segregated from other waste and recycled accordingly.

Timber

A small amount of timber waste may also be generated as a result of hoarding around works areas, or from shuttering for in-situ concrete pours. It is likely that this timber can be reused for a number of different functions throughout the construction phase however a small amount of waste will be generated, and the timber as a whole could be disposed of as the construction phase comes to a close.

Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc, will all be recycled. Should any timber be deemed to be contaminated it will be collected by an appropriately permitted specialist contractor and disposed of in an appropriately licensed facility.

Hazardous Materials

If hazardous materials are used/encountered on site, i.e. timber with paint, asbestos concrete pipes, a specialist contractor will be employed to carry out an environmental clean-up to remove all traces of contaminated material from the site. The specialist contractor will be licensed under the 'Waste Management (Collection Permit) Regulations, 2007' (as amended). This will be disposed of at an appropriately licensed facility.

In order to avoid any hazardous materials infiltrating the ground water during construction and operation phase there will be a bunded area constructed within the site compound with sufficient volume to contain any spills. All plant refuelling, maintenance or washing will be carried out within the bunded area. Spill kits will also be available at this area to facilitate the quick and effective cleaning of any substances.

Documentation

Waste will be weighed, either by weighing mechanism on the truck or at the receiving facility, and these records will be kept by the contractor (both hard and soft copies).

A copy of all waste collection permits, for all waste contractors will be kept by the Waste Manager, working on behalf of the Contractor, on site.

If the waste is being transported to another site, a copy of the waste permit or EPA Waste License for that site must be provided and kept by the Waste Manager. If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) document must be obtained from Dublin City Council (as the relevant authority on behalf of all local authorities in Ireland) and kept on site along with details of the final destination (permits, licenses etc). A receipt from the final destination of the material will be kept as part of the on-site waste management records.

All information will be entered into the waste management system to be maintained on site.

Residual Impacts – Neutral Impact

Taking into account the abovementioned mitigation measures the residual impact of the construction phase will be imperceptible.

11.4.4 Potential impact during the Operational Phase

Potential Temporary Slight Impact

The operational phase of the proposed scheme is unlikely to produce any waste of significant volume. Periodic maintenance of flood defences, pumping stations and trash screen will be carried out which could generate very small volumes of litter, packaging, concrete, scrap metal, bitumen products or soils that if not disposed of correctly could adversely affect the local environment.

Mitigation Measures

For maintenance and repair work, all maintenance teams involved will take all waste generated on site back to their compounds to be placed in appropriate waste streams designated for recycling, reuse or disposal. No waste will be left at the site of the repair or maintenance.

Residual Impacts – Neutral Impact

Taking into account the abovementioned mitigation measures the residual impact of the operational phase will be imperceptible.

Chapter 12:

Interaction of the Foregoing

12 INTERACTION OF THE FOREGOING

The preceding Chapters 4 to 11 of this EIS identify the potential environmental impacts that may occur in terms of Human Beings, Flora and Fauna, Soils and Geology, Hydrology and Hydrogeology, Air and Climate / Noise and Vibration, Landscape, Cultural Heritage and Material Assets, as a result of the proposed development. All of the potential impacts of the proposed development and the measures proposed to mitigate them have been outlined in the preceding sections of this report. However, for any development with the potential for significant environmental impact there is also the potential for interaction amongst these impacts. The result of interactive impacts may either exacerbate the magnitude of the impact or ameliorate it.

The following paragraphs detail the instances where there is or was an interaction between the impacts in the various sections and how any resultant adverse impacts have been averted.

Human Beings & Flora & Fauna

The scheme was initially designed to retain as much open channel as possible in order to minimise the impact on the fishery. When modelled, this design option (Option 3) required high flood retaining walls in Orchard Court which were found by the public to be unacceptable. Therefore, an alternative option (Option 4) was pursued which involves a pressurised culvert through Orchard Court. There was no viable alternative to the culvert to address the concerns or the local community about the negative impacts of the high walls, whereas it is considered that there are opportunities further upstream in the catchment to compensate or mitigate any local loss of fish habitat in the short length of culverted section through Orchard Court. Such compensatory measures includes the de-culverting of a significant length of culvert through sunbeam as well as a commitment from OPW to provide funding to IFI for other compensation measures in the catchment to enhance the fisheries resource.

Human Beings & Landscape

Among the original designs for the flood relief works was the construction of flood defence walls in the area near Orchard Court. Following consultation, this design was rejected due to the impact that it would have had on the views within the area. The enclosed culvert design that was chosen will instead provide additional amenity areas and will not result in any visual barrier.

Human Beings and Material Assets

The construction phase of the project will give rise to road closures and restrictions of traffic movements at times, and will create some short-term inconvenience for road users. By ensuring that these impacts occur at off-peak times during the summer when possible, this will be mitigated as much as possible.

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Web resources

Blackpool Parish	www.blackpoolparish.com
Census of Ireland 2011	www.census.ie
Central Statistics Office	www.cso.ie
Cork City Council:	www.corkcity.ie
Cork County Council website:	www.corkcoco.ie
EPA online mapping and reports	www.epa.ie
Fáilte Ireland	www.failteireland.ie
Geological Survey of Ireland website	www.gsi.ie
Ordnance Survey Ireland website	www.osi.ie
Met Eireann	www.met.ie
National excavations database:	www.excavations.ie
National Inventory of Architectural Heritage website:	www.buildingsofireland.ie
National Monuments Service website:	www.archaeology.ie
National Roads Authority Online Traffic Data	www.nratrafficdata.ie
Placenames database of Ireland:	www.logainm.ie
Water Framework Directive website	www.wfd.ie

Sources of Information

1:50,000 scale Discovery series mapping

1:10,560 OS Maps of the study area

Aerial photography of the Study Area

Environmental Protection Agency CORINE Land Cover Map