



# Natura Impact Statement

Blackwater (Munster)

# Natura Impact Statement

For

## River Basin (18) Blackwater (Munster) Flood Risk Management Plan

*Areas for Further Assessment included in the Plan:*

<i>Ceann Toirc</i>	<i>Kanturk</i>
<i>An Eaglais</i>	<i>Aglish</i>
<i>An Baile Dubh</i>	<i>Ballyduff</i>
<i>Mainistir Fhear Maí</i>	<i>Fermoy</i>
<i>Cillín an Chrónáin</i>	<i>Freemount</i>
<i>Mala</i>	<i>Mallow</i>
<i>Ráth Chormaic</i>	<i>Rathcormac</i>
<i>Tulach an Iarainn</i>	<i>Tallow</i>
<i>Eochail</i>	<i>Youghal</i>

Flood Risk Management Plans prepared by the Office of Public Works 2018

*In accordance with*

*European Communities (Assessment and Management of Flood Risks) Regulations 2010 and 2015*

## Purpose of this Report

As part of the National Catchment-based Flood Risk Assessment & Management (CFRAM) programme, the Commissioners of Public Works have commissioned expert consultants to prepare Strategic Environmental Assessments, Appropriate Assessment Screening Reports and, where deemed necessary by the Commissioners of Public Works, Natura Impacts Assessments, associated with the national suite of Flood Risk Management Plans.

This is necessary to meet the requirements of both S.I. No. 435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended by S.I. No. 200/2011), and S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011.

Expert Consultants have prepared these Reports on behalf of the Commissioners of Public Works to inform the Commissioners' determination as to whether the Plans are likely to have significant effects on the environment and whether an Appropriate Assessment of a plan or project is required and, if required, whether or not the plans shall adversely affect the integrity of any European site.

The Report contained in this document is specific to the Flood Risk Management Plan as indicated on the front cover.

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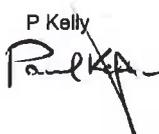
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## Acknowledgements

The Office of Public Works (OPW) gratefully acknowledges the assistance, input and provision of data by a large number of organisations towards the implementation of the National CFRAM Programme. In particular, the OPW acknowledges the assistance of Mott MacDonald Consulting Engineers and the valuable input and support of the Local Authorities at project level in each of the study areas.

The OPW also acknowledges the participation of members of the public, representative organisations and other groups throughout each stage of consultation.

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C	22 August 2017	R Mansfield	P Kelly	F.McGivern	Minor Amendments
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# 1 Introduction

## 1.1 Flood Risk Assessment and Management in Ireland

Flood risk management in Ireland has historically focused on land drainage schemes for the improvement of agricultural land. The *1945 Arterial Drainage Act* established a national drainage authority (the Office of Public Works) with the remit of implementing a national arterial drainage programme. The Arterial Drainage Act was amended in 1995 to include for the protection of urban areas suffering from flooding.

In 2004, the Irish Government adopted a new National Flood Policy for Ireland which shifted the emphasis in addressing flood risk away from arterial drainage (targeted towards the protection of agriculture and cities / town liable to serious flooding) and towards a waterbody catchment-based flood risk assessment (a similar catchment-based management approach to that already being implemented under the *Water Framework Directive 2000/60/EC*).

In 2007, the *Floods Directive* [2007/60/EC] was published which requires the establishment of a framework of measures to reduce the risks of flood damage. The Floods Directive was transposed into Irish law by the *European Communities (Assessment and Management of Flood Risks) Regulations, 2010* (S.I. No. 122 of 2010). The Regulations identify the Office of Public Works (OPW) as the lead agency in implementing flood management policy in Ireland.

## 1.2 Catchment Flood Risk Assessment and Management (CFRAM) Studies

For the purpose of delivering on the components of the National Flood Policy and on the requirements of the European Union Floods Directive, the OPW, in conjunction with local authorities and stakeholders, conducted a number of Catchment Flood Risk Assessment and Management (CFRAM) Studies. *These studies are the core activity from which medium to long-term strategies for the reduction and management of flood risk in Ireland will be achieved.*

The overarching objectives of the CFRAM Studies were to:

- Identify and map the existing and potential future flood hazard within the study area;
- Assess and map the existing and potential future flood risk within the study area;
- Identify viable structural and non-structural options and measures for the effective and sustainable management of flood risk within the study area;
- Prepare Flood Risk Management Plans (FRMPs) setting out recommendations to manage the existing flood risk and also the potential future flood risk which may increase due to climate change, development, and other pressures that may arise in the future. FRMPs set out policies, strategies, measures and actions that should be pursued by the relevant bodies (including the OPW, Local Authorities and other Stakeholders), to achieve the most cost-effective and sustainable management of existing and potential future flood risk within the study area, taking account of

environmental plans, objectives and legislative requirements and other statutory plans and requirements<sup>1</sup>.

### 1.3 Overview of the South Western River Basin District

The OPW has commissioned a CFRAM study for each of Ireland's seven River Basin Districts (RBDs)<sup>2</sup>.

The South Western River Basin District (SWRBD) covers an area of approximately 11,160 km<sup>2</sup> and includes most of county Cork, large parts of counties Kerry and Waterford along with small parts of the counties of Tipperary and Limerick. The SWRBD contains over 1,800 km of coastline along the Atlantic Ocean and the Celtic Sea.

Figure 1.1: South Western River Basin District (SWRBD)



<sup>1</sup> The Floods Directive requires that Flood Risk Management Plans should take into account the particular characteristics of the areas they cover and provide for tailored solutions according to the needs and priorities of those areas, whilst promoting the achievement of environmental objectives laid down in Community legislation.

<sup>2</sup> River Basin Districts (RBDs) are the main units for the management of river basins and have been delineated by Member States under Article 3 of the Water Framework Directive (2000/60/EC). RBDs are areas of land and sea, made up of one or more neighboring river basins together with their associated groundwaters and coastal waters.

### Units of Management in the SWRBD

There are five Units of Management within the South Western River Basin District which follow watershed catchment boundaries rather than political boundaries. The Units are as follows;

- Munster Blackwater River Basin (UoM18)
- Lee, Cork Harbour & Youghal Bay River Basin (UoM19)
- The Bandon-Ilen River Basin(UoM20)
- Dunmanus-Bantry-Kenmare River Basin (UoM21)
- Laune-Maine-Dingle Bay River Basin (UoM22)

UoMs are further broken down in to Areas for Further Assessment (AFAs<sup>3</sup>). The SWRBD includes 27 numbered Areas for Further Assessment (AFAs).

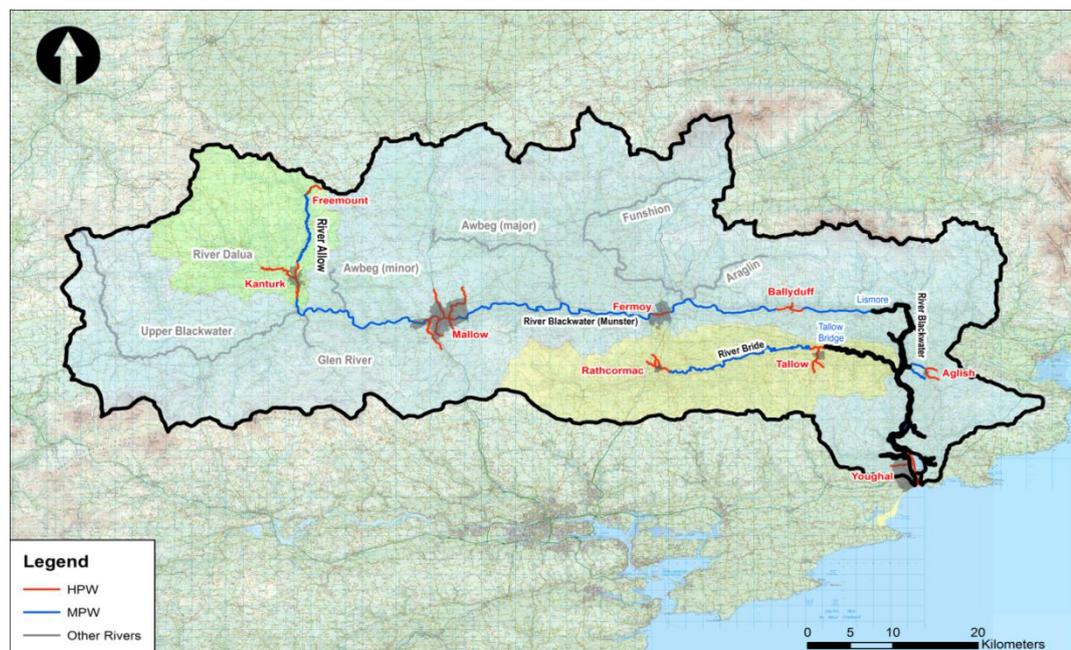
Figure 1.2: Units of Management and Areas for Further Assessment in the SWRBD



<sup>3</sup> Areas where, based on the Preliminary Flood Risk Assessment and the CFRAMS Flood Risk Review, the risks associated with flooding are potentially significant, and where further, more detailed assessment is required to determine the degree of flood risk, and develop measures to manage and reduce the flood risk

Unit of Management 18, which forms part of the SWRBD, covers an area of approximately 3,295 km<sup>2</sup>. The large majority of the area is in North County Cork with parts in County Waterford. UoM 18 also includes small parts of Limerick, Kerry and Tipperary and has only a few kilometres of coastline at Youghal Bay. UoM 18 comprises three major river catchments: the Blackwater and its tributaries the Allow and the Bride. Associated with the AFAs are 80km of high priority watercourses (HPW- a watercourse within an AFA) and 158km of medium priority watercourses (MPW- a watercourse between AFAs, and between an AFA and the sea).

Figure 1.3: UoM 18



#### 1.4 Delivery of the Flood Risk Management Plans

The Floods Directive requires Member States to:

- i Identify areas of existing or foreseeable future potentially significant flood risk (referred to as AFAs);
- i Prepare flood hazard and risk maps for the AFAs;
- i Prepare Flood Risk Management Plans, setting objectives for managing the flood risk within the AFAs and setting out a prioritised set of measures for achieving those objectives.

The programme for the delivery of flood risk management in Ireland comprises of the following phases:

- | Preliminary Flood Risk Assessment, which was completed in 2011, identified areas of existing or foreseeable future potentially significant flood risk (referred to as 'Areas for Further Assessment'/AFAs);
- | CFRAM Studies, which were completed in the period 2011 to 2017;
- | Flood Risk Management Plans were produced for each CFRAM study in 2017;
- | The Flood Risk Management Plans will be implemented from 2017 onwards and will be reviewed on a rolling six-yearly cycle.

## 1.5 Requirement for Appropriate Assessment

The CFRAM study (and output Flood Risk Management Plans) has been informed by Appropriate Assessment, the requirement for which is derived from Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive). Appropriate Assessment is the process of determining whether the Flood Risk Management Plan is likely to pose a risk to the attainment or maintenance of conservation objectives for areas protected for their ecological value within the State (Natura 2000 sites-Special Area of Conservation and Special Area of Protection Areas), and the identification of alternatives or mitigation as appropriate.

The FRMPs identifies viable strategies and measures for flood risk management in Ireland, some of which will be within areas designated under the Natura 2000 network. Article 6(3) of the Habitats Directive states:

*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to **appropriate assessment** of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

Therefore, in the context of the Habitats Directive, all viable flood risk management options for the Munster Blackwater River Basin were subjected to Screening for Appropriate Assessment in April 2016 (and updated in August 2017 following public consultation on the draft FRMP) to determine whether they are likely to have a significant effect on a Natura 2000 site, either alone or in combination with other plans or projects.

### Summary of the Findings of the Screening for Appropriate Assessment

Viable flood risk management options for the Muster-Blackwater River Basin were identified through a comprehensive preliminary option appraisal. The option appraisal assessed each

viable flood risk management option in terms of potential technical, social and environmental impacts.

Table 1.1: Flood Risk Management Options for UoM 18

AFA	Preferred Options
Ballyduff	<ul style="list-style-type: none"> <li>Flood Defences- This option include construction of walls, embankments and road raising within the town ranging in height from 1m to 2.5m</li> </ul>
Rathcormac	<ul style="list-style-type: none"> <li>Storage- This option include a potential storage area of 23,270m<sup>2</sup> in combination with a stream realignment.</li> <li>Flow diversion- This option diverts the flow from the Kilbrien Stream to the Shanowen River through the construction of a 582m culvert (1200mm diameter pipe) north of the town</li> <li>Flood Defences- This option include construction of walls within the town ranging in height from 0.8m to 1.6m</li> </ul>
Kanturk	<ul style="list-style-type: none"> <li>Flood Defences- This option include a combination of walls and embankments on both rivers ranging in height from 0.8m to 2.6m</li> <li>Storage and Flood Defences- This option include a potential storage area of 330,000m<sup>2</sup> used in combination with localised defence works within the town ranging in height from 0.5m to 1.9m</li> <li>Flood Defence and Conveyance- This option would involve the removal of existing constructed weirs within the River Dalua at Church Street Footbridge in combination with localised protection works ranging in height from 0.5m to 2.5m</li> </ul>
Aglish	<ul style="list-style-type: none"> <li>Flood Defences – This option includes construction of walls within the town 1.1m in height</li> </ul>
Youghal	<ul style="list-style-type: none"> <li>Flood Defences- This option include construction of walls and removable barriers within the town ranging in height from 1.1m to 1.2m</li> <li>Tidal Barrage (a) – This option includes the construction of a tidal barrage at the narrowest part of the estuary within the Blackwater River SAC . The barrage will be approximately 715m in length. The elevation of the barrage will be 3.63m O.D. Malin, approximately 1.5m in height above the Mean High Spring</li> <li>Tidal Barrage (b)- This option includes the construction of a tidal barrage outside the SAC boundary. The barrage will be approximately 1.4km in length. The elevation of the barrage will be 3.63m O.D. Malin approximately 1.5m in height above the average water level</li> </ul>

The screening for Appropriate Assessment investigated the potential for significant effects on the Natura 2000 Network arising from the viable flood risk management options, in combination with other plans/projects. The assessment concluded as follows;

- i Ballyduff AFA
  - Significant effects of constructing flood defences on the Blackwater River in Ballyduff AFA were determined as likely/uncertain for the Blackwater River SAC
- i Rathcormac AFA

- Significant effects of flood management measures on the Kilbrien Stream and the Shanowen River on the qualifying features of the Blackwater River SAC were determined to be extremely unlikely
- j Kanturk AFA
  - Significant effects of flood management measures on the Dalua and Allow Rivers in Kanturk AFA were determined as likely/uncertain for the Blackwater River SAC
- j Aglish AFA
  - Significant effects of flood management measure of the Ballynaparka River in Aglish AFA on the qualifying features of the Blackwater River SAC were determined to be extremely unlikely
- j Youghal AFA
  - Significant effects of constructing tidal barrage (option a or b) within Youghal Estuary in Youghal AFA were determined as likely/uncertain for the Blackwater River SAC.
  - No significant effects of constructing flood walls and barriers within Youghal AFA were determined.

The output of the Screening for Appropriate Assessment informed the Multi Criteria Analysis (MCA)<sup>4</sup> of the viable options such that a preferred option for flood risk management was identified for each AFA. The preferred options are carried forward into the Flood Risk Management Plan.

The preferred flood risk management option for the Ballyduff AFA was assessed through MCA as Flood Defences. This option includes construction of walls, embankments and road raising within the town ranging in height from 1m to 2.5m. The Screening for Appropriate Assessment concluded that significant effects are **likely or uncertain** for the following qualifying features of the Blackwater River SAC, resulting from the preferred flood risk management option in Ballyduff AFA;

- j Sea Lamprey *Petromyzon marinus*;
- j Atlantic Salmon *Salmo salar*;
- j Freshwater Pearl Mussel *Margaritifera margaritifera*; and
- j Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation.

The preferred flood risk management option for the Kanturk AFA comprises the construction online storage area on the Dalua River and flood defence walls within the town. The Screening for Appropriate Assessment concluded that significant effects on the following

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<sup>4</sup> The appraisal of all viable flood risk management options for an AFA under four categories: Technical, Economic, Social, and Environmental thereby facilitating the production of a prioritised set of actions and measures aimed at meeting the defined flood risk management objectives.

qualifying features of the Blackwater River SAC are **likely/uncertain** resulting from the preferred option in Kanturk AFA;

- | Sea Lamprey *Petromyzon marinus*;
- | Atlantic Salmon *Salmo salar*;
- | Freshwater Pearl Mussel *Margaritifera margaritifera*;
- | Otter *Lutra lutra*; and
- | Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation.

The preferred flood risk management option for the Youghal AFA is flood walls and barriers. No significant effects were determined in the Screening for Appropriate Assessment given that there will be no personnel or machinery movement within the mudflat habitat.

As significant effects are determined to be likely or uncertain, the Flood Risk Management Plan is statutorily required to be subjected to Appropriate Assessment. Significant effects were determined as likely or uncertain for the Blackwater River SAC due to flood risk management options in Kanturk and Ballyduff AFA's.

This Natura Impact Statement (NIS) has been prepared to assist the Minister (for Public Expenditure and Reform) and Local Authorities in carrying out an Appropriate Assessment of the Flood Risk Management Plan for UoM 18.

It is emphasised that observations and views submitted as part of the consultation on the Draft Flood Risk Management Plan (and associated Strategic Environment Assessment and Appropriate Assessment) have been reviewed and taken into account in the preparation of the finalised Plans.

Measures implemented under the Plan involving physical works (e.g., flood protection schemes) will need to be further developed at a local, project level before exhibition or submission for planning approval. At this stage, local information that cannot be captured at the Plan-level of assessment, such as ground investigation results and project-level environmental assessments, may give rise to some amendment of the proposed measure to ensure that it is fully adapted, developed and appropriate within the local context.

While the degree of detail of the assessment undertaken to date would give confidence that any amendments should generally not be significant, the measures set out in the FRMP may be subject to some amendment prior to implementation, and in some cases, may be subject to significant amendment.

In this context, it is stressed that the SEA and AA undertaken in relation to the FRMP are plan-level assessments. The FRMP will inform the progression of the preferred measures, but project-level assessments will need to be undertaken as appropriate under the relevant legislation for consenting to that project for any physical works that may progress in the future. The approval of the FRMP does not confer approval or permission for the installation or

construction of any physical works. Any scheme or project arising out of the Plan will be obliged to comply with environment law and as such must be assessed to ensure any adverse effects on the integrity of Natura 2000 sites are avoided.

## 1.6 Appropriate Assessment Methodology

This NIS has been prepared in accordance with all relevant guidance and legislation including:

- | European Communities (Birds and Natural Habitats) Regulations 2011;
- | DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities [revised, February 2010];
- | EC (2000) Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC;
- | EC (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- | EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC: Clarification of the concepts of alternative solutions and imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission.

Information referenced in the preparation of this report includes:

- | Conservation Status Assessment Reports<sup>5</sup> (CSARs), Backing Documents and Maps prepared in accordance with Article 17 of the Habitats Directive;
- | Natura 2000 Site Synopsis, Data Forms and Conservation Objective Reports available from NPWS;
- | Published and unpublished NPWS reports on protected habitats and species including Irish Wildlife Manual reports, Species Action Plans and Conservation Management Plans; and
- | Existing relevant mapping and databases e.g. waterbody status, species and habitat distribution etc. (sourced from the Environmental Protection Agency - <http://gis.epa.ie/>, the National Biodiversity Data Centre - <http://maps.biodiversityireland.ie> and the National Parks and Wildlife Services - <http://www.npws.ie/mapsanddata/>)

## 1.7 Consultations

A National Workshop on Appropriate Assessment (AA) of Flood Risk Management Plans (FRMP) was held between the Office of Public Works (OPW), their consultants on the CFRAM

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<sup>5</sup> Every six years, Member States of the European Union are required to report on the conservation status of all habitats and species listed on the annexes of the Habitats Directive as required under Article 17 of the Directive. Ireland submitted our conservation status report to the European Commission in June 2013. The assessment document may be viewed on the NPWS website: <http://www.npws.ie/publications/article17assessments/article172013assessmentdocuments/>

studies and the National Parks & Wildlife Service (NPWS) on the 28th January 2015. The NPWS outlined their expectations of the AA for the FRMPs as follows:

- i The zone of influence of flood risk management options should be identified on a case by case basis using the Source-Pathway-Receptor approach;
- i Any mitigation prescribed in the NIS should be specific and should be demonstrated to be achievable and effective;
- i Consideration should be given to the construction impacts at Plan level;
- i Appropriate Assessment must be based on scientific evidence;
- i If an option for one AFA needs to go to IRPOI then it may be the case that the entire FRMP will need to go through IROPI;
- i Care needs to be taken in how the Fresh Water Pearl Mussel is considered; and
- i There are many mechanisms by which the NPWS can expect to be engaged with in the development of plans, programmes and projects, either by means of engagement directly through the Department of Arts, Heritage and the Gaeltacht as a statutory consultee or through the strategic environmental assessment or appropriate assessment processes or at construction stage as a particular licensing authority.

The draft Flood Risk Management Plans and the associated SEA and AA assessments were subject to public consultation between July 2016 and September 2016. A series of Public Consultation Days were held to engage locally and directly with the community and provide people with opportunity to discuss and fully understand the Draft FRMPs and associated environmental assessments. The feedback and comments received through public consultation (which includes observations and recommendations received from the SEA statutory consultees) have been taken into account in the Final FRMPs (and in the associated SEAs and AAs). The manner in which consultation feedback has been taken into account is presented in the SEA statements for each FRMP.

## 1.8 CFRAM and Infrastructure Consents

Detailed designs for flood risk management options are not developed as part of the Flood Risk Management Plans (FRMP) / CFRAM Studies but rather measures are progressed on a scheme by scheme basis, outside of the scope of the CFRAM studies.

In accordance with Section 20 of the *European Communities (Assessment and Management of Flood Risks) Regulations, 2010* (S.I. No. 122 of 2010), once the Flood Risk Management Plans (subsequent to a process of consultation) have been approved by the Minister they will be issued to the Local Authorities for adoption (through a reserved function process). Section 25 of the Regulations permits the Office of Public Works to prepare a flood risk management scheme for the execution of such options provided for under the Flood Risk Management Plan or where the OPW considers them expedient.

There are three primary legislative pathways to securing 'planning permission' for flood risk schemes:

1. Approval of the scheme as 'strategic infrastructure' by An Bord Pleanála
2. Approval of the scheme under Part 8 of the Planning and Development Regulations, 2001 as amended;
3. Approval of the scheme by the Minister for Finance under the Regulations (S.I. No. 122 of 2010).

In accordance with each of the above legislative pathways the Minister for the Environment, Community and Local Government and the Minister for Arts, Heritage and the Gaeltacht are statutory consultees.

Every flood risk management scheme which involves the execution of works of a class specified in Article 24 of the *European Communities (Environmental Impact Assessment) Regulations, 1989* as amended is required to include an Environmental Impact Assessment. Attention is also drawn to requirements of the *European Union (Environmental Impact Assessment) (Flood Risk) Regulations, 2012*.

Flood risk management schemes will also be subject to Appropriate Assessment set out by the *European Communities (Birds and Natural Habitats) Regulations 2011*.

Schemes which would be likely (either individually or in combination with other plans or projects) to give rise to significant adverse impacts on the integrity of any Natura 2000 site will not be permitted on the basis of the Flood Risk Management Plan unless imperative reasons of overriding public interest can be established and there are no feasible alternative solutions.

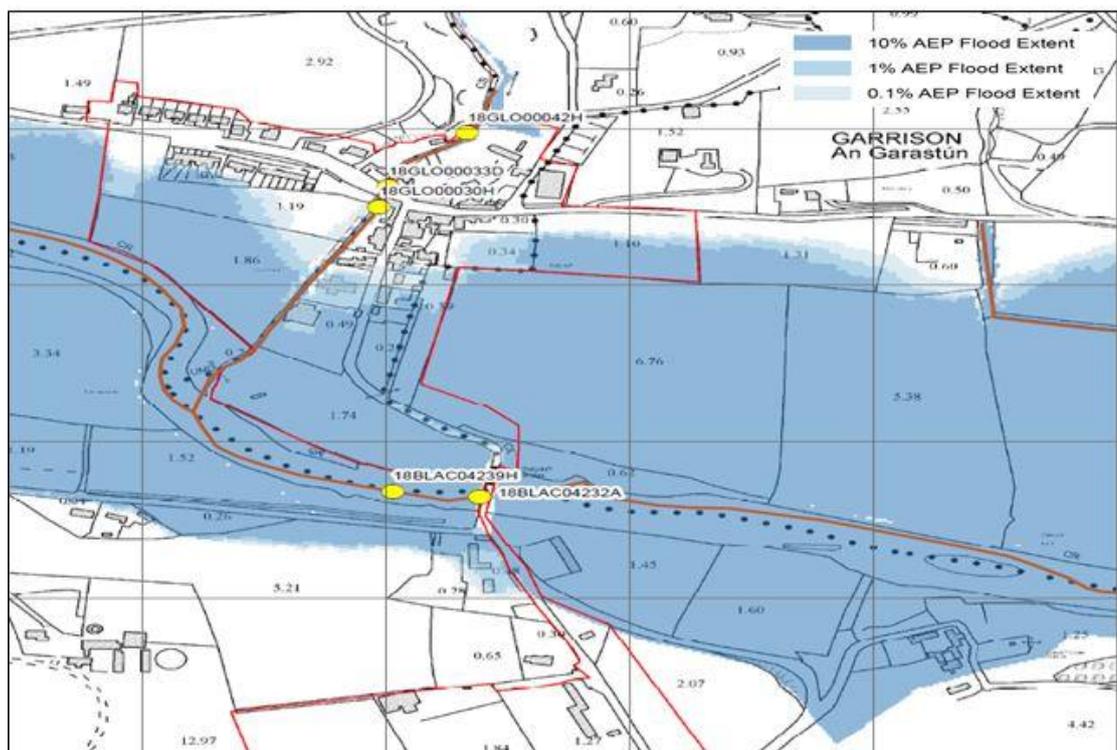
## 2 Description of Flood Risk Management Options

### 2.1 Ballyduff AFA

#### 2.1.1 Current Flood Risk for Ballyduff

Ballyduff is located along the Blackwater River and is at risk of fluvial flooding. The AFA and the existing fluvial flood risk from the 1% AEP is shown in Figure 2.1. The preferred flood risk management option in Ballyduff AFA is proposed for the Blackwater River within the boundaries of the Blackwater River SAC (002170) and the Blackwater Callows SPA (004094).

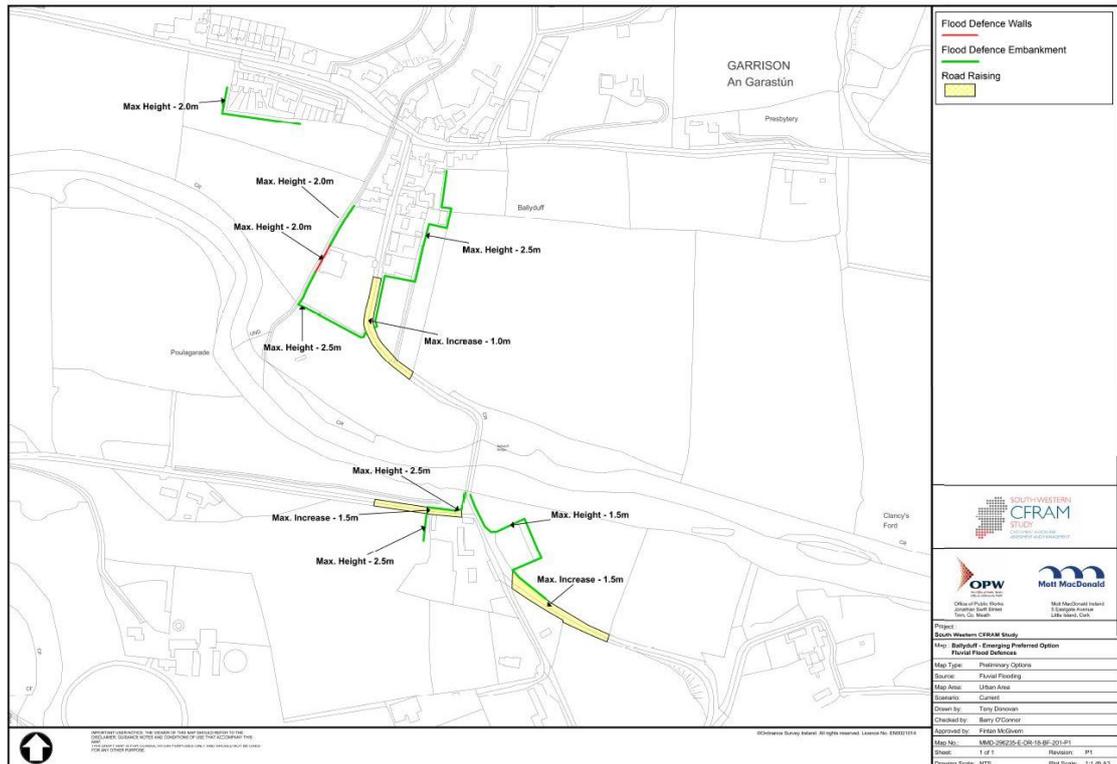
Figure 2.1: Ballyduff Current Scenario Flood Extents



#### 2.1.2 Preferred Flood Risk Management Option

The preferred flood risk management option for Ballyduff AFA comprises the construction of walls, embankments and road raising measures. A drawing of the proposed option is provided below. The proposed flood risk management option for Ballyduff AFA fully achieves the required standard of protection for the 1% AEP.

Figure 2.2: Preferred Flood Risk Management Option for Ballyduff



2.1.3 Predicted Impacts on the Natura 2000 Network

Significant impacts resulting from the preferred option in Ballyduff AFA are **likely or uncertain** for the following qualifying features of the **Blackwater River SAC**;

- ¡ Sea Lamprey *Petromyzon marinus*;
- ¡ Atlantic Salmon *Salmo salar*;
- ¡ Freshwater Pearl Mussel *Margaritifera margaritifera*; and
- ¡ Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitricho-Batrachion* vegetation.

Sea Lamprey, Atlantic Salmon and Freshwater Pearl Mussel

NPWS Conservation Objectives for the Blackwater River SAC identifies sea lamprey spawning at Ballyduff and downstream at Lismore and also juvenile lamprey (sea and brook/river) upstream of Ballyduff.

The Munster Blackwater Freshwater Pearl Mussel Sub-Basin Plan (Anon, 2010) identifies freshwater pearl mussels at Ballyduff.

The Blackwater River is designated as salmonid. Inland Fisheries Ireland (IFI) monitored the Blackwater River upstream of Lismore Bridge (approximately 7km downstream of Ballyduff) in 2010 as part of the Water Framework Directive programme. Ten fish species were recorded. Salmon was the most abundant species (83 nr.), followed by flounder, eel, dace, stone loach, minnow, gudgeon, roach, lamprey and three-spined stickleback. The IFI salmon monitoring programme (IFI, 2016) forecasts a surplus above the required Conservation Limit for 2016. This assessment is made based on monitoring at Lismore and includes juvenile assessment surveys, redd count surveys and indices of population size.

Potential impacts on fishery habitat (including Freshwater Pearl Mussel, Lamprey and Atlantic Salmon habitat) identified in the Screening for Appropriate Assessment relate to impacts associated with sedimentation and pollution of the watercourse. Sedimentation can cause a decrease in the availability of dissolved oxygen in the river bed, can degrade habitat quality and smother aquatic species.

As part of the construction of flood defence measures in Ballyduff, preparatory groundworks, including bankside vegetation clearance, will lead to exposure of bare ground and the potential for the generation of silt-laden run-off into the Blackwater River. Impacts on Atlantic Salmon, Freshwater Pearl Mussel, and Lamprey from sedimentation associated with flood wall and embankment construction are probable given the close proximity of spawning gravels downstream of the AFA.

Construction sites, by their nature, have numerous substances, which are potentially polluting to surface water if not treated. These include fuels, cement, mortar, silt, which arise during construction. The use of vehicles and plant on the construction site gives the potential for the spillage of fuel and oil on the site either from leaks in vehicles or fuel tanks or spillages. This may lead to contamination of soils, groundwater and surface water. Such substances entering the Blackwater River could damage fishery habitat.

### Floating River Vegetation

Floating river vegetation is poorly surveyed in Ireland. Ireland's Article 17 report suggests an almost national distribution of this habitat type. This Annex I habitat type is likely to occur extensively on the Blackwater River. The growth of floating river vegetation and ultimately species diversity is dependent on river depth, width and flow.

Potential impacts identified in the Screening for Appropriate Assessment relate to impacts associated with sedimentation and pollution. Bankside vegetation removal may be required to facilitate the construction of the flood embankment. Physical parameters such as shade rather than biological characteristics may be influential in the development of floating river vegetation

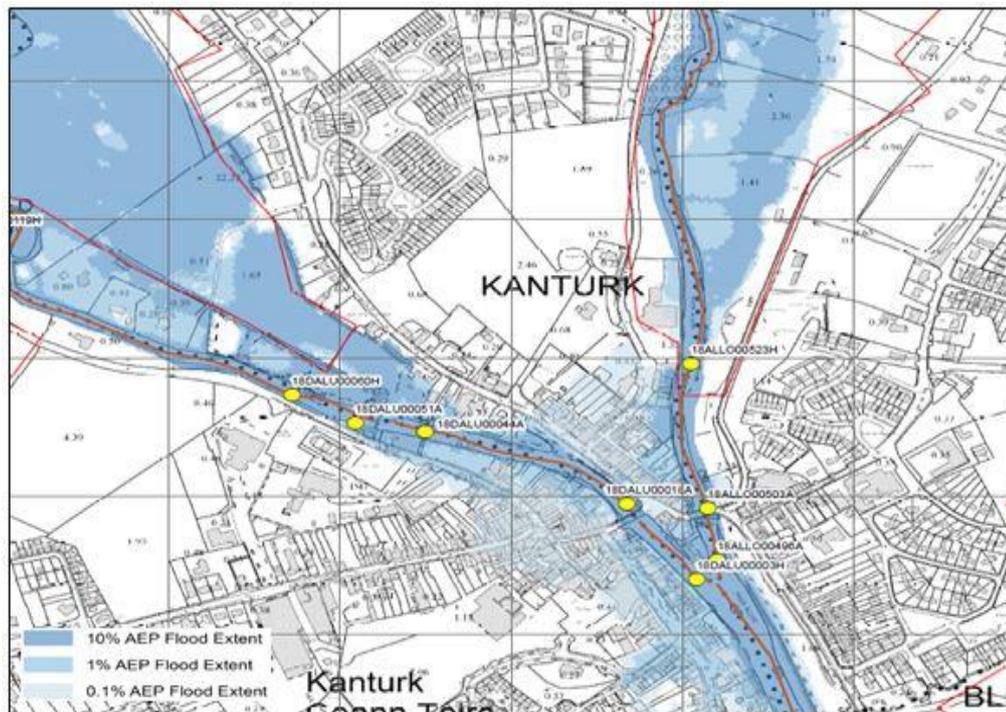
(OPW, 2006). Therefore, the removal of bankside vegetation may have indirect impact on the distribution of this habitat.

## 2.2 Kanturk AFA

### 2.2.1 Current Flood Risk for Kanturk AFA

Kanturk is located at the confluence of the Dalua and Allow Rivers in County Cork. Kanturk is at risk of fluvial flooding. The AFA and the existing fluvial flood risk are shown in Figure 2.3.

Figure 2.3: Kanturk Current Scenario Fluvial Flood Extents



### 2.2.2 Preferred Flood Risk Management Option for Kanturk

The preferred flood risk management option for Kanturk AFA comprises the construction of an on-line storage area on the Dalua River and flood defence walls within the town. The on-line storage area has a capacity of 330,000m<sup>2</sup>. A drawing of the proposed option is provided below. The proposed flood risk management option for Kanturk AFA fully achieves the required standard of protection for the 1% AEP.

Figure 2.4: Preferred Flood Risk Management Option for Kanturk



### 2.2.3 Predicted Impacts on the Natura 2000 Network

Significant impacts resulting from the preferred option in Kanturk AFA are **likely/uncertain** for the following qualifying features of the Blackwater River SAC;

- | Sea Lamprey *Petromyzon marinus*;
- | Atlantic Salmon *Salmo salar*;
- | Freshwater Pearl Mussel *Margaritifera margaritifera*;
- | Otter *Lutra lutra*; and
- | Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitricho-Batrachion* vegetation.

#### Sea Lamprey and Atlantic Salmon

The Dalua River and the Allow River have strong depositional features on approach to Kanturk with numerous meanders and large sediment banks evident, suitable habitat for juvenile lamprey. Suitable Lamprey and Atlantic Salmon spawning gravels are present within the upstream reaches of the Dalua and Allow Rivers. The operation of the sluice gate on the

storage area may act as a barrier to Lamprey and Atlantic Salmon migration. The release of sediment during the construction of the storage area could have a similar effect on fish/lamprey migration. Additionally, juvenile Sea Lamprey have been recorded in proximity to Allen's Bridge, immediately upstream of the indicative location of the flood storage area on the Dalua River. Excavation of Juvenile Lamprey from the watercourse to facilitate the installation of the control structure is probable.

#### Freshwater Pearl Mussel

Freshwater Pearl Mussel is known to be distributed along the Allow River. Consultation with NPWS concluded that there were no pearl mussel populations in the Dalua River. Impacts on Freshwater Pearl Mussel in the Allow River and Blackwater River are probable due to sedimentation of the watercourses associated with construction activities.

#### Otter

Otter have been documented throughout the study area (refer to National Biodiversity data Centre records), on the Allow River upstream and downstream of Kanturk, and on the Dalua River and its tributaries upstream of Kanturk. Given the distribution of Otter upstream and downstream of Kanturk, it is likely that they commute along the rivers to feeding and resting places. The proposed flood management measures include the construction of 8m high embankment at the head of the storage area on the Dalua River. The embankment will have a gradual slope (1:2) and will therefore not act as a barrier to connectivity between otter habitat. The footprint of the 8m embankment at the head of the storage area will be approximately 40m in width and the 2.5m embankment at the rear of the storage area will be approximately 10m in width. Construction of the embankments will require that riparian habitat is removed on either side of the Dalua River. This will equate to approximately 100m of riparian habitat at this location. Given the high level of otter activity in the area, it is possible that otter habitat will be damaged and otter will be disturbed by noise and physical presence during the works.

Potential impacts identified in the Screening for Appropriate Assessment relate to damage to otter habitat. Otter territories have been documented to range from 1km to 20km and are dependent on the quality of foraging habitat. Otter territories in the Blackwater Catchment are likely to be towards the smaller scale given the quality of fishery habitat in the Blackwater and its tributaries.

#### Floating River Vegetation

In order to facilitate this storage area significant in-stream works are required for the construction of the control structure. This flood management option will result in permanent loss of river bed and bank within the footprint of the control structure.

Floating River Vegetation is likely to be present in the Dalua River on the basis of Article 17 reporting on national distribution. Potential impacts identified in the Screening for Appropriate

Assessment relate to indirect impacts associated with sedimentation and pollution on this protected habitat.

The species composition of the habitat on the Dalua and Allow Rivers is not known at this stage. The full distribution of this habitat and its sub-types in this site are currently unknown. However excavation of river bed material in order to install the control structure is likely to result in habitat damage. Also, when the storage area is in flood the depth of inundation will be greater than would traditionally be the case in the absence of the storage area. This will affect light penetration which is near certain to negatively impact habitat structure and species composition.

# 3 Potential for Adverse Effects on Site Integrity

## 3.1 Conservation Objectives

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. Ireland has determined conservation objectives for Natura 2000 Sites which define favourable conservation condition for habitats and species protected under the Habitats Directive and Birds Directive. In addition, site-specific conservation objectives have been developed for a proportion of Natura 2000 Sites in Ireland which provide detailed measurable targets relative to the ecology of individual species or habitats for which a site is designated which must be achieved or maintained to meet favourable conservation status.

The conservation objective for a Site acts as a reference point from which an assessment may be made of whether a project could adversely affect the integrity of a site.

## 3.2 Assessment of Potential for Adverse Effects on the Blackwater River SAC

It has been determined that the development of the flood management measures at Ballyduff and at Kanturk will likely result in impacts on several qualifying features of the Blackwater River SAC, namely:

- Sea Lamprey *Petromyzon marinus*;
- Atlantic Salmon *Salmo salar*;
- Freshwater Pearl Mussel *Margaritifera margaritifera*;
- Otter *Lutra lutra*; and
- Water courses of plain to montane levels with the Ranunculion fluitantis and *Callitriche-Batrachion* vegetation.

. These act as a reference point from which the assessment of the effects on integrity is made.

The status of protected habitats and species within the State are reported to Europe in accordance with Article 17 of the Habitats Directive. Additionally, the conservation status specific to individual SACs has been determined for a proportion of the Natura 2000 sites in Ireland. The National and site-specific conservation status and conservation objectives for the qualifying features of the Blackwater River SAC which are likely to be impacted by the flood risk management measures in Ballyduff and Kanturk are presented hereunder.

Table 3.1: Conservation Status and Objectives

Species / Habitat	Conservation Status and Objective within the Blackwater River SAC	National Conservation Status
Sea Lamprey	Unfavourable, objective to restore status	Bad conservation status based on barriers to passage and low population.
Atlantic Salmon	Favourable, objective to maintain status	Unfavourable conservation status based on low population density in comparison to historic numbers (albeit numbers are stabilising).
Freshwater Pearl Mussel*	Unfavourable, objective to restore status	Bad conservation status based on ongoing population decline associated with a decline in habitat quality.
Otter	Unfavourable, objective to restore status	Favourable conservation status based on national survey data indicating stable population.
Floating River Vegetation	Favourable, objective to maintain status	Unfavourable conservation status due to issues relating to river water quality.

**\* A Note on the Conservation Objectives for Freshwater Pearl Mussel Within the Blackwater River SAC:**

Communication was received from NPWS on 4<sup>th</sup> February 2016 advising that the decision was taken to amend the conservation objectives for Freshwater Pearl Mussel in the Blackwater River SAC on the basis that initial listing of this species as a qualifying interest was poorly founded due to inadequate information. NPWS advised that the following course of action will be taken in this regard:

- Amend the conservation objectives for the Blackwater River SAC in order that there would no longer be the objective of maintaining or restoring freshwater pearl mussel populations in the main channel of the river;
- Retain the conservation objectives for the freshwater pearl mussel in the Lickey and Allow tributaries of the Blackwater, which are included in the SAC;
- Notify the Commission of the change;
- Amend the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations (S.I. 296 of 2009) to give further effect to the alteration of the conservation objectives for the River Blackwater SAC.

The above actions have not been taken to date. Therefore the current conservation objective to restore the species to favourable conservation status in the Blackwater River SAC remains in place.

The capacity for the predicted impacts from the preferred flood risk management options at Ballyduff and Kanturk to:

- cause delays to or interrupt progress towards achieving the conservation objectives;
- interfere with the factors (structure and functions) that support the achievement / maintenance of favourable conservation condition;
- interfere with the population dynamics of qualifying features; or
- disrupt the natural range of a qualifying feature,

is assessed as an indicator towards the potential for the impacts (in the absence of mitigation) to have an adverse effect on the integrity of the Blackwater River SAC.

The preferred flood risk management option for Ballyduff AFA comprises the construction of walls and embankments and the raising of road levels. The preferred flood risk management option for Kanturk AFA comprises the construction of an on-line storage area on the Dalua River and flood defence walls within the town. The on-line storage area has a capacity of 330,000m<sup>2</sup>. These measures are proposed adjacent to or in close proximity to the Blackwater River, and/or within the Blackwater River SAC boundary.

Table 3.2: Assessment of Potential for Adverse Effects on the Integrity of the Blackwater River SAC (002170)

Qualifying Interest	Attributes and Targets Defining Favourable Conservation Condition	Potential Impact	Potential for Adverse Effects on Site Integrity
Sea lamprey	<p><b>Distribution</b> - Greater than 75% of the main stem length of rivers in the SAC should be accessible from the estuary. Artificial barriers can block or cause difficulties to lampreys' upstream migration.</p> <p><b>Population structure of juveniles</b> - At least three age/size groups present</p> <p><b>Juvenile density in fine sediment</b> - at least 1/m<sup>2</sup></p> <p><b>Extent and distribution of spawning habitat</b> - No decline in extent and distribution of spawning beds</p> <p><b>Availability of juvenile habitat</b> - More than 50% of sample sites positive</p>	<p>The Conservation Objectives report for the Blackwater River SAC (NPWS, 2012, as informed by King, 2004) presents records of Sea Lamprey spawning at Ballyduff, upstream of Ballyduff, and downstream at Lismore. Juvenile lamprey (sea and brook/river) records are also shown upstream of Ballyduff.</p> <p>The Conservation Objectives report for the Blackwater River SAC (NPWS, 2012) identifies juvenile sea and brook/river lamprey in the Allow and Dalua Rivers upstream of Kanturk. The Dalua River and the Allow River are strongly depositional on approach to Kanturk with numerous meanders and large sediment banks evident. The Allow and Dalua Rivers within and upstream of Kanturk are unlikely to support spawning habitat for lamprey given their depositional character. Suitable spawning habitat may be present further upstream.</p> <p>Construction of flood embankments (including the embankments as part of the storage area in Kanturk) will require the importation of soil and the disturbance of riparian habitat. There will be an associated release of sediment into the aquatic environment.</p> <ul style="list-style-type: none"> <li>- If heavy siltation of the watercourse was to occur in parallel with the annual migration of Sea Lamprey to freshwater (April to June), this could form a temporary artificial barrier to upstream migration to suitable spawning habitat;</li> <li>- Sedimentation of spawning gravels within and downstream of Ballyduff will also occur;</li> <li>- Juvenile lamprey may be smothered if fine silt is released to the watercourse.</li> </ul> <p>The construction of flood walls within Ballyduff and Kanturk (and raising road levels in Ballyduff) will require the use of chemicals on site (e.g. cement and bitumen). Materials could be accidentally released to the watercourse, given the proximity of the flood risk options to the Blackwater River. Cement, when discharged to a watercourse, can alter the natural pH of the river. This sudden transgression to an alkaline pH can have detrimental effects on fish / lamprey, as it results in damage to fish gill and skin tissue. Accidental release of pollutants to the watercourse, particularly cement / concrete would likely result in the death of juvenile lamprey which inhabit the soft sediment within the river. This would have a negative impact on population structure and density of juveniles within and downstream of Ballyduff and Kanturk.</p> <p>The construction of the control mechanism for the storage area in Kanturk will require the excavation of river bed material in the Dalua River. There is likely to be an associated loss of juvenile lamprey habitat. Additionally, juvenile lamprey may be excavated in the material removed from the river bed. These individuals will die if not returned to the watercourse.</p> <p>When the control structure is in operation, flow velocities through the control structure will be increased (as the area of the river channel will be reduced when the control structure is lowered into the channel). This is likely to cause scouring of the river bed at the location of the control structure. The level of scouring will be limited by the concrete plinth which will be installed as part of the support system for the control structure.</p> <p>The control structure on the storage area in Kanturk will never be fully closed. Therefore, it will not form a physical barrier to lamprey migration. However, flow velocities through the control structure will be increased when it is in operation. High flow velocities may inhibit the upstream migration of lamprey during the operation of the control structure. A similar storage area has been designed for the Clonakilty Flood Relief Scheme. It has been calculated that the control structure on that scheme (a sluice gate) will operate for approximately 6 hours during a flood event. A similar situation could be expected at Kanturk. Increased flow velocities over an approximate 6-hour period will not significantly impact upstream migration. Additionally, it should be noted that there is a limited probability of a flood event occurring in parallel with sea lamprey</p>	<p>A temporary artificial barrier to upstream migration to suitable spawning habitat and degradation of spawning gravels due to <b>sedimentation</b> would have an <b>adverse effect on site integrity</b> and will interfere with the objective of restoring favourable conservation status within the SAC.</p> <p>Mortality of juvenile lamprey, caused by <b>accidental pollution and excavation of the river bed, and scouring of the river channel</b> would have an <b>adverse effect on site integrity</b> and will interfere with the objective of restoring favourable conservation status within the SAC.</p>

Qualifying Interest	Attributes and Targets Defining Favourable Conservation Condition	Potential Impact	Potential for Adverse Effects on Site Integrity
Atlantic Salmon	<p><b>Distribution</b> - 100% of river channels down to second order accessible from estuary</p> <p><b>Adult spawning fish</b> - Conservation Limit (CL) for each system consistently exceeded.</p> <p><b>Salmon fry abundance</b> - Maintain or exceed 0+ fry mean catchment-wide abundance threshold value.</p> <p><b>Out-migrating smolt abundance</b> - No significant decline</p> <p><b>Number and distribution of redds</b> - No decline in number and distribution of spawning redds due to anthropogenic causes</p> <p><b>Water quality</b> - At least Q4 at all sites sampled by EPA</p>	<p>upstream migration (given that spawning migration of sea lamprey occurs in spring and early summer).</p> <p>Lamprey may be isolated within the storage area in the event that flood waters subside rapidly, resulting in death of the isolated individuals, however, this would not significantly affect the population of the species within the Blackwater River SAC.</p> <p>The Dalua River was surveyed by IFI as part of the WFD monitoring programme in 2010 and 2013 at Foot Bridge. Salmon was the most dominant species recorded. The habitat at this location is noted to be glide-dominated with a substrate dominated by cobble.</p> <p>The in-stream works necessary to construct the storage area on the Dalua River in Kanturk will not be permitted during the closed season for salmonids, the timing of which will be confirmed with Inland Fisheries Ireland at project construction stage. The construction works will not therefore affect salmon upstream migration.</p> <p>The operation of the control mechanism on the storage area is likely to be necessary during the wetter months of the year (during autumn / winter) which may coincide with upstream migration of Atlantic Salmon to spawning habitat. However, as the control structure will never be fully closed, it will not form a physical barrier to salmon migration.</p> <p>Salmon smolt migrate to the sea, usually between April and June (Hendry et al, 2003) There is limited potential for a flood event (and associated operation of the storage area on the Dalua River) to occur in parallel with smolt out-migration. Additionally, the control structure will never be fully closed, therefore free passage of salmon will remain in place. No impacts are expected in this regard.</p> <p>Sedimentation of the Dalua River, Allow River, and Blackwater River associated with the construction and maintenance of flood management measures in Kanturk and Ballyduff could act as a barrier to smolt out-migration by smothering fish.</p> <p>Sedimentation may also deposit within downstream areas of the watercourses which might contain suitable substrate material for redd construction, thereby reducing the number and distribution of redds.</p> <p>It is uncertain whether suitable spawning habitat is present at the location of the control structure on the Dalua River in Kanturk. Given that suitable spawning habitat is present in close proximity upstream at the Foot Bridge, it is assumed for the purpose of this assessment that spawning gravels are likely to be present and that they will therefore be directly damaged by the construction of the storage area.</p> <p>The Dalua River is assigned Good status under the 2012-2015 WFD monitoring, while the Allow upstream of and within Kanturk is Poor Status. The Blackwater River downstream of Ballyduff is Moderate status. The accidental release of sediments and pollutants to the watercourse during construction and maintenance of flood defence measures could degrade water quality and biological quality.</p>	<p>The impediment of smolt out-migration caused by sedimentation of the watercourses would have an <b>adverse effect on site integrity</b> and will interfere with the objective of maintaining favourable conservation status within the SAC.</p> <p>A reduction in spawning redds due to degradation of suitable habitat by sediment deposition and by direct damage during in-stream works would have an <b>adverse effect on site integrity</b> and will interfere with the objective of maintaining favourable conservation status within the SAC.</p> <p>A reduction water quality would have an <b>adverse effect on site integrity</b> and will interfere with the objective of maintaining favourable conservation status within the SAC</p>
Freshwater Pearl Mussel	<p><b>Distribution</b> – Maintain at 161km which equates to the length of channel from the most upstream records of the freshwater pearl mussel to the most downstream records of live mussels.</p> <p><b>Population</b> - Restore to 35,000 adult Mussels. Current population is estimated at less than 10,000 for the Blackwater main channel.</p> <p><b>Recruitment</b> - The Blackwater population is believed to be composed entirely of aged adults, with no evidence of recruitment for at least 20 Years. The objective is to restore to 20% of the population equating to young mussels and %5 juvenile mussels.</p> <p><b>Adult mortality</b> - No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution (considered to be natural loss).</p>	<p>The distribution of Freshwater Pearl Mussel habitat in the Blackwater River catchment and the Allow River catchment is presented in Map 8 of the Conservation Objectives Report for the Blackwater River SAC (NPWS, 2012). <i>Margaritifera</i> are shown to be distributed along the Allow River at Kanturk and within the Blackwater at Ballyduff. The map does not identify <i>Margaritifera</i> populations (or suitable habitat) on the Dalua River or on the Blackwater River downstream of Ballyduff.</p> <p>The damage to the bed of the Dalua River which might result during construction of the online storage area will not directly impact Freshwater Pearl Mussel habitat (due to its absence from the Dalua River) and will not therefore impact species distribution or habitat extent. However, sediment will be released to the watercourse during construction and maintenance of the storage area. Similarly, sedimentation will result from construction of walls and embankments within Kanturk. Deposition of sediment within the Allow River, and the downstream Blackwater River will likely result in degradation of mussel</p>	<p>A reduction in habitat quality by sediment deposition would have an <b>adverse effect on site integrity</b> and will interfere with the objective of restoring favourable conservation status within the SAC.</p>

Qualifying Interest	Attributes and Targets Defining Favourable Conservation Condition	Potential Impact	Potential for Adverse Effects on Site Integrity
	<p><b>Habitat extent</b> - data for the Blackwater and its tributaries is poor. The target is to restore suitable habitat in more than 35km, and any additional stretches necessary for salmonid spawning</p> <p><b>Water quality</b> - restore high Water Framework Directive biological quality elements.</p> <p><b>Substratum quality</b> – target is &lt;5% filamentous Algae and macrophytes and achieve stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine sediment and no more than 5% decline in redox potential between substratum (at 5cm depth) and water column.</p> <p><b>Hydrological regime</b> - Restore appropriate hydrological regimes such that 1) high flows can wash fine sediments from the substratum, 2) low flows do not exacerbate the deposition of fines and 3) low flows do not cause stress to mussels in terms of exposure, water temperatures, food availability or aspects of the reproductive cycle</p> <p><b>Host fish</b> - Fish presence is considered sufficient in the catchment. The conservation objective is to maintain sufficient juvenile salmonids to host glochidial larvae.</p>	<p>habitat and potentially the death of pearl mussel due to oxygen deprivation or starvation.</p> <p>The construction of walls, embankments and road raising measures within the Ballyduff AFA are unlikely to impact on pearl mussel given that there is no suitable habitat or pearl mussel populations identified downstream of Ballyduff.</p> <p>The Blackwater River hosts good population densities of juvenile salmon and brown trout which act as host fish for pearl mussel. Damage to salmonid habitat due to the flood measures in Ballyduff and Kanturk might impact host fish populations thereby reducing recruitment success for pearl mussel.</p>	
Otter	<p><b>Distribution</b> - FCS target is 88% in SACs. Current range in south-west estimated at 74.5%</p> <p><b>Extent of terrestrial habitat</b> - No significant decline. Area mapped and calculated as 1165.7ha along river banks/ around ponds.</p> <p><b>Extent of freshwater (river) habitat</b> - No significant decline. Length mapped and calculated as 599.54km</p> <p><b>Extent of freshwater (lake) habitat</b> – No significant decline. Area mapped and calculated as 25.06ha</p> <p><b>Couching sites and holts</b> - No significant decline</p> <p><b>Fish biomass available</b> – No significant decline</p> <p><b>Barriers to connectivity</b> - No significant decline</p>	<p>Under the Duhalow LIFE project artificial otter holts were installed in February 2012 at 10 locations on the Dalua and Allow Rivers in areas where there was low otter activity. On the Dalua, two holts were installed in the Curragh area and one at Cloontycommade (immediately upstream of the proposed flood storage area). These artificial holts were inspected under the LIFE project in October 2012 and it was found that one holt at the Curragh and the holt at Cloontycommade were active. Construction activities associated with the storage area could potentially disturb Otter from their resting places.</p> <p>Construction of the storage area on the Dalua River will require the removal of a section of riparian treeline, equating to approximately 1000m<sup>2</sup> (0.01ha).</p> <p>Damage to Otter resting places (couch or holt) by the construction of flood walls and embankments in Ballyduff is extremely unlikely given that the proposed locations for these structures are principally confined towards the rear of properties along the Glounagad Stream (which flows into the Blackwater River at Ballyduff). The Glounagad Stream is suboptimal habitat for Otter due to its size.</p> <p>Construction and maintenance activities have potential to cause translocation of invasive species, which can in turn result in the reduced availability of suitable riparian vegetation for Otter.</p>	<p>Any reduction in Otter resting / breeding places (or disturbance from such habitat) would have an <b>adverse effect on site integrity</b> and will interfere with the objective of restoring favourable conservation status within the SAC.</p> <p>The available riparian habitat for Otter within the SAC is reported as 1165.7ha along river banks/ around ponds (NPWS, 2012). A reduction in 0.0009% of the extent of habitat used by otter due to the construction of the storage area would not have an adverse effect on site integrity. However, the accidental introduction and spread of invasive species due to the construction and maintenance of the storage area, and flood walls and embankments could result in the reduction in habitat quality for otter which would have an <b>adverse effect on site integrity</b> and will interfere with the objective of restoring favourable conservation status within the SAC.</p>
Floating River Vegetation	<p><b>Distribution</b> - No decline subject to natural processes.</p> <p><b>Habitat Area</b> - Area stable or increasing, subject to natural processes.</p> <p><b>Hydrological Regime: river flow</b> - Maintain appropriate hydrological regimes</p> <p><b>Substratum composition: particle size range</b> – maintain appropriate to the habitat sub-type.</p> <p><b>Water quality</b> - nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition.</p> <p><b>Vegetation Composition</b> - Typical species of the relevant habitat sub-type should be present and in good condition.</p> <p><b>Floodplain connectivity: area</b> - The area of active floodplain at and upstream of the habitat should be maintained</p>	<p>Sedimentation of the watercourse due to construction activities and maintenance of the scheme in Ballyduff AFA and Kantruk AFA is likely to result in the short-term degradation in habitat quality (in relation to light penetration and substratum composition) which could negatively impact species composition, however recovery would be expected in the short-term.</p> <p>Floating River Vegetation may be directly impacted by in-stream works on the Dalua River due to the construction of the flood storage area, thereby reducing habitat extent. However, the river bed will be reinstated following the construction of the control structure. Recovery would be expected in the short-term.</p> <p>Following the implementation of flood management measures, the area of active floodplain in the Blackwater Catchment will be permanently altered. A new area of active floodplain will be created upstream of the control structure on the Dalua River. This will have a positive impact in controlling sediment and nutrient loading to the watercourse in extreme flood events as there will be a slowdown of water behind the structure which will promote sediment settlement.</p> <p>The Conservation Objective Report for the Blackwater River SAC identifies that high and flood flows are critical to the hydrological requirements of Floating River Vegetation. The control structure on the Dalua will operate during the design event (the 1% AEP flood i.e.1 in 100-year event) and will restrict flows</p>	<p>Adverse effect on site integrity are not anticipated.</p>

Qualifying Interest	Attributes and Targets Defining Favourable Conservation Condition	Potential Impact	Potential for Adverse Effects on Site Integrity
		for a limited period of time. The infrequent alteration of river flow would not be expected to cause a change in vegetation structure.	

## 4 In Combination Effects

### 4.1 Introduction

Article 6(3) of the Habitats Directive requires that:

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

Thus, the likely aggregate effect of individual impacts associated with other plans and projects is considered when determining whether the likely impacts on the FRMP could have significant effects on Natura 2000 sites. That is, an impact on its own may not pose significant adverse effects on the integrity of a Natura 2000 site, however where two or more impacts act in combination this can create a significant effect.

The potential for the impacts of the FRMP to be exacerbated by impacts from other plans and projects such that the effects on the Natura 2000 Network become significant in terms of the conservation objectives of the European sites is presented hereunder.

European Commission guidance: *Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* identifies that plans and projects which are already completed are excluded from the assessment requirements of Article 6(3) unless they are having continuing effects on a Natura 2000 site such that they are causing progressive loss of site integrity.

### 4.2 Plans and Projects That Might Act In-combination

#### Waterford County Development Plan 2011 – 2017

The Waterford County Development Plan includes the objective to protect and promote the amenity of the River Blackwater and enhance existing access to the riverbank. There is potential degradation in water quality in association with construction of amenity walkways. However, the Development Plan requires that this objective must be subject to compliance with Articles 6 and 10 of the Habitats Directive.

Particular to Ballyduff, the County Development Plan requires that the flood plain of the River Blackwater within Ballyduff shall be preserved free from development. This objective will limit the potential for habitat degradation within the Blackwater River SAC.

#### Kanturk-Mallow Municipal District Draft Local Area Plan (LAP), 2017

The draft LAP identifies a number of development objectives for Kanturk (e.g. a new river crossing south of the Town to ease traffic congestion) which could impact the Blackwater

River SAC. The combined effect of the measures progressed under the FRMP for Kanturk, coupled with development of Kanturk Town is likely to have a compounded effect on the quality of the aquatic habitat quality (for Lamprey, Atlantic salmon, Freshwater Pearl Mussel and floating river vegetation) within the Allow River.

The Screening for Appropriate Assessment produced for the draft Kanturk-Mallow Municipal District LAP has been carried out on the basis that the Conservation Objectives for Freshwater Pearl Mussel within the Blackwater River SAC apply only to the Allow River upstream of Kanturk and to the Licky River (as notified to Cork County Council by DAHRG).

The LAP includes a number of objectives which aim to protect the Blackwater River SAC e.g. rezoning areas within the SAC boundary as Open Spaces such that development within the SAC is prevented, and design of river walkways such that they will not cause damage to sensitive habitats or disturbance to freshwater fauna within the Blackwater River SAC.

#### Existing Flood Relief Schemes and Arterial Drainage Schemes

Existing schemes within UoM18 which are maintained by the Office of Public Works or the Local Authority include the Mallow Flood Relief Scheme, Fermoy Flood Relief Scheme, Freemount Flood Relief Scheme, and the Awbeg and Annaslinga Drainage Districts. The maintenance of these schemes must be in accordance with national and European legislation, including the European Communities (Birds and Natural Habitats) Regulations 2011 and the Wildlife Act 1976 (as amended).

The National Arterial Drainage Maintenance List for the period 2016 to 2021 was subjected to Appropriate Assessment and Strategic Environmental Assessment<sup>6</sup>. Mitigation prescribed in the Natura Impact Statement and adopted into the SEA includes the requirement that proposed arterial drainage maintenance activities should undergo an Appropriate Assessment at project level.

The OPW has developed a standardised approach by which the likely effects of proposed drainage maintenance activities (either alone or in combination with other projects or plans) upon Natura 2000 sites can be assessed: *Ryan Hanley (2014b) Stage 1: Appropriate Assessment Screening Methodology for the Maintenance of Arterial Drainage Schemes*. Future proposed maintenance of the above Schemes will be subjected to screening for Appropriate Assessment in accordance with the methodology.

The NIS and SEA also require that a Construction Environmental Management Plan (CEMP) is developed for some of the proposed arterial drainage activities. The OPW have developed

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<sup>6</sup> The National Arterial Drainage Maintenance List of Activities 2016-2021 Volume III Natura Impact Statement, February 2016 and The National Arterial Drainage Maintenance List of Activities 2016-2021 Volume II- Final SEA Environmental Report, February 2017 available through: <http://www.opw.ie/en/flood-risk-management/operations/environmentalactivities/arterialdrainagemaintenancesea2016-2021/#d.en.36453>

a series of Environmental Management Protocols and Standard Operating Procedures for arterial drainage maintenance activities. These are currently under revision and will be adopted for future maintenance activities.

#### Minor Flood Mitigation Works & Coastal Protection Scheme

The Minor Works Scheme was introduced by the Office of Public Works in 2009. The purpose of the scheme is to provide funding to Local Authorities to undertake minor flood mitigation works or studies to address localised flooding and coastal protection problems within their administrative areas. The scheme generally applies where a solution can be readily identified and achieved in a short time frame.

No Minor Works were prescribed for UoM 18 in 2016 or 2017.

## 5 Mitigation

### 5.1 Adverse Effects on Site Integrity Requiring Mitigation

Adverse effects on site integrity of the Blackwater River SAC which would occur, in the absence of mitigation, due to the development of the preferred flood risk management measures in Ballyduff AFA and Kanturk AFA as flood risk management schemes are set out in Section 4 of this Natura Impact Statement. The impacts causing adverse effects are summarised hereunder:

- degradation of habitat quality for Lamprey, Atlantic Salmon, and Freshwater Pearl Mussel due to sedimentation and pollution of the Dalua River, Allow River and Blackwater River during construction;
- Possible damage to juvenile lamprey habitat, spawning gravels and floating river vegetation on the Dalua River due to excavation of river bed to accommodate the storage area;
- mortality of juvenile lamprey caused by accidental pollution and excavation of river bed material in the Dalua River;
- damage to Otter habitat on the Dalua River;
- Spread of invasive species.

### 5.2 Mitigation Measures

Mitigation is prescribed in accordance with the 'Mitigation Hierarchy' set out in the EPA draft guidance on EIS (EPA 2017) which requires mitigation by avoidance as a first approach. Where this is not feasible, measures to prevent impacts from giving rise to adverse effects should be adopted (e.g. design of bunded storage for chemicals). Where impacts cannot be avoided e.g. generation of noise, mitigation by reduction of impact is required to limit the exposure of the receptor to an acceptable level (often achieved by interrupting the pathway between the source and receptor). When adverse effects of impacts cannot be prevented, mitigation to counteract the effects are required i.e. compensatory measures are required. A project can only be progressed in such a circumstance where there are imperative reasons of overriding public interest (IROPI) for the project.

#### 5.2.1 General Mitigation

The Flood Risk Management Plan (FRMP) will be submitted for Ministerial approval. Once approved, the final FRMP will be submitted to the relevant Local Authorities for adoption. The Minister and Local Authorities are obliged under Article 6(3) and 6(4) of the Habitats Directive to subject the Plan to Appropriate Assessment of the implications for the Natura 2000

Network. This Natura Impact Statement will inform the Appropriate Assessment, which in turn will inform the decision to adopt/approve the Plan.

Section 25 of the European Communities (Assessment and Management of Flood Risks) Regulations, 2010 permits the OPW to prepare a flood risk management scheme for the execution of flood management options provided for under the adopted FRMPs. There are three primary legislative pathways to securing consent for a flood risk management scheme:

- Approval of the scheme as 'strategic infrastructure' by An Bord Pleanála;
- Approval of the scheme under Part 8 of the Planning and Development Regulations, 2001 as amended; and
- Approval of the scheme by the Minister for Finance under the Regulations (S.I. No. 122 of 2010).

Individual flood risk management schemes will be subject to 'project level' Appropriate Assessment in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011. Additionally, every flood risk management scheme which involves the execution of works of a class specified in Article 24 of the European Communities (Environmental Impact Assessment) Regulations, 1989 as amended is required to include an Environmental Impact Assessment.

In order to ensure the adequate adoption of environmental protection measures when progressing a scheme, the OPW will require that a Construction Environmental Management Plan (CEMP) is prepared for all schemes consented. The CEMP must incorporate all environmental commitments, environmental mitigation measures, environmental requirements and the like, relevant to the construction of the Works, as detailed in:

- law,
- the Flood Risk Management Plan, SEA and NIS/Appropriate Assessment,
- any scheme (project level) related Environmental Impacts Statement, Appropriate Assessments, Conditions of Approval,
- recommendation from IFI, EPA, NPWS, and
- recommendation of all surveys conducted under Section 25 of the Flood Risks Regulations;
- the OPW Arterial Drainage Maintenance Environmental Management Protocols & Standard Operating Procedures;

## 5.2.2 Specific Mitigation

The following broad categories of impacts on the Blackwater River SAC have been identified as requiring mitigation:

- Habitat damage during construction activities and maintenance;
- Sedimentation / pollution of the environment during construction and maintenance of the works;
- Introduction / spread of invasive species during construction and maintenance.

Mitigation is prescribed hereunder to address these impacts such that adverse effects on site integrity of the Blackwater River SAC due to the progression of the preferred flood risk management options in Ballyduff AFA and Kanturk AFA do not occur.

Mitigation measures are set out in accordance with the European Commission guidance on the 'Assessment of plans and projects significantly affecting Natura 2000 Sites:

Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, (2001). Mitigation is described with respect to:

- how the measures will avoid / prevent / reduce the adverse impacts on the site to an acceptable level;
- the degree of confidence in their likely success;
- the timescale, relative to the project, when they will be implemented;
- how and when the measures should be monitored.

Table 3: Measures to Control Habitat Damage

Measure	Implementation
<p><b><u>In-Stream Works</u></b></p> <p>A pre-construction survey will be required to determine the presence of Atlantic Salmon and Lamprey habitat within the sections of the Rivers which will be affected by the schemes.</p> <p>Section 23 (5)(d) of the Wildlife Act 1976 as amended states that any person who wilfully interferes with or destroys the breeding place or resting place of any protected wild animal, shall be guilty of an offence. A derogation must be sought under the Act to permit the destruction of / damage to Atlantic Salmon and Lamprey habitat. No works can progress except in accordance with a derogation licence from NPWS.</p> <p>In accordance with Section 173 of the Fisheries (Consolidation) Act, 1959 it is an offence to obstruct the passage of the smolts or fry of salmon, disturb the spawn of salmon, or damage spawning beds. For the purpose of protecting salmonids, in-stream works will be carried out outside of the salmonid spawning season (which will be confirmed with Inland Fisheries Ireland in advance of construction / maintenance activities). Similarly, in-stream works shall be restricted to outside of lamprey spawning season (which occurs between late May and early July).</p> <p>It is likely to be necessary to temporarily divert a section of the Dalua River to facilitate the construction of the control structure on the storage area under dry conditions. This is likely to be done by excavating a diversion channel. The river diversion must be carried out in a manner which will not impair the biological function of the waterbody and not impede river flow. Inland Fisheries Ireland and the National Parks and Wildlife Services must be consulted on the methodology and design to be used for isolating the section of the Dalua River to allow the construction of the storage area.</p> <p>The diversion channel must be excavated in isolation of the Dalua River.</p> <p>The diversion channel shall be designed such that, when operational, all river flow is accommodated and that overspill into the isolated area of the Dalua River will not occur. The diversion channel will be designed to have a river bed which will replicate, as far as practicable, the existing river conditions. Where gravels are to be used, these shall be clean and silt-free and of a size prescribed by Inland Fisheries Ireland. Once the diversion channel is complete, flow shall be introduced by opening the bottom end first to allow flow to back up into channel. The top end shall be subsequently opened to reduce sedimentation. The required section of the Dalua river may then be isolated. However, Inland Fisheries Ireland shall be consulted on the need to implement a fish salvage programme prior to isolation and dewatering of the required section of the Dalua River.</p> <p>The design of the control structure will be agreed with IFI and NPWS. As a minimum, the base of the control structure should be installed at a level 500mm below the existing bed level. River bed material excavated to accommodate the works will be stored on site (set back a minimum 10m from the watercourse to reduce risk of sediment runoff). This material will be examined for juvenile lamprey, which will be immediately transferred to alternative suitable habitat (under NPWS Licence). The excavated bed material will be reinstated to a depth of 500mm above the base of the control structure. Downstream baffles at the base of the structure will be incorporated into the design to trap / retain sediment and gravels which might be displaced / scoured out during operation of the control structure.</p>	<p><b>How the measures will avoid / prevent / reduce impacts</b></p> <p>The timing of the works will be restricted in order to prevent damage to habitat in use for breeding.</p> <p>The design of the works will be such that it incorporates measures to limit habitat disturbance.</p> <p><b>Confidence in the likely success of the measure</b></p> <p>Measures are best practice and are proven methods.</p> <p>Consultation with IFI and NPWS will ensure best scientific knowledge is employed in designing and constructing the storage area control structure.</p> <p><b>Timescale for Implementation</b></p> <p>Measures will need to be agreed with IFI and NPWS in advance of construction.</p> <p><b>Monitoring requirements</b></p> <p>It will be required that IFI supervise any fish salvaging from the Dalua River.</p> <p>Licences as may be issued by NPWS will require monitoring by a suitably qualified Ecologist during and post construction.</p>
<p><b><u>Riparian Damage</u></b></p> <p>Under the Duhallow LIFE project artificial otter holts were installed at 10 locations on the Dalua and Allow Rivers, a number of which are now in active use by Otter. The flood protection works within the Kanturk AFA should aim to be designed, constructed and maintained such that there are no works within 150m of the artificial holts installed under the Duhallow LIFE project. If, due to design constraints this cannot be achieved, a licence will be necessary from NPWS under the Wildlife Act to disturb otter from their resting place / to destroy a holt.</p> <p>Section 22 of the Wildlife Act 1976, as amended, makes it an offence to destroy the eggs or nest of a protected wild bird or to disturb a protected wild bird on or near a nest containing eggs or unfledged young. To avoid damage to the nests and disturbance of nesting protected bird species, vegetation clearance will be limited to between 1st September and 1st March (outside of the bird breeding season).</p>	

Table 4: Measures to Control Sedimentation and Pollution

Measure	Implementation
<p>Pollution control measures will be designed, installed, and maintained in accordance with CIRIA guidance for 'Environmental Good Practice on Site' (C741) and 'Control of water pollution from linear construction projects. Technical guidance' (C648) and under the supervision of an Environmental Clerk of Works (EnCoW) whom shall be appointed by the Contractor / Office of Public Works as relevant.</p>	<p><b>How the measures will avoid / prevent / reduce impacts</b></p>
<p>Additionally, NPWS and IFI will be consulted in advance of construction / maintenance activities such that a method statement for the works is agreed. Works shall be carried out in accordance with Inland Fisheries Ireland "Guidelines on Protection of Fisheries during construction works in and adjacent to waters" and OPW "Environmental Management Protocols (EMPs) and Standard Operating Procedures (SOPs)".</p>	<p><b>Confidence in the likely success of the measure</b></p>
<p><u>Silt Fences</u></p>	<p>Measures prescribed as best practice and are proven technologies / methods</p>
<p>Silt fences will be installed in advance of any ground disturbance at appropriate locations determined by the EnCoW, but as a minimum shall be installed at the perimeter of the Works areas where the works area is within 50m of the Dalua, Allow or Blackwater Rivers or drainage ditch or stream connected to these rivers. The silt fences shall extend for the full length of the working area plus 10m on either side. The silt fences will have the following design features:</p>	<p><b>Timescale for Implementation</b></p>
<ul style="list-style-type: none"> <li>· the geotextile fabric must be entrenched at least 100mm into the ground with the ends upturned;</li> <li>· the fence posts will have a maximum spacing of 2m to prevent sag on the fence; and</li> <li>· the geotextile fabric will be anchored to the fence posts as opposed to wrapped.</li> </ul>	<p>Pollution prevention measures will need to be in place before the construction works commence</p>
<p>Daily inspection of silt fences will be carried out by the EnCoW to assess the effectiveness of the measures, to carry out maintenance, and to determine if there has been any damage / breach to the control measures. The silt fences will also be inspected immediately following heavy rainfall or strong winds. Where repair is necessary, this will be carried out immediately and may require replacement of any damaged / degraded material.</p>	<p><b>Monitoring requirements</b></p>
<p>Accumulated silt will be removed regularly from the base of silt fences. Silt will not be permitted to build up such that it reaches half the height of the fence or exceeds 15cm in height (whichever is the lesser value). Commercially available fences will show a maximum height which should not be exceeded. Silt fences must remain in place until the disturbed areas within the sites have been reinstated and revegetated. Silt fences must only be removed during dry weather and following approval from the EnCoW. Any accumulated silt along the fence must be removed immediately in advance of removing the silt fences from site. The removal of the silt fences will be carried out under the instruction and supervision of the EnCoW.</p>	<p>Daily monitoring of all pollution control measures will be required by be carried out by the EnCoW.</p>
<p><u>Soil Erosion Control</u></p>	
<p>Exposed areas of soil within Works areas which are located within 50m of a watercourse will be covered with soil erosion protection (e.g. erosion control blanket / mat), to reduce soil loss into the Blackwater River SAC. Soil erosion protection must be installed in accordance with the manufacturers specification and must be installed immediately following the exposure of works areas to soil erosion.</p>	
<p>In addition to the silt fence barrier required at the perimeter of the site, a sediment barrier (which may include straw bales or similar product) will be placed at the toe of flood embankments (in advance of their construction) to reduce the risk of run-off of sediment into the Blackwater River SAC. The sediment barriers must be securely anchored into position, which in the case of straw bales will require a minimum of two stakes driven through each bale such that it is at a depth of 30cm into ground. There shall be no gaps between sections of the sediment barrier. The sediment barrier will remain in place until the flood embankment has been fully vegetated.</p>	
<p><u>Stockpiling Material</u></p>	
<p>Borrow pits for embankment construction will not be located within 50m of any watercourse or drain. Similarly, stockpiled material will be located a minimum of 50m from any drain or watercourse. Such material will be from a source confirmed to be free of invasive plant material such as Japanese Knotweed.</p>	
<p>All stockpiled material will be covered in order to prevent surface water run-off.</p>	
<p><u>Dewatering Excavations/Isolated Areas of Watercourses</u></p>	
<p>Dewatering must be carried out in a controlled manner to prevent environmental pollution. Dewatering will involve two distinct elements 1) removal and collection of water from areas, and 2) treatment and disposal of the collected water. The dewatering technique used will aim to reduce the amount of sediment extracted at source e.g. by dewatering through a filter. The water removed from areas will be treated to remove sediment to an acceptable level (less than 25mg/l suspended solid content), before being discharged to land or water. There are several technologies available including mobile dewatering units which use filtration media which can achieve this standard.</p>	
<p><u>Concrete and Other Pollutants</u></p>	
<p>The risk of pollution of the watercourses from losses of mortar and concrete must be managed and controlled in accordance with IFI <i>Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters</i> and with CIRIA C532: <i>Control of water pollution from construction sites Guidance for consultants and contractors</i>.</p>	
<p>A visual inspection of all watercourses, downstream of the works areas shall be conducted daily. Visual inspection should show no indication of increased sediment deposition on the watercourse bed and no visible hydrocarbon film.</p>	
<p>On-site concrete batching and mixing activities will not be permitted within 50m of a watercourse. Concrete will instead be brought to site by concrete truck where works are within this zone. Quick-setting concrete mixes will be used in order to reduce the risk of escape to the Blackwater River SAC. Residues and wastes generated by concrete works and runoff from concrete working areas will be</p>	

**Measure**

**Implementation**

prevented from entering watercourses using a barrier which might include straw bales, reinforced silt fence, double bagged cleaned sand bags (note earth embankments will not be permitted for this purpose due to associated sedimentation risk). Waste concrete slurry will be allowed to dry before removal and will be taken to a licensed waste depot for onward disposal. Concrete works will be scheduled during dry weather conditions to reduce the risk of runoff. NPWS and IFI will be notified immediately of any concrete spills to the Blackwater River SAC. Concrete mix trucks, pumps and equipment must NOT be washed down within 50m of a watercourse and must be within a designated bunded area or at a suitably designed and operated depot washdown facility. Wash water will be disposed of in accordance with waste legislation.

When carrying out repair / repointing of flood walls, a sealed decking which will be lined with plastic to catch any material which may spill during application of mortar etc.

In order to avoid the risk of pollution of the Blackwater River SAC, fuelling and lubrication of plant and equipment will not be permitted within 50m of a watercourse.

Welfare / hygiene facilities will not be located within 50m of a watercourse.

Where mobile equipment is required e.g. generators, these will be housed in a suitably sized bund such that any leaks / spills are intercepted. Bund specification will conform to the current best practice for oil storage such as 'Best Practice Guide BPGCS005 Oil Storage Guidelines,' Enterprise Ireland.

All waste fuels / oils, and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Acts 1996, as amended.

Spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment.

Table 5: Measures to Control the Spread of Invasive Species

Measure	Implementation
<p>It is an offence under Regulation 49 of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) (S.I. No. 477 of 2011) to plant, disperse, allow, or cause to disperse, spread or otherwise cause to grow any plant species specified in the Third Schedule of the Regulations.</p> <p>An invasive species survey must be carried out by a suitably qualified Ecologist / Botanist in advance constructing or maintaining Flood Protection Works. Where invasive species are identified, a site-specific Invasive Species Management Plan will be produced in advance of any works progressing (including any site investigations). The Plan must be completed by a suitably qualified and experienced person. Where recommendation for the use of pesticides is made, this must be by a person who is a Pesticide Advisor<sup>7</sup> registered with the Department of Agriculture, Food and the Marine (DAFM). Works will be progressed in accordance with the Management Plan.</p> <p>The Invasive Species Management Plan will be prepared with regard to the following:</p> <ul style="list-style-type: none"> <li>· The Office of Public Works Arterial Drainage Maintenance Service Environmental Management Protocols &amp; Standard Operating Procedures</li> <li>· Irish Water Invasive Species Guidelines: <ul style="list-style-type: none"> <li>○ IW-AMT-SOP-009 Information and Guidance Document on Japanese knotweed</li> <li>○ IW-AMT-GL-001 Management of Giant Hogweed</li> <li>○ IW-AMT-GL-002 Management of Himalayan Balsam</li> </ul> </li> <li>· IFI Biosecurity Protocols <ul style="list-style-type: none"> <li>○ IFI Biosecurity Protocol for Field Survey Work (December 2010);</li> <li>○ IFI Invasive Species Biosecurity Guidelines for Anglers – leaflet (2011);</li> <li>○ IFI Invasive Species Biosecurity Guidelines for Boaters – leaflet (2011); and</li> <li>○ IFI Invasive Species Biosecurity Guidelines for Scuba Diving (2012)</li> </ul> </li> </ul> <p>The use of pesticides shall be in accordance with the European Communities (Sustainable Use) of Pesticides Regulations, 2012 (SI No. 155 of 2012). Pesticide users must be suitably trained and registered with DAFM.</p> <p>All Contractors carrying out works will be appropriately trained (e.g. through toolbox talks) on the identification of invasive plant and animal species, which are known to occur within or adjacent to the proposed works areas, and actions to be taken if such species are observed on site.</p>	<p><b>How the measures will avoid / prevent / reduce impacts</b></p> <p>An Invasive Species Management Plan will be developed and implemented by a suitably qualified person and ensure that the appropriate measures are in place to in advance of any construction or maintenance activities.</p> <p><b>Confidence in the likely success of the measure</b></p> <p>The early identification of invasive species within a site and the early management of the invasive species will ensure that it is not spread during construction / maintenance activities.</p> <p><b>Timescale for Implementation</b></p> <p>No works can commence on site unless in accordance with the Invasive Species Management Plan</p> <p><b>Monitoring requirements</b></p> <p>Monitoring requirements will be set out in the Invasive Species Management Plan.</p>

<sup>7</sup> Note, as per the provisions of the Sustainable Use Directive (SUD), anybody who “advises on pest management and the safe use of pesticides, in the context of a professional capacity or commercial service, including private self-employed and public advisory services, commercial agents .....” is deemed to be a Pesticide Advisor (PA). Since November 2013, it has been mandatory for all PAs to be registered with DAFM.

## 6 Natura Impact Statement

This Natura Impact Statement provides a complete, precise and scientifically robust assessment of possible impacts of the Flood Risk Management Plan (and progression of the preferred options for the AFAs within UoM 18), alone and in combination with other projects and plans, on the integrity of the Natura 2000 Network.

Potential negative impacts on the Blackwater River SAC have been identified due to the flood risk management measures proposed within Ballyduff and Kanturk AFAs. These impacts, in the absence of mitigation, would adversely affect the integrity of the Blackwater River SAC by interfering with the factors (structures and functions) that support the achievement / maintenance of favourable conservation condition of the following qualifying features of the SAC:

- Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation.
- Freshwater Pearl Mussel *Margaritifera margaritifera*
- Sea Lamprey *Petromyzon marinus*;
- Atlantic Salmon *Salmo salar*; and
- Otter *Lutra lutra*

Mitigation is prescribed to ensure that adverse effects on the integrity of the Blackwater River SAC do not occur.

## 7 References

DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities;

EC (2000) Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

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

EPA (2017) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Draft)

Fossitt (2000) A Guide to Habitats in Ireland

Hendry K & Cragg-Hine D (2003). Ecology of the Atlantic Salmon. Conserving Natura 2000 Rivers Ecology Series No. 7. English Nature, Peterborough

Inland Fisheries Ireland (2016) The Status of Irish Salmon Stocks in 2015 with Precautionary Catch Advice for 2016. Report of the Standing Scientific Committee on Salmon to Inland Fisheries Ireland

Institute of Ecology and Environmental Management, 2006. Guidelines for Ecological Impact Assessment in the United Kingdom (version 7 July 2006). [online] Available at: <[http://www.cieem.net/data/files/Resource\\_Library/Technical\\_Guidance\\_Series/EcIA\\_Guidelines/TGSEcIA-EcIA\\_Guidelines-Terrestrial\\_Freshwater\\_Coastal.pdf](http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/EcIA_Guidelines/TGSEcIA-EcIA_Guidelines-Terrestrial_Freshwater_Coastal.pdf)> [Accessed 20 May 2014].

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

King J. J. and Linnane S. M. (2004) The status and distribution of lamprey and shad in the Slaney and Munster Blackwater SACs. Irish Wildlife Manuals, No. 14. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

NPWS (2013) The status of EU Protected habitats and Species in Ireland. Backing Documents, Article 17 forms, Maps. Volumes 1, 2 and 3.

NPWS (2012) Conservation objectives for Blackwater River (Cork/Waterford) SAC [002170]. Version 1.0. Department of Arts, Heritage and the Gaeltacht

NRA, 1st June, 2009 Guidelines for Assessment of Ecological Impacts of National Roads Schemes. Revision 2

Office of Public Works (April 2011) Arterial Drainage Maintenance Service Environmental Management Protocols & Standard Operating Procedures

Habitats Directive and Red Data Book Species, Executive Report 2014, IFI/2012/1-4103. Inland Fisheries Ireland.



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