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EIRPSAN BRIDGE MANAGEMENT SYSTEM

Task Order No. 265
Leinster Bridges – Term Maintenance Contract No. 3

Natura Impact Statement No.1

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1. INTRODUCTION

1.1 Background

The Eirspan Bridge Management System covers all aspects of bridge management including routine maintenance. Over the past number of years routine maintenance contracts have been undertaken by private contractors under Bridge Term Maintenance contracts.

This contract will run until 2021, where it is intended to carry out annual routine maintenance work between the 1st March and the 30th September in each of the years 2018, 2019, 2020 and 2021, with a defects period extending for a further year.

Bridge inspections are carried out according to the Eirspan Bridge Management System Routine Maintenance Manual (TII, 2017). The undertaking of bridge inspections generates data that is entered into an Eirspan database and works orders are produced for each bridge, which details the works to be undertaken for each component of that bridge. The works orders detail 'routine maintenance works' as set out in the manual.

Routine maintenance works are defined in the guidance document as 'works that are carried out at regular intervals', the objective of which is to 'undertake cleaning and minor maintenance works to avoid or delay the development of deterioration' (TII, 2017). Appendix J of the manual details the work specifications for routine maintenance works.

Non-routine or reactive works, which usually occur as a result of isolated incidents such as collisions or erosion damage due to floods (TII, 2017), are not included in the Works Orders under the Leinster Bridges Term Maintenance Contract No. 3. Such works will be subject to Screening for Appropriate Assessment as they arise.

During the last programme of maintenance works, 2013-2015 Term Maintenance Contract No. 2, in-stream maintenance works included works to bridge elements such as piers, wing walls and abutments. However, as much of this work was carried out during the 2013-2015 maintenance contract, the scale of interventions required in 2018 is such that many bridges require little or no instream works.

As the maintenance contract is to run over a 4 year period, the Contractor is required to employ a suitably qualified ecologist to provide advice on the ecological features and constraints at specific bridge locations as the project progresses.

The Contractor is expected by the Contract to adhere to the level of best practice as espoused in these and other accepted / published best practice for onsite works; these requirements are also specifically included in the Contract. Note that as part of the Contract a Resident Engineer (RE) will oversee works on behalf of TII.

In accordance with Article 6(3) of Council Directive 92/43/EEC of 21st May 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive"), as transposed into Irish law by Part 5 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) ("the Habitats Regulations") and Part XAB of the Planning and Development Act, 2000 (as amended) ("the Planning and Development Act"), an Appropriate Assessment (AA) Screening spreadsheet was prepared to assess whether or not the proposed works, either individually or in combination with other plans or projects, were likely to have a significant effect on one or more sites of Community importance ("European sites") for nature conservation.

The AA Screening for the works, which was carried out by TII, concluded, in view of best scientific knowledge and the Conservation Objectives of the sites concerned, that, in the absence of appropriate mitigation, the proposed works were likely to have a significant effect on one or more European Site. On the basis of that conclusion, TII, in its capacity as the Competent Authority at the screening stage, determined that AA was required in order to assess the implications of the proposed development for those sites.

This document comprises the NIS in respect of the proposed works at 31 no. structures and has been prepared by ROD on behalf of the TII. It contains an examination, analysis and evaluation of the likely impacts from the proposed development, both individually and in combination with other plans and projects, in view of best scientific knowledge and the Conservation Objectives of the European sites concerned. It also prescribes appropriate mitigation to ensure that the proposed development will not adversely affect the integrity of those sites. Finally, it provides complete, precise and definitive findings which are capable of removing all reasonable scientific doubt as to the absence of adverse effects on the integrity of the European sites concerned.

1.2 Legislative Context

The Habitats Directive and Directive 2009/147/EC of the European Parliament and of the Council of 30th November 2009 on the conservation of wild birds ("the Birds Directive") list habitats and species which are, in a European context, important for conservation and in need of protection. This protection is afforded in part through the designation of sites which support significant examples of habitats or populations of species ("European sites"). Sites designated for birds are termed "Special Protection Areas" (SPAs) and sites designated for natural habitat types or other species are termed "Special Areas of Conservation" (SACs). The complete network of European sites is referred to as "Natura 2000".

In order to ensure the protection of European sites in the context of land use planning and development, Article 6(3) of the Habitats Directive provides for the assessment of the implications of plans and projects for European sites, as follows:

> "*Any plan or project not directly connected with or necessary to the management of the site* [or sites] *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* [...]*, 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* [...]*.*"

The requirements arising out of Article 6(3) are transposed into Irish law by Part 5 of the Habitats Regulations, and the assessment is referred to as "Appropriate Assessment" (AA).

The determination of whether or not a plan or project meets the two thresholds for requiring AA is referred to as "Stage 1" or "AA Screening". The first threshold is reached if the plan or project is not directly connected with or necessary to the management of one or more European sites. In its ruling in the Waddenzee case[1], the Court of Justice of the European Union (CJEU) interpreted the second threshold as

[1] Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse vereniging tot Bescherming van Vogels *v*. Staatssecretaris van Landbouw, Naturbeheer en Visserij (Waddenzee) [2004] C-127/02 ECR I-7405.

being reached where "*it cannot be excluded, on the basis of objective information, that* [the plan or project] *will have a significant effect on that site*". Thus, in applying the Precautionary Principle, the CJEU interpreted the word "likely" to mean that, as long as it cannot be demonstrated that an effect will not occur, that effect is considered "likely". A likely effect is considered to be "significant" only if it interrupts or causes a delay in achieving the Conservation Objectives of the site concerned.[2]

In its judgment in *People Over Wind*[3], the CJEU concluded that the determination of whether or not AA is required in respect of a project must be completed without consideration of "*measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned*".

Prior to approval of a plan or project which is the subject of AA (also referred to as "Stage 2"), it is necessary to "*ascertain*" that the plan or project will not "*adversely affect the integrity of the site*". In its guidance document (EC, 2001), the European Commission stated that "*the integrity of a site involves its ecological functions*" and that "*the decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives*". Regarding the word "ascertain", the CJEU, also in its ruling in the *Waddenzee* case, interpreted this as meaning "*where no reasonable scientific doubt remains as to the absence of such effects*". Therefore, the legal test at Stage 2 is satisfied (and the plan or project may be authorised) when it can be demonstrated beyond reasonable scientific doubt that the plan or project will not adversely affect the integrity of the site. AA is informed by a "Natura Impact Report" (NIR) in the case of plans or a "Natura Impact Statement" (NIS) in the case of projects.

The CJEU has made a relevant judgment on what information should be contained within documents supporting AA[4] (in the NIR or NIS):

> "[The AA] *cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned.*"

The Irish High Court has also provided clarity on how competent authorities should undertake valid and lawful AA[5], directing that the AA:

> "*Must identify, in the light of the best scientific knowledge in the field, all aspects of the development project which can, by itself or in combination with other plans or projects, affect the European site in the light of its conservation objectives. This clearly requires both examination and analysis.*"
>
> "*Must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions appears to require examination, analysis, evaluation and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation of each in the light of the best scientific knowledge in the field.*"
>
> "*May only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where, upon the basis*

[2] Conservation Objectives are referred to, but not defined, in the Habitats Directive. In Ireland, Conservation Objectives are set for Qualifying Interests (the birds, habitats or other species for which a given European site is selected) and represent the overall target that must be met for that Qualifying Interest to reach or maintain favourable conservation condition in that site and contribute to its favourable conservation status nationally.

[3] People Over Wind and Peter Sweetman *v*. Coillte Teoranta (People Over Wind) [2018] C-323/17.

[4] Sweetman *v*. An Bord Pleanála [2013] Case C-258/11.

[5] Kelly *v*. An Bord Pleanála [2014] IEHC 422.

of complete, precise and definitive findings and conclusions made, the consenting authority decides that no reasonable scientific doubt remains as to the absence of the identified potential effects."

In accordance with Article 6(3) of the Habitats Directive, the responsibility to screen for and carry out AA lies solely with the "competent national authorities", i.e. those with responsibility for granting or refusing consent for plans and projects. In that respect, an AA Screening Report, NIR or NIS (if not prepared by the competent authority) does not in itself constitute a valid AA Screening or AA; it merely provides the competent authority with the information that it needs in order to screen for and carry out its AA. In Ireland, the competent authority for a given plan or project is the relevant public authority, e.g. Transport Infrastructure Ireland.

1.3 Methodology

On the basis of the objective information provided in the AA Screening recommendations and in view of the Conservation Objectives of the relevant European sites, Transport Infrastructure Ireland, as the competent authority, determined that the proposed works at a number of structures, either individually or in combination with other plans and projects, was likely to have a significant effect on one or more European sites.

In accordance with the requirements for AA, this NIS assesses the likely effects of the proposed development on the integrity of the European sites "screened in" at Stage 1. This assessment is undertaken in six steps, as follows:

1. Step 1 involves gathering all of the information and data that will be necessary for a full and proper assessment. These include, but are not limited to, the details of all phases of the plan or project, environmental data pertaining to the area in which the plan or project is located, e.g. rare or protected habitats and species or invasive species present or likely to be present, and the details of the European sites within the likely zone of impact.
2. Step 2 involves examination of the information gathered in the first step and detailed scientific analysis of the effects of the plan or project on the ecological structure and function of the receiving environment, focussing on European sites.
3. Step 3 evaluates the effects analysed in Step 2 against the Conservation Objectives of the relevant European site or sites, thereby determining whether or not they constitute adverse effects on site integrity.
4. Having established that the plan or project will adversely affect the integrity of one or more European sites, Step 4 involves the development of appropriate mitigation, including, where appropriate, monitoring and enforcement measures, to eliminate or minimise those effects such that they no longer constitute adverse effects on the integrity of the site(s) concerned, as well as consideration of the significance of any residual (post-mitigation) effects.
5. Step 5 involved the assessment of the significance of any residual effects arising from the proposed development in combination with other plans or projects.
6. Step 6 involves the final determination of whether or not the plan or project will adversely affect the integrity of one or more European sites. Notwithstanding the final recommendation made in the NIS, the responsibility for completing this step lies solely with the competent authority.

The following guidance documents informed the assessment methodology:

- EC (2018) *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC*. Environment Directorate-General of the European Commission.
- 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*. Environment Directorate-General of the European Commission.
- DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.
- NPWS (2010a) *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular Letter NPWS 1/10 & PSSP 2/10. Department of the Environment, Heritage and Local Government, Dublin.

2. EUROPEAN SITES

It was determined that the works were likely to result in significant effects on European Sites. These sites are summarized below.

2.1 Slaney River Valley SAC

Site Overview

The Slaney River Valley comprises the freshwater stretches of the River Slaney (a major river that drains much of the south-east region) as far as the Wicklow Mountains flowing through the Counties of Wicklow, Wexford and Carlow. The tidal and freshwater boundary of the River Slaney is defined as the Old Bridge in Enniscorthy under section 10 of the Fisheries (Consolidation) Act, 1959. However, Inland Fisheries Ireland advise there is no saline influence at Enniscorthy and that this is the case for some distance downstream until Mackmine Bridge. The site supports populations of several species listed on Annex II to the Habitats Directive, and habitats listed on Annex I of this Directive, as well as important numbers of wintering wildfowl including some species listed on Annex I to the Birds Directive. The presence of wet and broadleaved woodlands increases the overall habitat diversity and the occurrence of a number of Red Data Book plant and animal species adds further importance to the site. Overall it is of considerable conservation significance.

Qualifying Interests of the Site

[1130] Estuaries

[1140] Mudflats and sandflats not covered by seawater at low tide

[1330] Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

[1410] Mediterranean salt meadows (Juncetalia maritimi)

[3260] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation

[91A0] Old sessile oak woods with Ilex and Blechnum in the British Isles

[91E0] *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)

[1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*)

[1095] Sea Lamprey (*Petromyzon marinus*)

[1096] Brook Lamprey (*Lampetra planeri*)

[1099] River Lamprey (*Lampetra fluviatilis*)

[1103] Twaite Shad (*Alosa fallax*)

[1106] Atlantic Salmon (*Salmo salar*)

[1355] Otter (*Lutra lutra*)

[1365] Common (Harbour) Seal (*Phoca vitulina*)

Sensitivities of the Site and its Qualifying Interests

The greatest pressures/threats to the integrity of the Slaney River Valley SAC come from agriculture, fishing, and industrial activities. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the populations of Habitats Directive Annex II animal species within it. The spread of exotic species is reducing the quality of the woodlands within the site.

2.2 River Barrow and River Nore SAC

Site Overview

This site consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties: Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford. Towns along the edge of the site include Mountmellick, Portarlington, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow, and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King's Rivers on the Nore.

Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II to the Habitats Directive. Furthermore, it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of the hard water form of the Freshwater Pearl Mussel, which is limited to a 10km stretch of the Nore, add further interest to this site.

Qualifying Interests of the Site

[1130] Estuaries

[1140] Mudflats and sandflats not covered by seawater at low tide

[1170] Reefs

[1310] Salicornia and other annuals colonising mud and sand

[1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

[1410] Mediterranean salt meadows (*Juncetalia maritimi*)

[3260] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation

[4030] European dry heaths

[6430] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

[7220] *Petrifying springs with tufa formation (*Cratoneurion*)

[91A0] Old sessile oak woods with Ilex and Blechnum in the British Isles

[91E0] *Alluvial forests with *Alnus glutinosa* and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae)*

[1016] Desmoulin's Whorl Snail (*Vertigo moulinsiana*)

[1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*)

[1092] White-clawed Crayfish (*Austropotamobius pallipes*)

[1095] Sea Lamprey (Petromyzon marinus)

[1096] Brook Lamprey (*Lampetra planeri*)

[1099] River Lamprey (*Lampetra fluviatilis*)

[1103] Twaite Shad (*Alosa fallax*)

[1106] Atlantic Salmon (*Salmo salar*)

[1355] European Otter (*Lutra lutra*)

[1421] Killarney Fern (*Trichomanes speciosum*)

[1990] Nore Freshwater Pearl Mussel (*Margaritifera durrovensis*)

Sensitivities of the Site and its Qualifying Interests

The spreading of slurry and fertiliser poses a threat to water quality and populations of Annex II species within the site. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of angling clubs, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing and a mussel bed in the estuary. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath, are also popular. There is a golf course on the banks of the River Nore at Mount Juliet and sports pitches at Inistioge and Thomastown. There are active and disused sand and gravel pits throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port and shipping to and from Waterford and Belview ports also passes through the estuary.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, over-grazing in the woodland areas, and invasion by non-native species, e.g. Cherry Laurel (*Prunus laurocerasus*) and Rhododendron (*Rhododendron ponticum*). Water quality remains vulnerable. Good quality water is necessary to maintain the populations of Annex II species and is dependent on controlling fertilisation of the grasslands, particularly along the River Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as Lamprey and Shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.

2.3 River Nore SPA

Site Overview

The River Nore SPA is a long, linear site that includes the following river sections: the River Nore from the bridge at Townparks, (north-west of Borris in Ossory) to Coolnamuck (approximately 3 km south of Inistioge) in Co. Kilkenny; the Delour River from its junction with the River Nore to Derrynaseera bridge (west of Castletown) in Co. Laois; the Erkina River from its junction with the River Nore at Durrow Mills to Boston Bridge in Co. Laois; a 1.5km stretch of the River Goul upstream of its junction with the Erkina River; the Kings River from its junction with the River Nore to a bridge at Mill Island, Co. Kilkenny. The site includes the river channel and marginal vegetation. For a large part of its course the River Nore traverses Carboniferous limestone plains; it passes over a narrow band of Old Red Sandstone rocks below Thomastown. The River Nore SPA is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.

Qualifying Interests of the Site

[A229] Kingfisher (*Alcedo atthis*)

A survey in 2010 recorded 16 probable and 6 possible Kingfisher territories within the SPA. The population within the site was, therefore, estimated to be 22 pairs.

Sensitivities of the Site and its Qualifying Interests

The main threats which have been identified for this site include: landfill sites; drying out and reclamation of land; and, port areas. The most important threats to and pressures acting on Kingfisher include: pollution of surface waters; invasive species; anthropogenic changes in hydraulic conditions; outdoor recreation; agriculture; and, transport infrastructure. All of these threats and pressures are important insofar as they provide for habitat loss and reductions in habitat quality, and are all considered to be of low importance (Eionet, 2018).

2.4 River Boyne and River Blackwater SAC

Site Overview

This site comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath, and smaller areas of Cavan and Louth. The Boyne and its tributaries form one of Ireland's premier game fisheries and the area offers a wide range of angling, from fishing for spring salmon and grilse to seatrout fishing and extensive brown trout fishing. Atlantic Salmon (*Salmo salar*) use the tributaries and headwaters as spawning grounds.

This site is also important for the populations of two other species listed on Annex II of the E.U. Habitats Directive which it supports, namely River Lamprey (*Lampetra fluviatilis*), which is present in the lower reaches of the Boyne River, and Otter (*Lutra lutra*), which can be found throughout the site. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. Common Frog, another Red Data Book species, also occurs within the site. All of these animals, with the addition of the Stoat and Red Squirrel, which also occur within the site, are protected under the Wildlife Act, 1976.

The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as examples of other important habitat types. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks, and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site, as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.

Qualifying Interests of the Site

[7230] Alkaline Fens

[91E0] Alluvial Forests*

[1099] River Lamprey (*Lampetra fluviatilis*)

[1106] Atlantic Salmon (*Salmo salar*)

[1355] Otter (*Lutra lutra*)

Sensitivities of the Site and its Qualifying Interests

Intensive agriculture is the main land use along the site. Much of the grassland is in very large fields and is improved. Silage harvesting is carried out. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the lakes. In the more extensive agricultural areas sheep grazing is carried out. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to salmonid habitat in the area. Drainage of the adjacent river systems also impacts on the many small wetland areas throughout the site.

2.5 River Boyne and River Blackwater SPA

Site Overview

The River Boyne and River Blackwater SPA is a long, linear site that comprises stretches of the River Boyne and several of its tributaries; most of the site is in Co. Meath, but it extends also into Cos Cavan, Louth and Westmeath. It includes the following river sections: the River Boyne from the M1 motorway bridge, west of Drogheda, to the junction with the Royal Canal, west of Longwood, Co Meath; the River Blackwater from its junction with the River Boyne in Navan to the junction with Lough Ramor in Co. Cavan; the Tremblestown River/Athboy River from the junction with the River Boyne at Kilnagross Bridge west of Trim to the bridge in Athboy, Co. Meath; the Stoneyford River from its junction with the River Boyne to Stonestown Bridge in Co. Westmeath; the River Deel from its junction with the River Boyne to Cummer Bridge, Co. Westmeath. The site includes the river channel and marginal vegetation. Most of the site is underlain by Carboniferous limestone but Silurian quartzite also occurs in the vicinity of Kells and Carboniferous shales and sandstones close to Trim.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive of special conservation interest for the following species: Kingfisher. A survey in 2010 recorded 19 pairs of Kingfisher (based on 15 probable and 4 possible territories) in the River Boyne and River Blackwater SPA. A survey conducted in 2008 recorded 20-22 Kingfisher territories within the SPA. Other species which occur within the site include Mute Swan (90), Teal (166), Mallard (219), Cormorant (36), Grey Heron (44), Moorhen (84), Snipe (32) and Sand Martin (553) – all figures are peak counts recorded during the 2010 survey.

The River Boyne and River Blackwater Special Protection Area is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.

Qualifying Interests of the Site

[A229] Kingfisher (*Alcedo atthis*)

The River Boyne and River Blackwater Special Protection Area is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.

Sensitivities of the Site and its Qualifying Interests

Intensive agriculture is the main land use along the site. Much of the grassland is in very large fields and is improved. Silage harvesting is carried out. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the lakes. In the more extensive agricultural areas sheep grazing is carried out. Ongoing maintenance dredging is carried out along stretches of the river system where the

gradient is low. Drainage of the adjacent river systems also impacts on the many small wetland areas throughout the site.

2.6 Wicklow Mountains SAC

Site Overview

Wicklow Mountains SAC is a complex of upland areas in Counties Wicklow and Dublin, flanked by the Blessington reservoir to the west and Vartry reservoir in the east, Cruagh Mountain in the north and Lybagh Mountain in the south. Most of the site is over 300m, with much ground over 600m. Wicklow Mountains is important as a complex, extensive upland site. It shows great diversity from a geomorphological and a topographical point of view. The vegetation provides examples of the typical upland habitats with heath, blanket bog and upland grassland covering large, relatively undisturbed areas. In all, twelve habitats listed on Annex I of the E.U. Habitats Directive are found within the site. Several rare or protected plant and animal species occur, adding further to its value.

Qualifying Interests of the Site

[3110] Oligotrophic Waters containing very few minerals

[3160] Dystrophic Lakes

[4010] Wet Heath

[4030] Dry Heath

[4060] Alpine and Subalpine Heaths

[6130] Calaminarian Grassland

[6230] Species-rich *Nardus* Grassland*

[7130] Blanket Bogs (Active)*

[8110] Siliceous Scree

[8210] Calcareous Rocky Slopes

[8220] Siliceous Rocky Slopes

[91A0] Old Oak Woodlands

[1355] Otter (*Lutra lutra*)

Sensitivities of the Site and its Qualifying Interests

Large areas of the site are owned by the National Parks and Wildlife Service (NPWS) and are managed for nature conservation based on traditional land uses of upland areas. The most common land use is traditional sheep grazing, but others include turf cutting, mostly hand-cutting but some machine-cutting also occurs. These activities are largely confined to the Military Road, where there is easy access. Large areas which had been previously hand-cut and are now abandoned are regenerating. In the last 40 years, forestry has become an important land use in the uplands, and has affected both the wildlife and the hydrology of the area. Amenity use is very high, with Dublin city close to the site. Peat erosion is frequent on the peaks. This may be a natural process, but is likely to be accelerated by activities such as grazing.

2.7 Wicklow Mountains SPA

Site Overview

This is an extensive upland site, comprising a substantial part of the Wicklow Mountains. Most of the site is in Co. Wicklow, but a small area lies in Co. Dublin. The

underlying geology of the site is mainly of Leinster granites, flanked by Ordovician schists, mudstones and volcanics. The area was subject to glaciation and features fine examples of glacial lakes, deep valleys and moraines. Most of site is over 300m, with much ground being over 600m; the highest peak is Lugnaquillia (925m). The substrate over much of site is peat, with poor mineral soil occurring on the slopes and lower ground. Exposed rock and scree are features of the site. The predominant habitats present are blanket bog, heaths and upland grassland. A series of surveys of the Wicklow Mountains SPA indicates that up to 9 pairs of Merlin breed within the site in any one year. Traditionally a ground-nesting species, Merlin in the Wicklow Mountains are usually found nesting in old crows nests in conifer plantations. The open peatlands provide excellent foraging habitat for Merlin with small birds such as Meadow Pipit being their main prey. The cliffs and crags within the site also provide ideal breeding locations for Peregrine (20 pairs in 2002). Other birds of the open peatlands and scree slopes that have been recorded within the site include Ring Ouzel and Red Grouse. The Wicklow Mountains SPA is of high ornithological importance as it supports nationally important populations of Merlin and Peregrine, both species that are listed on Annex I of the E.U. Birds Directive. Part of Wicklow Mountains SPA is a Statutory Nature Reserve.

Qualifying Interests of the Site

[A098] Merlin (*Falco columbarius*)

[A103 Peregrine (*Falco peregrinus*)

Sensitivities of the Site and its Qualifying Interests

The main threats which have been identified for this site include: Forestry, Grazing, peat extraction, walking, horseriding, unmotorized vehicles, paths, tracks and cycle tracks.

2.8 Wexford Harbour Slobs SPA

Site Overview

Wexford Harbour is the lowermost part of the estuary of the River Slaney, a major river that drains much of the south-east region. The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South "Slobs" and the tidal section of the River Slaney. The seaward boundary extends from the Rosslare peninsula in the south to the area just west of The Raven Point in the north. Shallow marine water is a principal habitat, but at low tide extensive areas of intertidal flats are exposed. Wexford Harbour and Slobs is one of the top three sites in the country for numbers and diversity of wintering birds. The combination of estuarine habitats, including shallow waters for grebes, diving ducks and sea ducks, and the farmland of the polders, which include freshwater drainage channels, provides optimum feeding and roost areas for a wide range of species.

Qualifying Interests of the Site

[A004] Little Grebe (*Tachybaptus ruficollis*)

[A005] Great Crested Grebe (*Podiceps cristatus*)

[A017] Cormorant (*Phalacrocorax carbo*)

[A028] Grey Heron (*Ardea cinerea*)

[A037] Bewick's Swan (*Cygnus columbianus bewickii*)

[A038] Whooper Swan (*Cygnus cygnus*)

[A046] Light-bellied Brent Goose (*Branta bernicla hrota*)

[A048] Shelduck (*Tadorna tadorna*)

[A050] Wigeon (*Anas penelope*)

[A052] Teal (*Anas crecca*)

[A053] Mallard (*Anas platyrhynchos*)

[A054] Pintail (*Anas acuta*)

[A062] Scaup (*Aythya marila*)

[A067] Goldeneye (*Bucephala clangula*)

[A069] Red-breasted Merganser (*Mergus serrator*)

[A082] Hen Harrier (*Circus cyaneus*)

[A125] Coot (*Fulica atra*)

[A130] Oystercatcher (*Haematopus ostralegus*)

[A140] Golden Plover (*Pluvialis apricaria*)

[A141] Grey Plover (*Pluvialis squatarola*)

[A142] Lapwing (*Vanellus vanellus*)

[A143] Knot (*Calidris canutus*)

[A144] Sanderling (*Calidris alba*)

[A149] Dunlin (*Calidris alpina*)

[A156] Black-tailed Godwit (*Limosa limosa*)

[A157] Bar-tailed Godwit (*Limosa lapponica*)

[A160] Curlew (*Numenius arquata*)

[A162] Redshank (*Tringa totanus*)

[A179] Black-headed Gull (*Chroicocephalus ridibundus*)

[A183] Lesser Black-backed Gull (*Larus fuscus*)

[A195] Little Tern (*Sterna albifrons*)

[A395] Greenland White-fronted Goose (*Anser albifrons flavirostris*)

[A999] Wetland and Waterbirds

Sensitivities of the Site and its Qualifying Interests

The greatest pressures/threats to the integrity of the Wexford Harbour and Slobs SPA come from fertilisation, aquaculture, grazing and hunting. Roads, urbanisation and human recreational activities also act as pressures on this site.

3. THE PROPOSED WORKS

This section outlines the works elements being undertaken on the structures.

3.1 Masonry Repointing and Repair

Masonry repointing and repair will be undertaken by stonemasons who have attended the TII approved 'Masonry Arch Bridge Repair Workshop' or are members of the Guild of Master Craftsmen. Repointing will be done by hand only. Masonry will be repointed by first cleaning the area as described above. Lime mortar will be used for all masonry repointing and repair. No lime mortar will be allowed to enter aquatic ecosystems. Repointing can be undertaken on foot, using a ladder, using a bridge inspection unit or using scaffolding, depending on the accessibility of the area to be repointed. Repointing over water or close to water was considered to have potential to lead to likely significant effects, therefore, where repointing was required over watercourses which are within or in proximity to Natura 2000 sites, appropriate mitigation measures are required. All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

3.2 Scour Repairs

Scour repairs are required where a watercourse has undermined the structure. In order to repair the scour damage, the contractor will fill the scour hole(s) with clean stone (Class 1C material) until it is flush with the surrounding surface. In most instances, the contractor will be required to enter the water on foot to place the clean stone by hand. Normal biosecurity measures will apply. No machinery is permitted in the watercourses. All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

3.3 Clearance of Debris

Watercourses shall be cleared of all debris and vegetation that may impede flow within 20m of the bridge. This includes domestic waste, tree branches and rubble. Naturally occurring instream vegetation will not be removed (i.e. floating river vegetation). Machinery is not permitted in watercourses. There will be no discharge of waste on-site. Where large items such as trees have been partially buried in silt or gravel, or where sensitive species are found in the vicinity of them, mitigation will be considered to avoid or reduce the risk of sediment released. All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

3.4 Concrete Repairs

Concrete repairs shall be carried out where minor areas of defective concrete are identified by the Employers Representative. Cracked, honeycombed, delaminated, contaminated or otherwise defective concrete shall be broken out by hand held drill/impact hammer or other specified method, taking due care to avoid damage to sound concrete and reinforcement. The concrete shall be broken out to a depth equal to the maximum size of aggregate plus 5mm beyond the reinforcement. Where corroded reinforcement is identified, the area of concrete removed shall be extended to expose 100mm of non-corroded reinforcement. Before cutting out, the Contractor shall determine the position and depth of the reinforcement. The perimeter of the concrete to be removed shall be saw cut perpendicularly to the face of the concrete to a depth of not less than 10mm or to within 10mm of the reinforcement, whichever is

the lesser. The concrete shall be removed by the use of suitable hand or mechanical tools or high-pressure water jetting. Where concrete is removed by high pressure water jetting a lightweight electric demolition hammer may be used for final trimming of the area broken out. At the upper limits of repairs to be made by repair concrete, sloping cuts may be used to avoid the entrapment of air when the concrete is poured. The saw cut edges shall be abraded by grit blasting or equivalent methods. The exposed faces shall be formed by cutting neat straight edges and shall be scabbled if necessary and cleaned off. The exposed surfaces shall be suitably primed and an approved, proprietary prebagged repair mortar, complying with the requirements of BD 27/86, placed by hand ensuring a flush finish with the adjoining surface. The repair mortar shall be prepared and placed in accordance with the manufacturer's requirements. Concrete repairs over water or close to the river banks was considered to have potential to lead to likely significant effects, therefore, where concrete repair was required over watercourses which are within or in proximity to Natura 2000 sites, appropriate mitigation measures are required. All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

3.5 Patch Painting

Steelwork with damaged, missing, flaking or otherwise poor condition paintwork shall be touch repainted over the defective areas. No discharge of waste will be permitted on-site. The surface will be exposed to bare steel using a wire brush. The steel will then be painted using a similar colour and thickness in accordance with the manufacture's guidelines. All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

3.6 High Pressure Hosing of Surfaces

Any growth (fungal, algae, etc.) on bridge components shall be removed by high pressure hosing. Powerhosing of parapets in or upstream of Natura 2000 Sites could lead to the release of pollutants such as fuels and oils into the aquatic environment and is not permitted. Only potable water will be used for powerhosing. No water extraction from watercourses is permitted.

3.7 Graffiti Removal

When removing graffiti, where possible the use of proprietary graffiti removing products shall be favoured over abrasive cleaning techniques to avoid unnecessary damage to the fabric of the structure. Therefore, graffiti shall be removed by a combination of proprietary materials such as water-soluble sprays and aerosols, gels and poultices, and high-pressure hosing, stiff brush and abrasives when so approved by the Employers Representative. Regardless of the method of removal of graffiti it will always be necessary to carry out in-situ trials on a small unobtrusive section of the structure to determine the effectiveness of the chosen method and to confirm that no undue damage is caused to the substrate during the process. Proprietary materials shall be applied strictly in accordance with the manufacturers recommendations and shall be appropriate both for the substrate material (concrete, masonry, metalwork, etc.) and the marking agent (paint, ink, wax based materials, etc.). Acid based cleaners should never be used on acid sensitive materials that might be etched or abraded by acid. These include stonework such as limestone, marble or calcareous sandstone. The thicker consistency of gels and poultices, which are expressly designed to draw out pigment from permeable materials, make them more suitable for brickwork and other porous substrates. However, aluminium (parapets, etc.) and anodised metals can be attacked by bleach, ammonia and other alkalis. Mechanical

abrasive graffiti removal shall be carried out as a last resort by specialist firms and should only be carried out on uncoated concrete substrates. Typical methods include low and high-pressure water cleaning with or without detergents as well as sand or grit blasting. Due care shall be taken to protect the general public from the effects of all mechanical abrasive graffiti removal techniques, to the satisfaction of the Employers Representative.nk and felt tip marker stains should be removed using a glycol ether solvent, such asmethoxypropanol, applied with a clean white cloth over the area affected. The minimum amount of solvent necessary to remove the stain shall be used as excess solvents on porous substrates (i.e. concrete) can potentially carry the dyes further into the parent material. Materials such as brick and stone are generally not adversely affected by glycol ether. However, if a reaction is noted, the area should be immediately dosed in water. All personnel using glycol ethers shall be trained in their use and application and alerted to the dangers of using these chemicals in accordance with the requirements of the Health Safety and Welfare at Work (Construction) Regulations 2013. The majority of the graffiti encountered on bridge structures consist of spray-applied paint. Graffiti caused by spray-applied paints shall be removed using a water based cleaning gel. The gel shall be applied to the affected area with a brush in a circular motion. After a short waiting time, the mixture of paint and gel shall be washed off with water, collected and disposed of offsite in a suitable waste disposal facility. In the case of persistent graffiti stains the cleaning action should be repeated. In certain instances, it may be necessary to over paint the graffiti rather than to remove it, especially in the structure has been coated with an anti-carbonation or crack bridging coating. In these circumstances, the use of an anti-graffiti coating should be considered in combination with over painting the structure especially on high-risk structures where graffiti is a persistent problem. Repainting of graffiti covered surfaces must be preceded by the use of a sealer coat to prevent the graffiti pigment from bleeding through. Where over painting is required, the colour of the applied paint shall match the existing. Graffiti removal has the potential to harm aquatic life, and therefore graffiti removal over water within and upstream of Natura 2000 Sites will not be permitted.

3.8 Vegetation Removal

All trees, bushes, ivy, and deep- rooted vegetation within 1m of any part of a structure shall be removed down to ground level. Trees will be cut above ground level and the stumps will be grubbed out. Where the stump diameter is greater than 100mm, vertical cuts will be made to promote rotting. The removal of mould/fungus or algae will be achieved using high pressure hose (See 3.6), stiff brush or hand-scraper.

Herbicide will not be used on vegetation which is not on the bridge structures. Removal of Ivy and similar plants from surfaces may include the use of herbicide prior to mechanical removal. The use of any chemical to assist in the removal of vegetation from structures must be approved by the Employer's Representative and be undertaken under the advice of an appropriately trained and registered pesticide advisor. **Herbicides must be of a type approved for use near water and must be used in accordance with the manufacturer's instructions.** Only appropriately trained and registered users may carry out the application of herbicides. There will be no discharge of waste on-site. The removal of vegetation will not involve instream works. The use of herbicides will be in accordance with the relevant legislation including Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC (hereinafter referred to as the 'Plant Protection Products Regulation'); and, European Communities (Plant Protection Products) Regulations, 2012 (S.I. No. 159 of 2012).

The Preamble to the Regulation indicates that plant protection products should be used properly:

in accordance with their authorisation;

having regard to the principles of integrated pest management; and,

giving priority to non-chemical and natural alternatives wherever possible.

The Preamble to the Regulation indicates further that the user should know from the product label where, when and under what circumstances a plant protection product may be used. The importance of ensuring that plant protection products are used in accordance with the product label cannot be over-emphasised, i.e that products are approved for use near water where a watercourse is present at the bridge structure.

4. THE STRUCTURES

4.1 Carlow

4.1.1 Raheen Culvert [CW-N80-001]

Raheen culvert carries the Kildavin Stream under the N80 in the town of Kildavin, Co. Carlow. The culvert consists of three concrete pipes, each being 6.6m long. The culvert is 1.7km upstream of the River Slaney, and the Slaney River Valley SAC. The stream is shallow (<20cm) and easily accessible on foot (as shown in Plate 4-1). The bed of the stream is a mixture of gravels and pebbles and therefore there is a low risk of sedimentation. Plate 4-1 below shows the inlet to the culvert.

Plate 4-1

The following works are proposed at this structure:

- Concrete repairs required at 2 locations on faces of pipes at inlet (0.5m^2).
- Removal of debris at inlet (base of traffic cone and piece of pipe (2.5m^2).
- Powerhose headwall and spandrel wall at inlet (3m^2).
- Remove steel brackets from wingwall at inlet (x 6).
- Remove concrete rail from culvert at inlet (0.5m^2).

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that are at risk from pollutants are considered to be Freshwater Pearl Mussel, Lamprey species, Atlantic Salmon and Otter. Floating River Vegetation and Freshwater Pearl Mussel are not found at the culvert location as the stream is too shallow and turbulent to support these Qualifying Interests, however it is considered present downstream. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-1 below.

Table 4-1 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Concrete repairs required at 2 locations on faces of pipes at inlet (0.5m^2).	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Removal of debris at inlet (base of traffic cone and piece of pipe (2.5m^2).	Screen out - these items can be removed from the channel (base of traffic cone) and from the bank (plastic pipe) without any risk of LSE.
Powerhose headwall and spandrel wall at inlet (3m^2).	Screen out - powerhosing of algae over a small area poses no risk of LSE.
Remove steel brackets from wingwall at inlet (x 6).	Screen in - the removal of steel brackets will require them to be dug out and removed. The gap will be filled with concrete. the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Remove steel rail from culvert at inlet (0.5m^2).	Screen out - the steel rail is on the exposed bank next to the inlet and can be removed by hand without any risk of LSE.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

- Due to the size of the culvert, the works will be undertaken on foot.
- Concrete will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of mixed concrete will be brought to the work site at any time.
- A mobile catch net will be used to prevent wet concrete entering the watercourse.
- The effectiveness of the catch net will be approved by the Employers Representative and the Contactor's Ecologist.
- Wet concrete will only be used where no rain is forecast for at least 12 hours.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Residual Impacts and Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Raheen Culvert [CW-

N80-001.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.1.2 Rathvilly Bridge [CW-N81-008]

The Rathvilly Bridge is a 6-span masonry arch bridge which carries the N80 over the River Slaney. The bridge is within the Slaney River Valley SAC. The river is accessible on foot during normal flow and is otherwise accessible by using a bridge inspection unit or using rope access from the bridge deck. Plate 4- shows the bridge inlet with debris against the piers.

Plate 4-2

The following works are proposed at this bridge:

- Clearance of debris (100m^2).
- Repointing river face of parapets (50m^2).
- Remove tree branches within 1m from northwest parapet (0.5m^2).
- Seal joint between parapet and slab on SW corner 0.5 m
- Touch-up painting required to steel guardrail throughout 10.0 m
- Replace 1 no. rusted washer and 1 no rusted bolt at centre of bridge (one more left after Year 1)
- Concrete infill required to west parapet capping 0.1 m^3

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that are at risk from sedimentation and pollution are considered to be Floating River Vegetation, Freshwater Pearl Mussel, Lamprey species, Atlantic Salmon and Otter. The remaining Qualifying Interests occur either below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

[redacted]A Freshwater Pearl Mussel Survey was undertaken in 2019 (see Appendix A) and found no Pearl Mussel within 50m of the bridge.Lamprey species, Atlantic Salmon and Otter are considered to be present in the Kildavin Stream.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-2 below.

Table 4-2 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Clearance of debris (100m^2).	Screen in - the removal of this volume of debris from the piers has the potential damage Floating River Vegetation which occurs at the bridge and to release sediment downstream which could impact Freshwater Pearl Mussel.
Repointing river face of parapets (50m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including, directly and indirectly, Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Remove tree branches within 1 m from northwest parapet (0.5 m^2).	Screen out - this work involved the removal of a small number of branches from close to the bridge deck and there is no source for impacts.
Seal gap between slab and masonry parapet on southwest corner (0.5 m)	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Touch-up painting required to steel guardrail throughout (10m)	Screen out - this work will not be undertaken over water. There is no source for LSE.
Replace 1 no. rusted washer and 1 no rusted bolt at centre of bridge (one more left after Year 1)	Screen out - this work will be undertaken on the traffic face of the parapet. There is no source or pathway for impacts.
Repair capping on west parapet (0.05 x 0.04 x 0.04 m^3)	Screen out - this work will be undertaken on the top of the parapet. There is no source or pathway for impacts.

The work elements described above could impact on the Qualifying Interests through the accidental introduction of mortar as well and through the release of sediment. As such, mitigation measures are required to prevent adverse effects on these Qualifying Interests.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

<u>Clearance of debris (100m^2).</u>

In order to remove the debris, the contractor will use the following methods:

- The debris will be accessed either on foot and accessed from the river bank, or, using ropes and accessed from the bridge deck, or, using a bridge inspection unit.

- The debris will be removed by hand and carried to the bank, placed in sling or bucket, or on the floor of the bridge inspection unit.
- No Floating River Vegetation will be removed. If accessed on foot, the areas of floating river vegetation will be avoided. The Contractor's Ecologist will supervise the debris removal to ensure that access and debris removal do not damage the Floating River Vegetation.
- Larger pieces of debris, such as tree trunks, will be cut into pieces that can be removed by hand and/or using a grab or sling from the bridge deck or riverbank using a chain saw into lengths.
- No machines will be permitted in the water.
- Debris which is embedded in the riverbed will be cut as low as possible and left in the water to prevent the release of sediment.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Repointing river face of parapets (50m^2).

- Repointing will be undertaken using a bridge inspection unit or by using scaffolding.
- No machinery will be permitted in the water.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Only one bucket of wet mortar will be brought to the work site at any time by each person carrying out repointing.
- The effectiveness of the catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Residual Impacts and Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is RODs considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Rathvilly Bridge [CW-N81-008.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.2 Kildare

4.2.1 Bennet's Bridge [KE-N78-001.00]

Bennet's Bridge is a masonry arch bridge extended with a concrete slab structure over the Bennet's Bridge Stream. The arch is 2.8m in diameter and <1m high above the riverbed. There is a metal grate at the inlet which catches debris. The stream is 3m wide, slow flowing and approximately 15cm deep. The bridge is 1.8km upstream of the River Barrow and River Nore SAC. Plate 4- shows the inlet with steel grate (2017 photograph).

Plate 4-3

The following works are proposed at this bridge:

- Clearance of debris from stream (15m^2).
- Powerhose wing wall and spandrel wall on northwest corner (10m^2).
- Remove car tyre from outlet (0.4m^2).
- Install rubbing strips (21m^2).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from sedimentation and pollution are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. There is no Floating River Vegetation in the Bennet's Bridge Stream. The nearest examples of this habitat are in the River Barrow downstream, however there are no sources for impacts give the works proposed and the distance. There is no suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to, or present at the works.

There are no records of Freshwater Pearl Mussel downstream of this bridge and the site was surveyed by ROD in 2016 and did not identify any Freshwater Pearl Mussel at the bridge location. The channel is highly modified, straightened and slow moving and is not suitable for this species.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-3 below.

Table 4-3 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Clearance of debris from stream (15m^2).	Screen in - the removal of debris from the channel has the potential to lead to the release of sediment downstream and therefore mitigation is required.
Powerhose wing wall and spandrel wall on northwest corner (10m^2).	Screen out - powerhosing over a small area poses no risk of LSE.
Remove car tyre from outlet (0.4m^2).	Screen out - the car tyre can be removed from the channel by hand without any risk of LSE.
Install rubbing strips (21m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.

One work element described above could impact on the Qualifying Interests through the release of sediment into the watercourse.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Clearance of debris from stream (15m^2).

In order to remove the debris, the contractor will do use one of the following methods:

- The debris will be accessed either on foot or from the riverbank.
- The debris will be removed by hand and carried to the bank where it will be removed from the site.
- No machines will be permitted in the water.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Residual Impacts and Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Bennet's Bridge [KE-

N78-001.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.2.2 Augustus Bridge [KE-N78-002.00]

Augustus Bridge carries the N78 over the Grand Canal, 450m upstream of the River Barrow. The canal is connected to the River Barrow through a series of lock gates. The bridge is a single span concrete slab construction, 4.43m long and it has a steel deck. Due to the depth of the canal and the steep banks, the watercourse is not accessible on foot. The flow is very slow, typical of a canal. It is located 530m upstream of the River Barrow and River Nore SAC. Plate 4- shows the 'river face' of the spandrel walls where concrete repair is required.

Plate 4-4

The following works are proposed at this bridge:

- Concrete repair on all faces of parapets (2m^2).
- Concrete repair on interface of edge beam and abutment on west side 0.04 m^3) on edge beam on east side (0.05 m^3)
- Seal concrete cracks in both parapets throughout 10m.
- Install structure ID.

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from pollution associated with wet concrete entering the aquatic environment are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. There is no Floating River Vegetation in the Bennet's Bridge Stream. The nearest examples of this habitat are in the River Barrow downstream, however there are no sources for impacts give the works proposed and the distance. There is no suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

There are no records of Freshwater Pearl Mussel downstream of this bridge. Canals do not provide suitable habitat for Freshwater Pearl Mussel, which require natural riverbeds and flowing water.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-4 below.

Table 4-4 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Concrete repair on all faces of parapets ($2m^2$).	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Concrete repair on interface of edge beam and abutment on west side 0.04 m^3) on edge beam on east side (0.05 m^3)	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Seal concrete cracks in both parapets throughout (10m).	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Install structure ID.	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.

Three of the work elements described above could impact on the Qualifying Interests through the accidental spillage of wet concrete. Therefore, mitigation measures are required to prevent adverse effects.

Mitigation

The following mitigation applies to the works which screened in. In order to avoid adverse effects on the Qualifying Interests as a result of the proposed works, a number of mitigation measures are required:

- The concrete repair work over water will be carried out using a bridge inspection unit, a boat/ floating platform or using scaffolding.
- Concrete will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet mortar will be brought to the work site at any time by each person carrying out repointing.
- A mobile catch net will be used to prevent wet concrete entering the watercourse.
- The effectiveness of the catch net will be approved by the Employers Representative and the Contractor's Ecologist.
- Wet concrete will only be used where rain is not forecast for at following 12 hours.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Augustus Bridge [KE-N78-002.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.2.3 Athy Bridge [KE-N78-003.00]

The Athy Bridge is a 5-span masonry arch bridge in Athy town over the River Barrow. The bridge crosses the River Barrow and River Nore SAC. Plate 4- shows the downstream river faces of the bridge.

Plate 4-5

The following works are proposed at this bridge:

- Masonry repointing on river faces of parapets (30m^2);
- Remove vegetation from of river faces of wingwalls and spandrel walls (15m^2);
- Repointing of river faces of wingwalls and spandrel walls (15m^2);
- Masonry repair following vegetation removal from retaining walls and spandrel walls (1m^3).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from pollution are considered to be White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter.

There are no records of Freshwater Pearl Mussel downstream of this bridge and the river at the bridge location is very slow flowing due to a series of locks and weirs on the River Barrow main channel, and therefore it is not suitable habitat for this species. There is no suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-5 below.

Table 4-5 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Masonry repointing on river faces of parapets ($30m^2$).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Remove vegetation from of river faces of wingwalls and spandrel walls ($15m^2$);	Screen out- the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or riverbank. These areas will be sprayed with a herbicide approved for use near water. Due to the area to be sprayed, the proximity to the SAC and the subsequent dilution factor, there is no potential for LSE.
Repointing of river faces of wingwalls and spandrel walls after vegetation removal ($15m^2$).	Screen in - Repointing over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Masonry repair following vegetation removal from retaining walls and spandrel walls ($1m^3$).	Screen in – Masonry Repair over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Masonry Repair and Repointing

The following mitigation applies to the works which screened in. In order to avoid adverse effects on the Qualifying Interests as a result of the proposed works, a number of mitigation measures are required:

- Repointing will be undertaken using a bridge inspection unit or by using scaffolding.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The effectiveness of the catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Only one bucket of wet mortar will be brought to the work site at any time by each person carrying out the repointing.
- No machinery will be permitted in the water.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is RODs considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Athy Bridge [KE-N78-003.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.3 Kilkenny

4.3.1 Dinin Bridge [KK-N77-002.00]

The Dinin Bridge is a 3-span masonry arch bridge over the Dinin river which is a tributary of the River Nore. The bridge crosses the River Barrow and River Nore SAC and is located 1.7km upstream of River Nore SPA. Plate 4-1 shows the inlet. The riverbed at the bridge location is concrete and there is a small weir less than 10m below the bridge structure.

Plate 4-1

The following works are proposed at this bridge:

- Repoint voussoir on northeast arch (12 m^2).

The Qualifying Interests of the River Barrow and River Nore SAC and the River Nore SPA are listed in Section 2.2 and 2.3. The Qualifying Interests that are at risk from sedimentation and pollution are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon, Otter and Kingfisher.

There are no records of Freshwater Pearl Mussel downstream of this bridge. The river at the bridge location is modified with a concrete base and a weir, and therefore it is not suitable habitat for this species, however there is suitable habitat downstream. There is no suitable habitat for Killarney Fern or Whorl Snail at the bridge location. There is no Floating River Vegetation present at the bridge location although it is found downstream. There are no sources for impacts on this habitat.

The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works' location.

The River Nore SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-6 below.

Table 4-6 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Repoint voussoir on northeast arch (12 m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC and SPA. Mitigation is required to reduce this risk of accidental discharge.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

- Repointing will be undertaken using a bridge inspection unit, using a ladder or using scaffolding.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- No machinery will be permitted in the water.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Only one bucket of wet mortar will be brought to the work site at any time.
- Any equipment including PPE which touches the water will be disinfected using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Dinin Bridge [KK-N77-002.00] will not lead to adverse effects on the River Barrow and River Nore SAC, the River Nore SPA or any other European site.

4.3.2 Ballyragget Bridge [KK-N77-006.00]

The Ballyragget Bridge is a five-span concrete slab bridge over the River Nore. Each span is approx. 14m wide. This bridge is within the River Barrow and River Nore SAC and the River Nore SPA. The river flows through two of the five spans during normal flows. Plate 4-7 shows the upstream side of the bridge.

Plate 4-7

The following works are proposed at this bridge:

- Concrete repair to the edge of southernmost pier (0.3m^2).
- Concrete repair to rebar on abutment on SE corner (0.02m^2).
- Concrete repair to exposed rebars on north abutment (0.08m^2).
- Concrete repair to exposed rebars on south abutment (0.06m^2)
- Clean polysulphide sealant between wingwalls and abutment on SW, NW and NE corners (16m).
- Reseal polysulphide sealant between wingwalls and abutment on SW, NW and NE corners (16m).
- Remove debris from first and second pier from south (5m^2).
- Remove bolt from south abutment (0.02m^2).
- Patch painting areas of corrosion on guardrail, particularly on bolts, throughout both parapets (outstanding) (0.25m).

The Qualifying Interests of the River Barrow and River Nore SAC and the River Nore SPA are listed in Section 2.2 and 2.3. The Qualifying Interests that are at risk from sedimentation and pollution are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon, Otter and Kingfisher. The

remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

[redacted] The bridge was surveyed for FWPM in 2018 and no evidence of the species was found with 50m of the bridge. There is no suitable habitat for Killarney Fern or Whorl Snail at the bridge location. There is no Floating River Vegetation present at the bridge location. There are no sources for impacts on this habitat.

The River Nore SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in 4-7 below.

Table 4-7 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Concrete repair to the edge of southernmost pier (0.3m^2).	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Concrete repair to rebar on abutment on SE corner (0.02m^2).	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Concrete repair to exposed rebars on north abutment (0.08m^2).	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Concrete repair to exposed rebars on south abutment (0.06m^2)	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Clean polysulphide sealant between wingwalls and abutment on SW, NW and NE corners (16m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Reseal polysulphide sealant between wingwalls and abutment on SW, NW and NE corners (16m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Remove debris from first and second pier from south (5m^2).	Screen out - the car tyre can be removed from the channel by hand without any risk of LSE.
Remove bolt from south abutment (0.02m^2).	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Patch painting areas of corrosion on guardrail, particularly on bolts, throughout both parapets (outstanding) (0.25m).	Screen out - this work will be undertaken from the bridge deck. There is no source or pathway for impacts

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Concrete repairs over water

- The concrete repair work over water will be carried out on foot, using a bridge inspection unit or using scaffolding.
- Concrete will be mixed in a watertight container at least 20m from the watercourse.
- Each person undertaking the work will use one bucket of wet concrete at a time.
- A mobile catch net will be used to prevent wet concrete entering the watercourse.
- The catch net will be approved by the Employers Representative and the Contractor's Ecologist.
- Wet concrete will not be used if rain is forecast in the following 12 hours.
- Any equipment including PPE which touches the water will be disinfected using Virkon Aquatic or similar.

Concrete repairs over land

- The concrete repair work over land will be carried out on foot, using a bridge inspection unit or using scaffolding.
- Concrete will be mixed in a watertight container at least 20m from the watercourse.
- A suitable sheet will be placed immediately below the area being repaired to catch any wet concrete that falls.
- The catch net will be approved by the Employers Representative and the Contractor's Ecologist.
- The sheet and any concrete on it will be removed from site and disposed of appropriately.
- Concrete repairs other than those under the bridge will not be undertaken if rain is forecast in the following 12 hours.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Ballyragget Bridge [KK-N77-006.00] will not lead to adverse effects on the River Barrow and River Nore SAC, the River Nore SPA or any other European site.

4.3.3 Douglas River Bridge [KK-N78-001.00]

The Douglas River Bridge is a 6.75m diameter single span concrete arch with masonry parapets. The river is the full width of the arch and very shallow and easily accessible on foot. This river is a tributary of the River Dinin which flows into the River Nore. The bridge is within the River Barrow and River Nore SAC and is located 8.5km upstream of the River Nore SPA. Plate 4-8 shows the bridge at the inlet.

Plate 4-8

The following works are proposed at this bridge:

- Clean gully.
- Masonry repointing of river faces of parapets (5m^2) and abutments (1.5m^2).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2 and those of the River Nore SPA are listed in Section 2.3. The Qualifying Interests that are at risk from sedimentation and pollution (i.e. where pathways exist) are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon, Otter, Floating River Vegetation and Kingfisher. There are no records of Freshwater Pearl Mussel downstream of the bridge, and due to the concrete base the habitat within the footprint is not suitable for this species, however, following the precautionary principle, it is considered that this species occurs downstream of the bridge. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Nore SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting

sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-6 below.

Table 4-8 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Clean Gully	Screen out - this work will be undertaken on the bridge deck and the gully contents will be removed from site and disposed of in a suitable facility. There is no source or pathway for impacts.
Masonry repointing of river faces of parapets ($5m^2$) and abutments ($1.5m^2$).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including, directly and indirectly, the Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental pollution.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Masonry repointing of river faces of parapets ($5m^2$) and abutments ($1.5m^2$).

- Repointing will be undertaken using a bridge inspection unit or by using scaffolding.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- No machinery or scaffold legs will be permitted in the water.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The effectiveness of the catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Only one bucket of wet mortar will be brought to the work site at any time by each person carrying out the repointing.
- Any equipment including PPE which touches the water will be disinfected using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Douglas River Bridge [KK-N78-001.00] will not lead to adverse effects on the River Barrow and River Nore SAC, the River Nore SPA or any other European site.

4.3.4 Julianstown Bridge [KK-N78-002.00]

The Julianstown Bridge is a 3.5 m diameter single span stone arch masonry bridge which carries the N78 over the Julianstown stream. The stream flows into the River Dinin and which is a tributary of the River Nore. The stream is approximately 1m wide and there is a two-stepped weir at the outlet, where the stream is <5cm deep. The bridge is 180m upstream of the River Barrow and River Nore SAC and 1.3km upstream of the River Nore SPA. Plate 4-9 the inlet.

Plate 4-9

The following works are proposed at this bridge:

- Sweep and clean bridge surface (10m^2).
- Clean footways (30m^2).
- Poly seal joints on eastern side (14 m).
- Remove vegetation from faces of all wingwalls (moss on both sides) (30m^2).
- Repointing of spandrel/parapet walls on both sides facing river (7m^2).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.3 and those of the River Nore SPA are listed in Section 2.3. There are no records of Freshwater Pearl Mussel downstream of the bridge, however, following the precautionary principle, it is considered that this species downstream of the bridge. The Qualifying Interests that are at risk from sedimentation and pollution (i.e. where pathways exist) are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon, Otter and Kingfisher. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Nore SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-6 below.

Table 4-9 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Sweep and clean bridge surface (10m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean footways (30m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean Polysulphide seal joints on eastern side (14m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Remove vegetation from faces of all wingwalls (moss on both sides) (30m^2).	Screen out- the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or riverbank. These areas will be sprayed with a herbicide approved for use near water. Due to the area to be sprayed, the proximity to the SAC and SPA and the subsequent dilution factor, there is no potential for LSE.
Repointing of spandrel / parapet walls on both sides facing river (7m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including, directly and indirectly, the Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental pollution.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

<u>Repointing of spandrel/parapet walls on both sides facing river (7m2).</u>

- Repointing will be undertaken using a bridge inspection unit or by using scaffolding.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- No machinery or scaffold legs will be permitted in the water.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Only one bucket of wet mortar will be brought to the work site at any time by each person carrying out the repointing.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Julianstown Bridge [KK-N78-002.00] will not lead to adverse effects on the River Barrow and River Nore SAC, the River Nore SPA or any other European site.

4.3.5 Lisnafunchin Bridge [KK-N78-003.00]

The Lisnafunchin Bridge is a 3.3m diameter single span masonry arch bridge. The stream is 3m wide and slow flowing through the bridge. Downstream it becomes wider and shallower (15cm deep) and flows between small rocks. The riverbed consists of gravels and silt. The bridge is 200m upstream of the River Barrow and River Nore SAC and 11.1 km upstream of the River Nore SPA. Plate 4-10 shows the bridge inlet.

Plate 4-10

The following works are proposed at this bridge:

- Removal of debris from within 20m of structure (40m^2).
- Scour repair (1m^2).
- Powerhosing of safety barriers on both sides (8m)
- Localised repointing of southeast wingwall (2m^2).
- Remove rubbish near northwest corner (3m ^{2}).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from sedimentation and pollution (i.e. where pathways exist) are considered to be White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. There are no FWPM records downstream of this bridge, however, following the precautionary principle, it is considered that this species is present downstream. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Nore SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting

sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in 4-10 below.

Table 4-10 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Removal of debris from within 20m of structure (40m^2).	Screen out - this work will be undertaken on land adjacent to bridge. There is no source or pathway for impacts.
Scour repair (1m^2).	Screen out- this work involves bringing clean stone in and filling the scour damage by hand until it is flush with the surrounding structure. It will be undertaken by hand and on foot only. Due to the scale of this work element, there is no source for impacts.
Powerhosing of safety barriers on both sides (8m)	Screen out – The safety barriers are on the carriageway side of the rubbing strips. Any run-off would flow around the parapets and across >4m of embankment before reaching the watercourse. The watercourse is small and slow flowing and is not inside a Natura 2000 Site. Due to the size of the watercourse and the fact that this this work will be undertaken on the bridge deck. There is no pathway for impacts.
Localised repointing of southeast wingwall (2m^2)	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce the risk of accidental pollution.
Removal of debris: Remove rubbish near northwest corner (3m^2).	Screen out- This rubbish, which is on the riverbank will be collected by hand and disposed of in a suitable location off-site.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

- Repointing will be undertaken using a bridge inspection unit, by using scaffolding or on foot and using a ladder.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The effectiveness of the catch net will be approved by the Employer's Representative and Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Only one bucket of wet mortar will be brought to the work site at any time.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Lisnafunchin Bridge [KK-N78-003.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.3.6 Clashduff Lower Bridge [KK-N78-006.00]

The bridge comprises of 3 structure types: an original masonry arch that had been gunited, a concrete arch and a cast concrete slab and concrete walls. It is 3.95m across. The base of the masonry arch section is masonry and the base in the concrete section is concrete and angles down towards the centre. At the time of the survey water was flowing through the middle 1m only, and it was easy to walk along the sides on dry concrete and masonry which form the riverbed. The bridge is 200m upstream of the River Barrow and River Nore SAC and c. 20km upstream of the River Nore SPA. Owing to the distance between the works and the SPA, potential impacts on this site are not considered further in this assessment. Plate 4-11 shows the bridge outlet.

Plate 4-11

The following works are proposed at this bridge:

- Repair of scour damage (6m^2)

- Remove debris under arch (2m^2).
- Masonry repointing on river face of parapet (2m^2).
- Remove rubbish next to eastern parapet (1m^2).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from sedimentation and pollution (i.e. where pathways exist) are considered to be Freshwater Pearl Mussel White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. There are no Freshwater Pearl Mussel records downstream of this bridge and the habitat at the location of the bridge is highly modified. Following the precautionary principle, it is considered that this species is present downstream. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present the works.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-6 below.

Table 4-11 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Repair of scour damage (6m^2).	Screen out- this work involves bringing clean stone in and filling the scour damage by hand until it is flush with the surrounding structure. It will be undertaken by hand and on foot only. Due to the scale of this work element and the small size of the watercourse there is no source for impacts.
Remove debris under arch (2m^2).	Screen out – the debris will be removed from under the arch by hand. The river bed is concrete or masonry so there is no risk of sedimentation.
Masonry repointing on river face of parapet (2m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental pollution.
Remove rubbish next to eastern parapet (1m^2)	Screen out - this work involves the removal of litter next to the bridge parapet. There is no source for impacts.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Masonry repointing on river face of parapet (2m^2).

- Repointing will be undertaken using a ladder, a bridge inspection unit or by using scaffolding.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- No machinery will be permitted in the water.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The effectiveness of the catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.

- Only one bucket of wet mortar will be brought to the work site at any time.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Residual Impacts and Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Clashduff River Bridge [KK-N78-006.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.4 Laois

4.4.1 Durrow Bridge [LS-N77-001.00]

Durrow bridge a three-span concrete slab bridge over Erkina River in Durrow. The bridge parapets are steel and there are four masonry pillars at each corner which are over dry land. This bridge crosses the River Barrow and River Nore SAC and the River Nore SPA. Plate 4-12 shows the inlet.

Plate 4-12

The proposed works at this bridge are:

- Hosing of drainage system (30m).
- Seal crack on NW masonry pillar capping (0.5m).
- Remove flower boxes from masonry pillars (1 item).
- Remove tree from SE corner next lighting pole (1m^2).
- Patch painting of both parapets throughout (60m).
- Clean polysulphide sealant between edge beams on all corners (4m).
- Reseal polysulphide sealant between edge beams on all corners (4m).
- Remove moss from deck (21m^2).
- Localized repointing on NW masonry pillar (0.5m^2).
- Concrete repair to NE pillar (0.08m^3).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from sedimentation and pollution (i.e. where pathways exist) are considered to be White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. [redacted]

[redacted] Following the precautionary principle, it is considered that Freshwater Pearl Mussel are present at the bridge location. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Nore SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-6 below.

Table 4-12 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Hosing of drainage system (30m).	Screen out - this work will be undertaken on the bridge deck. All material will be collected and removed from site. There is no source or pathway for impacts.
Seal crack on NW masonry pillar capping (0.5m).	Screen in - the use of wet mortar near water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental pollution.
Remove flower boxes from masonry pillars (1 item).	Screen out- this will be undertaken from the bridge deck. There are no sources or pathways for impacts.
Remove tree from SE corner next lighting pole ($1m^2$).	Screen out- the removal of the small beech tree will be undertaken by cutting the tree to ground level and removing the above ground material from the site. There are no sources or pathways for impacts.
Patch painting of both parapets throughout (60m).	Screen out- Patch painting of the parapet will be undertaken from the bridge deck. There are no sources for impacts that could lead to LSE.
Clean polysulphide sealant between edge beams on all corners (4m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Reseal polysulphide sealant between edge beams on all corners (4m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Remove moss from deck ($21m^2$).	Screen out- the removal of vegetation will involve spraying the bridge deck with a herbicide approved for use near water. Due to the area to be sprayed, the volume of water in the Erkina River and the subsequent dilution factor, there is no potential for LSE.
Localized repointing on NW masonry pillar ($0.5\ m^2$).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental pollution.
Concrete repair to NE pillar ($0.08m^3$).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental pollution.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Concrete repair and masonry repointing

- The concrete repair work and masonry repointing will be carried out on foot.
- A sheet made of a suitable material or mobile catch net will be fitted below the area to catch any falling wet concrete or mortar.
- The catch net will be approved by the Employers Representative and the Contractors Ecologist.
- Concrete and mortar will be mixed in a watertight container at least 20m from the watercourse.
- Wet concrete and mortar will not be used if rain is forecast in the next 12 hours.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Durrow Bridge [LS-N77-001.00]will not lead to adverse effects on the River Barrow and River Nore SAC, the River Nore SPA or any other European site.

4.4.2 New Bridge, River Nore [LS-N77-002.00]

New Bridge is a four-span masonry arch bridge over the River Nore. Each span is 4-5m in diameter. The bridge is within the River Barrow and River Nore SAC and the River Nore SPA. Plate 4-13a and 4-13b show the bridge and the missing masonry at the base of the wing wall.

Plate 4-13a

Plate 4-13b

The proposed works at this bridge are:

- Sweep and clean surface and footways (35m^2+85m^2).
- Clean expansion joints (70m).
- Maintain expansion joints (15m).
- Removal of vegetation from all parapet faces (10m^2).
- Repoint masonry between capping beams (2m^2).
- Masonry repair on capping beams (1m^3).
- Remove vegetation from within 1m of structure (60m^2).
- Remove vegetation from wing walls and spandrel walls (140m^2).
- Repair missing masonry at base of southwest wing wall (0.75m^3).
- Remove vegetation from all piers (15m^2).
- Remove contractor signage. Maintain structure ID.

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from sedimentation and pollution (i.e. where pathways exist) are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. [redacted] There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Nore SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-6 below.

Table 4-13 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Sweep and clean surface and footways ($35m^2$+$85m^2$).	Screen out - this work will be undertaken on the bridge deck. There is no sources or pathways for impacts.
Clean expansion joints (70m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Maintain expansion joints (15m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Removal of vegetation from all parapet faces ($10m^2$).	Screen out- the removal of vegetation will involve spraying the parapets, from the bridge deck or river bank, with a herbicide approved for use near water. Due to the area to be sprayed, the volume of water in the River Nore and the subsequent dilution factor, there is no potential for LSE.
Repoint masonry between capping beams ($2m^2$).	Screen out - this work will be undertaken on the top of the parapet. There is no sources or pathways for impacts.
Masonry repair on capping beams ($1m^3$).	Screen out - this work will be undertaken on the top of the parapet. There is no source or pathway for impacts.
Remove vegetation from within 1m of structure ($60m^2$).	Screen out - this work is mechanical only and will be undertaken around the structure on land only. The habitats in these areas are scrub and improved grassland. There is no sources or pathways for impacts.
Remove vegetation from wing walls and spandrel walls ($140m^2$).	Screen out- the remove of vegetation will involve spraying the parapets, from the bridge deck or river bank, with a herbicide approved for use near water. Due to the area to be sprayed, a high portion of which is over land, the volume of water in the River Nore and the subsequent dilution factor, there is no potential for LSE.
Repair missing masonry at base of southwest wing wall ($0.75m^3$).	Screen in – this work element concerns a masonry block missing from the base of the wing wall. The missing block is over dry land >2m from the river bank during normal flow. The use of wet mortar near water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Remove vegetation from all piers ($15m^2$).	Screen out- the remove of vegetation will involve spraying the piers from the bridge deck or river bank, with a herbicide approved for use near water. Due to the area to be sprayed, a high portion of which is over land, the volume of water in the River Nore and the subsequent dilution factor, there is no potential for LSE.
Remove contractor signage. Maintain structure ID.	Screen out - this work will be undertaken on the bridge deck. There is no sources or pathways for impacts.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repair missing masonry at base of southwest wing wall (0.75m^3).

- Masonry repair will be undertaken on foot.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet mortar will be brought to the work site at any time.
- Works will not take place if rain is forecast in the following 12 hours of the works or if the river is in flood.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at New Bridge, River Nore [LS-N77-002.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.4.3 Ormonde Bridge [LS-N78-001.00]

Ormonde bridge is a three-span masonry arch bridge over River Dinin, with each span 3.65m across. There is a small weir <10m downstream of the bridge and a concrete apron forms the river bed under the structure. The bridge is within the River Barrow and River Nore SAC and c. 30km upstream of the River Nore SPA. Due to this distance between the works and this site, the potential for impacts are not considered further. The inlet and outlet are shown in Plates 14a and 14b.

Plate 4.14a

Plate 4.14b

The proposed works at this bridge are:

- Repair of damaged voussoir (0.5m^3).
- Repoint capping of southeast parapet (2m^2).
- Powerhose drainage channel on northeast corner (6m).
- Remove post and rail fence and concrete rubble on northeast corner (10m^2).
- Reseal expansion joints (30m).
- Clean polysulphide sealant on interface of parapet and rubbing strip (30m).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. The habitat at the bridge location is unsuitable for Freshwater Pearl Mussel, however, following the precautionary principle, this species is considered to occur downstream. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-6 below.

Table 4-14 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Repair of damaged voussoir (0.5m^3).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Repoint capping of southeast parapet (2m^2).	Screen out - this work will be undertaken on the top of the parapet. There is no source or pathway for impacts.
Powerhose drainage channel on northeast corner (6m).	Screen out - this work will be undertaken on the bridge deck. All material will be collected and removed from site. There is no source or pathway for impacts.
Remove post and rail fence and concrete rubble on northeast corner (10m^2).	Screen out - this material will be removed from the river embankment. There is no source or pathway for impacts.
Clean polysulphide sealant on interface of parapet and rubbing strip (30m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Reseal expansion joints (60m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repair of damaged voussoir (0.5m^3).

- Repointing will be undertaken using either a bridge inspection unit, using scaffolding or using a ladder.
- No machinery will be permitted in the water.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs will not take place if rain is forecast in the following 12 hours.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete will be brought to the work site at any time.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation

measures described above are followed, the works proposed at Ormonde Bridge [LS-N78-001.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.4.4 Stradbally River Bridge [LS-N80-003.00]

The Stradbally River Bridge is a three-span masonry arch bridge that crosses the Stradbally River. Each span is 5.5m wide, with only two spans operational during normal flows. The river is <0.5m deep with bed of cobbles creating riffles on the surface. The bridge is within the River Barrow and River Nore SAC. Plate 4-15 shows bridge outlet.

Plate 4-15

The proposed works at this bridge are:

- Repair of damaged voussoir (0.25m^3).
- Masonry repair to column next to parapet on SW corner (0.05m^3).
- Repair cracked kerbstone (1m).
- Concrete infill along guardrail on west side (2m)
- Repoint parapet west side river face (10m^2).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be Freshwater Pearl Mussel, White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. There are no FWPM records downstream of this bridge, however, following the precautionary principle, this species is considered to be present downstream. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-15 below.

Table 4-15 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Repair of damaged voussoir (0.25m^3).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Masonry repair to column next to parapet on SW corner (0.05m^3).	Screen out – The column is on the bridge deck on the carriageway side of the parapet. There are no sources or pathways for impacts.
Repair cracked kerbstone (1m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Concrete infill along guardrail on west side (2m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Repoint parapet west side river face (10m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repair of damaged voussoir (0.25m^3) / Repoint parapet west side river face (10m^2).

- Repointing will be undertaken using either a bridge inspection unit, using scaffolding or using a ladder.
- No machinery will be permitted in the water.
- A catch net will be placed flush with the bridge, or under the voussoir, to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs will not take place if rain is forecast in the following 12 hours.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet mortar will be brought to the work site at any time.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Stradbally River Bridge [LS-N80-003.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.4.5 Moll Rowe's Corner Bridge [LS-N80-010.00]

Moll Rowe's Corner Bridge 2-span masonry arch with each span 2.5m wide. Both barrels have been covered with shotcrete/ gunite. The bridge has a concrete apron. The river is shallow (<20cm deep) and slow flowing. The bridge is 750m upstream of the River Barrow and River Nore SAC. Plate 4-16 shows the show the bridge inlet.

Plate 4-16

The proposed works at this bridge are:

- Scour repairs to apron at inlet (0.5m^2).
- Debris removal from inlet and outlet (40m^2).
- Remove exposed rebar and wires 4m on upstream and downstream sides (8 no.).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be Freshwater Pearl Mussel (*M. margaritifera*), White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. There are no FWPM records downstream of this bridge, however, following the precautionary principle, this species is considered to be present downstream. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-16 below.

Table 4-16 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Scour repairs to apron at inlet (0.5m^2).	Screen out- this work involves bringing clean stone in and filling the scour damage by hand until it is flush with the surrounding structure. It will be undertaken by hand and on foot only. Due to the scale of this work element, there is no source for impacts.
Debris removal from inlet and outlet (40m^2).	Screen out - owing to the size of the watercourse, debris removal can be carried out by hand without leading to a release of sediment.
Remove exposed rebar and wires (8 no.).	Screen in - removal of the rebar and wires will require concrete to be set on the structure may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Remove exposed rebar and wires (4m on upstream and downstream sides (1m^2)

- Repointing will be undertaken on foot from the river.
- No machinery will be permitted in the water.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The effectiveness of the catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is RODs considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Moll Rowe's Corner Bridge [LS-N80-010.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.4.6 Two Mile Bridge [LS-N80-011.00]

Two Mile Bridge is a three-span masonry arch and steel/concrete slab bridge over the River Barrow. The spans range in from 3.05m to 3.45m in diameter. The bridge is within the River Barrow and River Nore SAC. Plate 4-1 shows bridge inlet.

Plate 4-17

The proposed works at this bridge are:

- Sweep and clean bridge surface (20m^2).
- Clean footways (70m^2).
- Seal cracks at tops of parapets on both sides (1m^2).
- Repointing on river face of wingwall at southwest side (10m^2).
- Paint corroded steel on beam at inlet (0.1m^2).
- Poly seal at west side between footpath and parapet (23m).
- Remove debris and vegetation at inlet (4m^2).

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 2.2. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be White-clawed Crayfish, Lamprey species, Atlantic Salmon and Otter. There are no Freshwater Pearl Mussel in the main channel of the River Barrow. There is no Floating River Vegetation or suitable habitat for Killarney Fern or Whorl Snail at the bridge location. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-6 below.

Table 4-17 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Sweep and clean bridge surface (20m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean footways (70m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Seal cracks at tops of parapets on both sides (1m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Repointing on river face of wingwall at southwest side (10 m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Paint corroded steel on beam at inlet (0.1m^2).	Screen in – painting of the steel beam directly over the watercourse could result in an accidental pollution event. Mitigation is required to reduce the likelihood of accidental spillage.
Poly seal at west side between footpath and parapet (23m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Remove debris and vegetation at inlet (4m^2).	Screen in- The removal of debris could lead to the release of sediment and damage to sensitive habitats; therefore, mitigation is required.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

<u>Repointing on river face of wingwall at southwest side (10m^2)</u>

- Repointing will be undertaken on foot from the river.
- No machinery will be permitted in the water.
- A catch net will be placed flush with the bridge to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time.

<u>Paint corroded steel on beam at inlet (0.1m^2)</u>

- The painting of the steel beam will be carried out on foot or using a ladder from the watercourse.
- The paint will be applied using a brush.
- Paint will be applied thinly to ensure no wet paint drips into the watercourse.
- Painting will not take place if rain is forecast in the following 6 hours.

Remove debris and vegetation at inlet (4m^2)

- The area will be accessed on foot from the river bank.
- The branches will be removed by hand and taken to the river bank disposal.
- If any branch is too big, it will be cut into manageable pieces using a chainsaw and removed as above.
- No machinery is permitted in the water.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is RODs considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Two Mile Bridge [LS-N80-011.00] will not lead to adverse effects on the River Barrow and River Nore SAC or any other European site.

4.5 Meath

4.5.1 Kennastown Culvert [MH-M03-003.00]

The Kennastown Culvert is a 2.1m diameter pipe under the M3. The bed of the culvert contains silt. The culvert is 700m upstream of River Boyne and River Blackwater SAC and 1200m upstream of River Boyne and River Blackwater SPA. Plate 4-18 shows the culvert outlet.

Plate 4-18

The proposed works at this bridge are:

- Sweep and clean bridge surface (25m^2).
- Clean drain gullies (1 no.).
- Repair masonry at outlet headwall (0.5m^3).

The Qualifying Interests of the River Boyne and River Blackwater SAC and SPA are listed in Section 2.4 and 2.5 respectively. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be Lamprey species, Atlantic Salmon, Otter and Kingfisher.

The River Boyne and River Blackwater SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The remaining Qualifying Interests are terrestrial and semi-terrestrial habitats which are not hydrologically connected to or present at the works location.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-18 below.

Table 4-18 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Sweep and clean bridge surface (25m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean drain gullies (1 no.).	Screen out - this work will be undertaken on the bridge deck. Material in the drains will be removed from site and disposed of in a licenced facility. There is no source or pathway for impacts.
Repair masonry at outlet headwall (0.5m^3).	Screen in - the use of wet mortar over water may lead to direct and indirect impacts on aquatic life including Qualifying Interests of the SAC/ SPA. Mitigation is required to reduce this risk of accidental pollution.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repair masonry at outlet headwall (0.5m^3).

- Masonry repair will be undertaken on foot from the river or from scaffolding.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repaired to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Kennastown Culvert [MH-M03-003.00] will not lead to adverse effects on the River Boyne and River Blackwater SAC and SPA or any other European site.

4.5.2 Slane Bridge [MH-N02-002.00]

Slane bridge is a ten-span masonry arch bridge which crosses the River Boyne. Each span is between 4.3m and 6.5m wide. The bridge is within the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA. Plate 4-19 shows the downstream river face of the bridge.

Plate 4-19

The proposed works at this bridge are:

- Removal of vegetation (40m^2) and repointing (20m^2) of piers.
- Seal pavement cracks (15m).
- Sweep and clean outer 0.5m of bridge surface (80m^2).
- Sweep and clean footways (160m^2).
- Remove vegetation from within 0.5m of bridge (16m^2).
- Removal of vegetation from wing/spandrel/retaining walls at SW corner (16m^2).
- Repoint wing walls, spandrel walls and retaining walls (40m^2).

The Qualifying Interests of the River Boyne and River Blackwater SAC and SPA are listed in Section 2.4 and 2.5 respectively. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be Lamprey species, Atlantic Salmon, Otter and Kingfisher. The remaining Qualifying Interests are terrestrial and semi-terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Boyne and River Blackwater SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and

vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-19 below.

Table 4-19 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Works on piers (removal of vegetation (40m^2) and repointing (20m^2)).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC and SPA. Mitigation is required to reduce this risk of accidental discharge.
Seal pavement cracks (15m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Sweep and clean outer 0.5m of bridge surface (80m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Sweep and clean footways (160m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Remove vegetation from within 0.5m of bridge (16m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Removal of vegetation from wing/spandrel/retaining walls at SW corner (16m^2).	Screen out- the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or river bank. These areas will be sprayed with a herbicide approved for use near water. Due to the area to be sprayed, the volume of water in the River Boyne and the subsequent dilution factor, there is no potential for LSE.
Repoint wing walls, spandrel walls and retaining walls (40m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

<u>Works on piers (removal of vegetation (40m^2) and repointing (20m^2) / Repoint wing walls, spandrel walls and retaining walls (40m^2)</u>

- Repointing will be undertaken from a bridge inspection unit or from scaffolding.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repaired to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out repointing and repairs.

- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Slane Bridge [MH-N02-002.00] will not lead to adverse effects on the River Boyne and River Blackwater SAC and SPA or any other European site.

4.5.3 Bridge over Canal adjacent to Slane Bridge [MH-N02-004.00]

The bridge is a 6.5 diameter single-span masonry stone arch bridge over the Boyne Navigational Canal. The bridge is within the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA. Plate 4-20 shows the bridge.

Plate 4-20

The proposed works at this bridge are:

- Sweep and clean footway ($30m^2$).
- Repointing required throughout wingwalls, retaining walls, spandrel walls ($20m^3$).

The Qualifying Interests of the River Boyne and River Blackwater SAC and SPA are listed in Section 2.4 and 2.5 respectively. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be Lamprey species, Atlantic Salmon, Otter and Kingfisher. The remaining Qualifying Interests are terrestrial and semi-terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Boyne and River Blackwater SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-20 below.

Table 4-20 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Sweep and clean footway ($30m^2$).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Repointing required throughout wingwalls, retaining walls, spandrel walls ($20m^3$).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC and SPA. Mitigation is required to reduce this risk of accidental discharge.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repointing required throughout wingwalls, retaining walls, spandrel walls ($20m^3$).

- Repointing will be undertaken on foot, using a ladder, a bridge inspection unit or from scaffolding.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repointed to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out the work.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Bridge over Canal adjacent to Slane Bridge [MH-N02-004.00] will not lead to adverse effects on the River Boyne and River Blackwater SAC and SPA or any other European site.

4.5.4 Pollboy Bridge [MH-N51-005.00]

Pollboy Bridge is a 7-span masonry arch in Navan town centre. The spans are between 3.5m and 5m wide and the bridge is 42m long. The bridge crosses the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA. Plate 4-21a and 4-21b shows the bridge outlet.

Plate 4-21a

Plate 4-21b

The proposed works at this bridge are:

- Sweep and clean surface (60m^2).
- Clean gullies (8 no.).
- Clean footways (180m^2).
- Remove debris from riverbed at inlet (8m^2).
- Removal of rubbish from SW gabion basket (10m^2).
- Vegetation clearance from parapet/ spandrel (10m^2).
- Masonry repair of voussoir once vegetation removal is completed (1m^3).

The Qualifying Interests of the River Boyne and River Blackwater SAC and SPA are listed in Section 2.4 and 2.5 respectively. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be, Lamprey species, Atlantic Salmon, Otter and Kingfisher. The remaining Qualifying Interests are terrestrial and semi-terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Boyne and River Blackwater SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-21 below.

Table 4-21 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Sweep and clean surface (60m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean gullies (8 no.).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean footways (180m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Remove debris from riverbed at inlet (8m^2).	Screen in – Rubbish has collected next to the abutment which need to be removed (Plate 4-17). It consists of planks of wood and plastic. There is no Annex 1 habitat in the vicinity of the bridge. The removal of debris has the potential to release sediment downstream and may lead to impacts on aquatic life including direct and indirect impacts on the Qualifying Interests of the SAC and SPA. Mitigation is required to reduce this risk of LSE.
Removal of rubbish from SW gabion basket (10m^2).	Screen out - the removal of rubbish from the gabion basket will be carried out by hand and will not require instream work. Rubbish will be removed from site and disposed of in a licenced facility.
Vegetation clearance from parapet/ spandrel (10m^2).	Screen out- the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or riverbank. These areas will be sprayed with a herbicide approved for use near water. Due to the area to be sprayed, the volume of water in the River Boyne and the subsequent dilution factor, there is no potential for LSE. A small area of dense ivy growing in a hollow where masonry is missing will be cut back mechanically. The tree ground out of the masonry shown in Plate 4-21a will be cut back to the surrounding structure level.
Masonry repair of voussoir (1m^3).	Screen in - the use of wet concrete over water may lead to impacts on aquatic life including direct and indirect impacts on the Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Masonry Repair to damaged voussoir (1m^3)

- Masonry repairs will be undertaken from a bridge inspection unit or from scaffolding.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repaired to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.

- Only one bucket of wet concrete/ mortar will be brought to the work site at any time.

Removal of debris from the channel (8m^2)

- The rubbish and debris will be accessed by rope or by boat or by using a gaffer hook type tool from the bridge deck.
- The rubbish and debris will be removed by hand and removed from the site.
- No machinery is permitted in the water.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Pollboy Bridge [MH-N51-005.00] will not lead to adverse effects on the River Boyne and River Blackwater SAC and SPA or any other European site.

4.5.5 Cruicetown Bridge [MH-N51-006.00]

Cruicetown Bridge is a single span masonry arch bridge with a 4.6m wide arch barrel. The bridge is 900m upstream of the confluence with the River Boyne. The bridge 400m upstream of the River Boyne and River Blackwater SAC and SPA boundaries. Plate 4-22 shows the inlet.

Plate 4-22

The proposed works at this bridge are:

- Masonry repair to south wall (0.25m^3).
- Sweep and clean bridge surface (15m^2).
- Clean footways (40m^2).
- Cut back vegetation within 1m of structure (12m^2).
- Repointing of wing/ spandrel/ retaining walls (16m^2).
- Seal cracks on road (20m).
- Clean gullies (3 no.).
- Repoint arch beneath southern verge (12m^2).

The Qualifying Interests of the River Boyne and River Blackwater SAC and SPA are listed in Section 2.4 and 2.5 respectively. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be Lamprey species, Atlantic Salmon, Otter and Kingfisher. The remaining Qualifying Interests are terrestrial and semi-terrestrial habitats which are not hydrologically connected to the works

The River Boyne and River Blackwater SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and

vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-22 below.

Table 4-22 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Masonry repair to south wall (0.25m^3).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Sweep and clean (15m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean footways (40m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Remove vegetation within 1m of structure (12m^2).	Screen out- the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or riverbank. These areas will be sprayed with a herbicide approved for use near water. Due to the area to be sprayed, the proximity to the SAC and SPA and the subsequent dilution factor, there is no potential for LSE.
Repointing of wing/ spandrel/ retaining walls (16m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Seal cracks on road (20m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean gullies (3 no.).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Repoint arch beneath southern verge(12m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.

Mitigation
The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Masonry repair to south wall (0.25m^3) / Repointing of wing/ spandrel/ retaining walls (16m^2) / Repoint arch beneath southern verge(12m^2)

- Masonry repairs and repointing will be undertaken on foot, from scaffolding or from a ladder.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repaired to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs and repointing will not take place if rain is forecast in the following 12 hours, other than repointing under the arch.

- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out repointing and repairs.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Cruicetown Bridge [MH-N51-006.00] will not lead to adverse effects on the River Boyne and River Blackwater SAC and SPA or any other European site.

4.5.6 Slane Castle Bridge [MH-N51-007.00]

Slane Castle Bridge crosses the Castleparks River which flows into the River Boyne 550m downstream. The bridge is a single span masonry arch bridge which has been extended to a slab arch bridge at the inlet side (under the N51). There is a small dam immediately downstream of the bridge. The River Boyne and River Blackwater SAC is 90m downstream of the bridge and the River Boyne and River Blackwater SPA is 550m downstream of the bridge. Plate 4-23 below shows the bridge outlet where the watercourse can be seen pooling because of the dam.

Plate 4-23

The proposed works at this bridge are:

- Sweep and clean bridge surface (25m^2).
- Clean footways (50m^2).
- Clear vegetation from south spandrel wall (8m^2).
- Repoint south spandrel wall (15m^2).
- Replace barrier on south verge (13m).
- Clear vegetation from within 1m of structure (1m^2).
- Repoint masonry arch over south verge (6m^2).
- Remove vegetation from south headwall (2m^2).

The Qualifying Interests of the River Boyne and River Blackwater SAC and SPA are listed in Section 2.4 and 2.5 respectively. The Qualifying Interests that are at risk from pollution (i.e. where pathways exist) are considered to be Lamprey species, Atlantic Salmon, Otter and Kingfisher. The remaining Qualifying Interests are terrestrial and semi-terrestrial habitats which are not hydrologically connected to or present at the works location.

The River Boyne and River Blackwater SPA is designated for the protection of Kingfisher (Section 2.3). There will be no direct physical loss, disturbance or damage to suitable habitat for nesting sites. Any increase in disturbance from noise and vibration arising from the works, will be negligible and Kingfisher will continue to use this area.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-23 below.

Table 4-23 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Sweep and clean bridge surface (25m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean footways (50m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clear vegetation from south spandrel wall (8m^2).	Screen out- the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or riverbank. These areas will be sprayed with a herbicide approved for use near water. Due to the scale of the works, the proximity to the SAC and SPA and the subsequent dilution factor, there is no potential for LSE.
Repoint south spandrel wall (15m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Replace barrier on south verge (13m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clear vegetation from within 1m of structure (1m^2).	Screen out - this work is mechanical only and will be undertaken around the structure on land only. The habitat in this areas is scrub. There is no sources or pathways for impacts.
Repoint masonry arch over south verge (6m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental discharge.
Remove vegetation from south headwall (2m^2).	Screen out- the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or riverbank. These areas will be sprayed with a herbicide approved for use near water. Due to the scale of the works, the proximity to the SAC and SPA and the subsequent dilution factor, there is no potential for LSE.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repoint south spandrel wall (15m^2). / Repoint masonry arch over south verge (6m^2).

- Masonry repairs and repointing will be undertaken from scaffolding or from a bridge inspection unit.
- No machinery will be permitted in the water.

- A catch net will be fitted under the area being repointed to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs and repointing will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Slane Castle Bridge [MH-N51-007.00] will not lead to adverse effects on the River Boyne and River Blackwater SAC and SPA or any other European site.

4.6 Wicklow

4.6.1 Eldon Bridge [WW-N81-002.00]

Eldon Bridge is a three-span masonry arch bridge. Each arch is between 3m and 8m wide. During the 2017 surveys when the water levels were high, the river was 0.5m deep during survey and could be access with waders on. The bed consists of cobbles and there is Floating River Vegetation growing in the river immediately upstream. the depth was 0.5m. The bridge is within the Slaney River Valley SAC. Plate 4-24 shows bridge inlet.

Plate 4-24

The proposed works at this bridge are:

- Removal of debris from river at upstream side (15 2).
- Removal of metal plate on capping on west parapet.
- Clean drainage outfall on NW corner (1 no)

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that are at risk from sedimentation, pollution and damage are considered to be Floating River Vegetation, Freshwater Pearl Mussel, Lamprey species, Atlantic Salmon and Otter.

Floating River Vegetation is present in the bridge footprint. Lamprey species, Atlantic Salmon and Otter are considered to be present in the watercourse. A Freshwater Pearl Mussel Survey was undertaken in 2019 (see Appendix A) and found no Pearl Mussel within 50m of the bridge, however, following the precautionary principle, this species is considered present further downstream. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to the works.

The potential for the works to lead to likely significant effects is discussed in Table 4-24 below.

Table 4-24 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Remove metal plate on capping on west parapet.	Screen out - this work will be undertaken on the bridge parapet. There is no source or pathway for impacts.
Removal of debris from river at upstream side (15m^2).	Screen in - the removal of this volume of debris from the piers has the potential to damage Floating River Vegetation and to release sediment downstream which could impact Freshwater Pearl Mussel.
Clean drainage outfall on NW corner (1 no)	Screen out – The drainage outfall will be cleaned using a suction machine, collected and removed from site.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Removal of debris from river at upstream side (15m^2)

In order to remove the debris, the contractor will use one of the following methods:

- The debris will be accessed either on foot from the bank, using ropes from the bridge or using a bridge inspection unit.
- The debris will be removed by hand and carried to the bank, or, placed in a sling or bucket, or the floor of the bridge inspection unit and moved to the bank or bridge deck.
- No Floating River Vegetation will be removed. If accessed on foot, the areas of floating river vegetation will be avoided. The Contractor's Ecologist will supervise the debris removal to ensure that access and debris removal do not damage the Floating River Vegetation.
- Larger pieces of debris which cannot be removed by hand, will be cut into lengths that can be removed by hand using a chainsaw.
- No machines will be permitted in the water.
- Debris which is stuck in the riverbed will be cut as low as possible and left in the water to prevent the release of sediment.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Eldon Bridge [WW-N81-002.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.6.3 Whitestown Bridge [WW-N81-007.00]

Whitestown Bridge is a single span masonry arch bridge. The span is 5.4m wide. There is a small weir immediately downstream of the outlet. The bridge is within the Slaney River Valley SAC. Plate 4-25 shows bridge outlet.

Plate 4-25

The proposed works at this bridge are:

- Repointing over water (river face of parapets, spandrel walls) (60m^2).
- Remove sandbag or other items from SE corner (0.5m^2).
- Extend rubbing strips on southwest corner 8m^2, on northwest corner 10.5m^2, on southeast corner 2.5m^2 (from existing rubbing strip to wingwall).

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that could be impacted are Floating River Vegetation, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter. Following the precautionary principle, these Qualifying interests are considered present in the footprint of the bridge and could be impacted indirectly through the accidental release of wet mortar into the river. The remaining Qualifying Interests could not be impacted by works on this scale or are associated with estuarine habitats downstream at or below the tidal limit or are terrestrial habitats which are not hydrologically connected to the works.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-25 below.

Table 4-25 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Repointing over water (river face of parapets, spandrel walls) (60m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Removal sandbag or other items from SE corner (0.5m^2).	Screen out – The sandbag and other items are on the existing rubbing strip. There is no source or pathway for impacts.
Extend rubbing strips on southwest corner 8m^2, on northwest corner 10.5m^2, on southeast corner 2.5m^2 (from existing rubbing strip to wingwall).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repointing over water (river face of parapets, spandrel walls) (60m^2)

- Masonry repointing will be undertaken on foot, using a ladder, from scaffolding or from a bridge inspection unit.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repaired to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out the work.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Whitestown Bridge [WW-N81-007.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.6.4 Whitestown Stream Bridge [WW-N81-008.00]

Whitestown Stream Bridge is a single span masonry arch bridge. The span is 2.46m wide. The bed is silted and the channel is overgrown with vegetation indicating very low flows. The bridge is within the Slaney River Valley SAC. Plate 4-26 shows the outlet.

Plate 4-26

The proposed works at this bridge are:

- Clearance of watercourse on outlet (1m^2).
- Concrete infill on west rubbing strip around post (0.01m^3).
- Masonry repair on river face of east parapet (0.1m^3).
- Seal cracks in east footway (4m).

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that could be impacted are Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter. Following the precautionary principle, these

Qualifying interests are considered to be present downstream of the bridge and could be impacted indirectly through the accidental release of wet mortar into the river. The stream at the bridge is unsuitable for the Qualifying Interests apart from potentially commuting Otter, however there is not potential for impacts of Otter due to the nature of the works. The remaining Qualifying Interests could not be impacted by works on this scale or are associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to the works.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-26 below.

Table 4-26 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Clearance of watercourse on outlet ($1m^2$).	Screen out- the stream is very small and accessible on foot (see plate 4-21). Debris will be removed by hand.
Concrete infill on west rubbing strip around post ($0.01m^3$).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Masonry repair on river face of east parapet ($0.1m^3$).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including indirect impacts on the Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillages.
Seal cracks in east footway (4m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.

Mitigation
The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Masonry repair on river face of east parapet ($0.1m^3$).

- Masonry repairs will be carried out on foot, using a ladder scaffolding or from a bridge inspection unit.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repaired to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repairs will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out the repairs.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Whitestown Stream Bridge [WW-N81-008.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.6.5 Carrigower Bridge [WW-N81-009.00]

Carrigower Bridge is a single-span masonry arch bridge which has had the arch barrel reinforced with concrete walls and a corrugated steel barrel. The water flowing through the structure is quick and turbulent and the bed is natural and consists of gravel and stones. The bridge is within the Slaney River Valley SAC. Plate 4-27 shows the river channel upstream of the bridge.

Plate 4-26

The proposed works at this bridge are:

- Remove tree on east side adjacent to timber fence (1 no)
- Remove plastic hay bail upstream of the bridge (3m^2).
- Remove vegetation from headwalls (10m^2).
- Remove masonry rubble on east side embankment (6m^2).
- Establish a channel by excavating a water cut in the soft verge to allow excess water to drain off R142 into the embankment after installation of rubbing strip (30m).

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that could be impacted are Floating River Vegetation, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter. Floating River Vegetation is present immediately at the inlet. Following the precautionary principle, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter are considered present in the footprint of the bridge and could be impacted through the release of sediment. The remaining Qualifying Interests associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to the works.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-26 below.

Table 4-26 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Remove tree on east side adjacent to timber fence (1 no).	Screen out- This work will be undertaken on the bridge deck. The tree will be cut to ground level and the material will be removed from site.
Remove plastic hay bale upstream of the bridge ($3m^2$)	Screen in – The hay bale is wrapped in plastic and is of sufficient size that it cannot be removed by hand. There is a risk of damage to the river bed and sediment release.
Remove vegetation from headwalls ($10m^2$)	Screen out- the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or riverbank. These areas will be sprayed with a herbicide approved for use near water. Due to the type of herbicide being used, the total area to be sprayed ($10m^2$) and the subsequent dilution factor, there is no potential for LSE.
Remove masonry rubble on east side embankment ($3m^2$)	Screen out - this work will be undertaken on the embankment. There is no source or pathway for impacts.
Establish a channel by excavating a water cut in the soft verge to allow excess water to drain off R142 into the embankment after installation of rubbing strip (30m)	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

<u>Remove plastic hay bale upstream of the bridge ($3m^2$)</u>

It is likely that the hay bale has taken on water and is therefore too heavy to lift out by hand. In order to remove the hay bale without damaging the riverbed and agitating sediment, the following methods will be employed.

- The hay bale will be rolled to the bank and removed by a machine such as an excavator. The excavator is not permitted in the river, and the bucket or other implement will not touch the river bed.
- The hay bale will be rolled rather than dragged to the bank or point where it can be removed.
- No Floating River Vegetation will be removed. If accessed on foot, the areas of floating river vegetation will be avoided. The Contractor's Ecologist will supervise the debris removal to ensure that access and debris removal do not damage the Floating River Vegetation.
- If the area is inaccessible for machinery, the person(s) carrying out the work will work from the river bank as much as possible. Where in stream access cannot be avoided, the person(s) will enter the water on foot. The plastic will be removed from the top of the bail and the hay will be removed by hand. The hay and plastic will be removed from site and disposed of in an appropriate facility.

- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Carrigower Bridge [WW-N81-009.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.7 Wexford

4.7.1 Ferns Bridge [WX-N11-009.00]

Fern's Bridge is a single-span masonry arch bridge with a 2.5m wide arch. The arch is <1.5m above the stream bed at the highest point. A small shallow stream flows through it and is easily accessible on foot. The bridge is 1km upstream of the Slaney River Valley SAC. Plate 4-1 shows the bridge.

Plate 4-27

The proposed works at this bridge are:

- Repointing of arch barrel (30m^2).
- Repointing of river faces of bridge (90m^2).
- Scour repairs (1m2).
- Repointing of buttress on northwest corner (2.5m2).

- Establishment of a drainage outfall far enough from wall to prevent water running down west spandrel wall (1 item).

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that could be impacted are Floating River Vegetation, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter. Following the precautionary principle, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter are considered present downstream of the bridge and could be impacted through the release of pollutants such as wet mortar and concrete. The remaining Qualifying Interests associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to the works.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-27 below.

Table 4-27 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Repointing of arch barrel (30m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Repointing of river faces of bridge (90m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Scour repairs (1m^2).	Screen out- this work involves bringing clean stone in and filling the scour damage by hand until it is flush with the surrounding structure. It will be undertaken by hand and on foot only. Due to the scale of this work element, there is no source for impacts.
Repoint buttress on northwest corner (2.5m^2).	Screen in – Some of the buttresses are directly adjacent to the watercourse where the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Establish drainage outfall far enough from wall to prevent water running down west spandrel wall (1 item).	Screen in – The drainage outfall is to be established directly above the watercourse where the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

<u>Repointing of arch barrel (30m^2)/ Repointing of river faces of bridge (90m^2)/ Repoint buttress on northwest corner (2.3 m^2)/ Establish drainage outfall far enough from wall to prevent water running down west spandrel wall (1 item).</u>

- Masonry repair and repointing will be carried out on foot or using a ladder. A frame may be required to repoint the arch barrel because it is so low.
- No machinery will be permitted in the water.

- A catch net will be fitted under the area being repointed to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours (apart from the arch barrel where this measure is not relevant).
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out the work.
- The establishment of the drainage outfall will require setting concrete or mortar into the existing wall to provide a new pipe. A mobile catch net will be installed during work involving wet concrete or mortar.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Ferns Bridge [WX-N11-009.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.7.2 Tomnakipeen Bridge [WX-N80-001.00]

Tomnakipeen Bridge is a single-span masonry arch barrel with a concrete slab extension. It is 2.5m wide and 1.7m tall. The concrete slab section of the bridge has a concrete riverbed. The bridge is 300m upstream of the Slaney River Valley SAC. Plate 4-27a and 4-27b show the inlet and outlet.

Plate 4-27a

Plate 4-27b

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that could be impacted are Floating River Vegetation, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter. Following the precautionary principle, Floating River Vegetation, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter are considered present downstream of the bridge and could be impacted through the release of pollutants or sediment. A Freshwater Pearl Mussel Survey of the bridge plus 50m was undertaken in 2018 and found no pearl mussels. The remaining Qualifying Interests associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to the works.

The proposed works at this bridge are:

- Masonry repair of arch barrel (5m^2).
- Repair of scour damage (45m^2).
- Sealing of pavement cracks (5m).
- Installation of timber rail on east side (2m).
- Removal of 3 exposed rebars above arch on concrete spandrel wall on west side (0.2m^2).
- Removal of trees next to collapsed training wall (diameter varies from 100 – 300mm).
- Masonry repair of training wall on southwest corner (1m^2).

The potential for the works to lead to likely significant effects is discussed in Table 4-27 below.

Table 4-27 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Masonry repair of arch barrel ($5m^2$)	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Repair of scour damage ($45m^2$)	Screen out- this work involves bringing clean stone in and filling the scour damage by hand until it is flush with the surrounding structure. It will be undertaken by hand and on foot only. Due to the scale of this work element, there is no source for impacts. The bridge +50m was surveyed for pearl mussels in 2018 and found none.
Sealing of pavement cracks (5m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Installation timber rail on east side (2m).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Removal of 3 exposed rebars above arch on concrete spandrel wall on west side ($0.2m^2$).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Removal of trees next to collapsed training wall (diameter varies from 100 – 300mm).	Screen in- due to the size of the trees there is a risk that if they were felled into the river they could damage the river bed and lead to impacts on QIs downstream; therefore, mitigation is required.
Masonry repair of training wall on southwest corner ($1m^3$).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repair of arch barrel ($5m^2$)/ Removal 3 exposed rebars above arch on concrete spandrel wall on west side ($0.2m^2$)/ Masonry repair of training wall on southwest corner ($1m^3$)/ Removal of trees next to collapsed training wall (diameter varies from 100 – 300mm).

- Masonry repair and repointing will be carried out on foot or using a ladder.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repaired/ repointed to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours (apart from the arch barrel where this measure is not relevant).
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out the work.

- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Remove trees next to collapsed training wall (diameter varies from 100 – 300mm).

- Trees will be felled by a qualified tree surgeon.
- The trees will be cut to ground level and the stumps will be left to rot naturally.
- The trees will be felled away from the river and will be removed from site.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Tomnakipeen Bridge [WX-N80-001.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.7.3 Clody Bridge [WX-N80-002.00]

Clody Bridge is a two-span masonry arch bridge with concrete slab extension. The masonry spans are 4.2m wide and the concrete slab section is 13m wide. The riverbed is constructed of masonry underneath the masonry arch, which is the downstream structure. The river is <300mm deep and easily accessible on foot. The bridge is within the Slaney River Valley SAC. Plate 4-28a and 4-28b show the bridge.

Plate 4-28a

Plate 4-28b

The proposed works at this bridge are:

- Scour repair on inlet side (1.5 m^2)
- Remove debris from riverbed (2 m^2)
- Seal pavement cracks on northbound lane (8 m)
- Pavement remedial works on eastbound lane (7 m^2)
- Localised repointing on SE parapet (1 m^2)
- Masonry repair on SE parapet (0.1 m^3)
- Localised repointing on NE parapet (1 m^2)
- Remove rusted steel brackets from poles and guardrails (4 no)
- Localised repointing on NE wingwall (3 m^2)
- Localised repointing on SE spandrel and wingwall (4 m^2)
- Repair top rail on south side.

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that could be impacted are Floating River Vegetation, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter. Following the precautionary principle, Floating River Vegetation, Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter are considered present downstream of the bridge and could be impacted through the release of pollutants or sediment. The river bed is constructed of masonry under the masonry arch bridge and is sandy with occasional rocks under the concrete slab section (Plate 4-28b), therefore it is unsuitable for FWPM, however this species is considered to be present downstream. The remaining Qualifying Interests associated with estuarine habitats downstream below the tidal limit or are terrestrial habitats which are not hydrologically connected to the works.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-28 below.

Table 4-28 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Repair scour damage at inlet (1.5m^2).	Screen out- this work involves bringing clean stone in and filling the scour damage by hand until it is flush with the surrounding structure. It will be undertaken by hand and on foot only. Due to the scale of this work element which will be carried out on foot, there is no source for impacts.
Remove debris from riverbed (2m^2).	Screen out- the river is shallow and can easily be traversed on foot. The branches will be removed by hand.
Seal pavement cracks on northbound lane (8m)	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Pavement remedial works on eastbound lane (7m^2)	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Localised repointing on SE parapet (1m^2)	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Masonry repair on SE parapet (0.1m^3)	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Remove rusted steel brackets from poles and guardrails (4 no)	Screen out - this work is very minor will be undertaken on the bridge deck. There is no source or pathway for impacts.
Localised repointing on NE wingwall (3m^2)	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Localised repointing on SE spandrel and wingwall (4m^2)	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Repair top rail on south side.	Screen out - this work is very minor will be undertaken on the bridge deck. There is no source or pathway for impacts.

Mitigation

The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Localised repointing on SE parapet (1m^2)/ Masonry repair on SE parapet (0.1m^3)/ Localised repointing on NE wingwall (3m^2)/ Localised repointing on SE spandrel and wingwall (4m^2)

- Masonry repair and repointing will be carried out on foot, using a ladder or using scaffolding.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repaired or repointed to catch any spilled mortar.

- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.
- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out the work.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Clody Bridge [WX-N80-002.00] will not lead to adverse effects on the Slaney River Valley SAC or any other European site.

4.7.4 Tomduff Bridge 1 Bridge [WX-N30-002.00]

Tomduff Bridge 1 is a three-span masonry stone arch bridge. The masonry spans are between 6.17m and 7m and wide. The bridge crosses over the River Urrin and is 300m upstream of the Slaney River Valley SAC and the Wexford Harbour and Slobs SPA. Floating river vegetation is present in the river channel and Japanese knotweed was recorded on the left bank (20m upstream) and right bank (below confluence of canal outflow on downstream side). Plate 4-29 shows the bridge inlet.

Plate 4-29

The proposed works at this bridge are:

- Sweep and clean bridge surface (25m^2).
- Clean all gullies (1 no.)
- Clean footways (45m^2).
- Removal vegetation from river side face of parapet (30m^2).
- Repointing to south river face of parapet (20m^2).
- Removal vegetation throughout (32m^2).
- Removal large tree from inlet (6m^2).

The Qualifying Interests of the Slaney River Valley SAC are listed in Section 2.1. The Qualifying Interests that could be impacted are Atlantic Salmon, Lamprey Species, Freshwater Pearl Mussel and Otter. The FWPM survey undertaken at this bridge in 2018 recorded no pearl mussels within 50m of the bridge. The remaining Qualifying Interests could not be impacted by works on this scale or are associated with estuarine habitats downstream at or below the tidal limit or are terrestrial habitats which are not hydrologically connected to or present at the works location. The Qualifying Interests of the Wexford Harbour and Slobs SPA are birds and wetlands. The works will not

reduce the area of wetland habitat in the SPA are of a minor nature such that there are no sources of impacts on the QIs of this site.

The work elements along with the potential for the works to lead to likely significant effects is discussed in Table 4-29 below.

Table 4-29 Works elements and potential to lead to Likely Significant Effects

Work Element	Screening Recommendation
Sweep and clean bridge surface (25m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Clean all gullies (1 no.)	Screen out - this work will be undertaken on the bridge deck. This will be undertaken using a suction machine and material will be removed from the site. There is no source or pathway for impacts.
Clean footways (45m^2).	Screen out - this work will be undertaken on the bridge deck. There is no source or pathway for impacts.
Removal of vegetation from river side face of parapet (30m^2).	Screen out - the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or river bank. These areas will be sprayed with a herbicide approved for use near water. Due to the type of herbicide as well as the volume of water in the River Urrin and the subsequent dilution factor, there is no potential for LSE.
Repointing to south river face of parapet (20m^2).	Screen in - the use of wet mortar over water may lead to impacts on aquatic life including Qualifying Interests of the SAC. Mitigation is required to reduce this risk of accidental spillage.
Removal of vegetation throughout (32m^2).	Screen out - the removal of vegetation will involve spraying the areas of the bridge where vegetation is growing from the bridge deck or river bank. These areas will be sprayed with a herbicide approved for use near water. Due to the scale of this work element, the volume of water in the River Urrin and the subsequent dilution factor, there is no potential for LSE.
Removal of large tree from inlet (6m^2).	Screen in – Removal of the tree may lead to the release of sediment; therefore mitigation is required.

Mitigation
The following mitigation measures apply to the works elements that screened in. In order to avoid adverse effects, as a result of the proposed works, a number of mitigation measures are required:

Repointing to south river face of parapet (20m^2)

- Masonry repointing will be undertaken from scaffolding or from a bridge inspection unit.
- No machinery will be permitted in the water.
- A catch net will be fitted under the area being repointed in order to catch any spilled mortar.
- The catch net will be approved by the Employer's Representative and the Contractor's Ecologist.
- Repointing will not take place if rain is forecast in the following 12 hours.
- Concrete/ mortar will be mixed in a watertight container at least 20m from the watercourse.

- Only one bucket of wet concrete/ mortar will be brought to the work site at any time by each person carrying out the work.

Remove large tree from inlet (6m^2).

- The person(s) carrying out the work will enter the water on foot and cut the tree into pieces using a chainsaw.
- The pieces will then be removed from the river by hand or using a sling or bucket from the river bank or bridge deck.
- No machinery is permitted in the water.
- All equipment including PPE which comes into contact with watercourses will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Assessment of In-combination effects

Following the application of the mitigation measures described above, there will be no residual arising from the proposed works whatsoever. Considering this and considering the small scale and temporary nature of the proposed works, there is no potential for in-combination effects with the other work elements or with other plans and projects.

Conclusion/ Recommendation

Having regard to the works and the mitigation proposed above, it is ROD's considered opinion that TII, as the competent authority, can conclude that, provided the mitigation measures described above are followed, the works proposed at Tomduff Bridge 1 Bridge [WX-N30-002.00] will not lead to adverse effects on the Slaney River Valley SAC, the Wexford Harbour and Slobs SPA or any other European site.

Appendix A

Leinster Bridges
Term Maintenance Contract No. 3

Specialist Surveys - Fresh Water Pearl Mussel

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Document Control Sheet:

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1	Final	30/05/2018	LW	GM	

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1 INTRODUCTION

This report sets out findings of Freshwater Pearl Mussel (FPM) surveys conducted in May 2018 at national road bridge sites on rivers in Counties Laois and Wexford. Surveys were conducted by Aquatic Services Unit (ASU), University College Cork (UCC) on behalf of Roughan & O'Donovan, Consulting Engineers. The work was under Transport Infrastructure Ireland (TII) Leinster Term Maintenance Contract No. 3.

The FPM is an endangered freshwater bivalve listed under Annex II and V of the EU Habitats Directive (92/43/EEC) and protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Berne). The 2007 Habitats Directive Article 17 reports classified the pearl mussel as in unfavourable-bad conservation status in all EU regions (http://biodiversity.eionet.europa.eu/article17/). There are two species in Ireland, *M. margaritifera* and *M. durrovensis*, both of which are critically endangered on the Irish Regional non-marine mollusc red list (Byrne *et al.,* 2009) and at unfavourable-bad status in Ireland (NPWS, 2013).

It is legally protected in Ireland under Schedule 1 of the Wildlife Act (1976) (S. I. 112 of 1990); the European Communities (Natural Habitats) Regulations (S. I. 477 of 2011), and the Water Framework Directive through the EC Environmental Objectives (Freshwater Pearl Mussel) Regulations (S.I. 296 of 2009).

2 METHODOLOGY

2.1 Desk study

Bridge locations and access routes were scoped using a range of physical and online resources including: OSI Maps, Google Earth and EPA Envision Mapviewer.

2.2 Survey Locations

Table 1 *– Survey Locations with coordinates (ITM)*

Structure ID	Structure Name	River	X	Y
LS-N77-002.00	New Bridge	River Nore	641457	678642
WX-N11-005.00	Enniscorthy Bridge	Slaney River	697366	639965
WX-N30-002.00	Tomduff Bridge 1	Trib. of Slaney	696868	638961
WX-N80-001.00	Tomnakipeen Bridge	Trib. of Slaney	697596	645625
WX-N80-002.00	Tomagarrow Bridge	Trib. of Slaney	696610	647735

2.3 FPM Survey Methodology

Stage 1 (presence/absence) FPM surveys were carried out in accordance with methods set out in Anon. (2004) undertaken by experienced FPM surveyors under licence from NPWS (C47/2018; C58/2018). A measured reach, 50m upstream and downstream of each structure, was searched. Surveys took place between 12th and 28th of May 2018. Watercourses were wadeable at all except New Bridge and Enniscorthy Bridge, where snorkelling was necessary. There were low-to-average water levels during surveys; good instream visibility and no evidence of recent spate. A photograph was taken to show the general nature of each watercourse and brief habitat notes were recorded.

3 RESULTS

3.1.1 LS-N77-002.00 New Bridge

X, Y (ITM): 641457 678642

Main channel Nore River, Co Laois. Surveyed (snorkel / wade) 50m US and DS of bridge.

Average width / depth: 10m/0.30m. Cobble and pebble dominated with some coarse sand. Abundant *Cladophora*, *Vaucheria* and silty diatom detritus (signs of impaired water quality). Moderate salmonid habitat.

[redacted]

3.1.2 WX-N11-005.00 Enniscorthy Bridge

X, Y (ITM): 697366 639965

Main channel Slaney River, Co Wexford. Surveyed (snorkel / wade) 50m US and DS of bridge.

Average width / depth: 19m / 0.6m. Cobble, pebble, sand with abundant *Cladophora*, *Vaucheria* and silty diatom detritus (signs of impaired water quality). Moderate salmonid habitat.

No FPM; some patches of suitable habitat.

3.1.3 WX-N30-002.00 Tomduff Bridge 1

X, Y (ITM): 696868 638961

Small tributary of Slaney River, Co. Wexford. Surveyed (wade) 50m US and DS of structure.

Average width / depth: 8m / 0.5+m.

No FPM; pockets of suitable habitat both upstream and downstream of the bridge. Water quality impaired but possibly OK for residual old specimens if present.

3.1.4 WX-N80-001.00 Tomnakipeen Bridge

X, Y (ITM): 697596 645625

Small tributary of Slaney River, Co. Wexford. Surveyed (wade) 50m US and DS of structure.

Average width / depth: 1.75m / 0.2m.

No FPM; poor habitat and very poor water quality.

3.1.5 WX-N80-002.00 Tomagarrow Bridge

X, Y (ITM): 696610 647735

Tributary of Slaney River, Co. Wexford. Surveyed (wade) 50m US and DS of structure.

Average width / depth: 1.5m / 0.25m.

No FPM; pockets of potential habitat upstream and downstream, especially beneath shaded root overhangs from the bank. Possibly too shallow however some summers.

4 CONCLUSION

[redacted] Such luxuriant FGA, mainly *Cladophora*, and accumulated silt is a sign of at least slightly impaired water quality in the river and may be the reason so many dead shells were observed.

[redacted]

5 REFERENCES

Anon (2004) *Margaritifera margaritifera.* Stage 1 and Stage 2 Survey Guidelines. Irish Wildlife Manuals, No. 12. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

NPWS (2013) Report on the main results of the surveillance under article 11 for annex II, IV and V species (Annex B). Species code: 1029, *Margaritifera margaritifera*. Available at: http://npws.ie/publications/archive/1029_Freshwater_Pearl_Mussel_assessment.pdf (March, 2015)

Byrne, A., Moorkens, E.A., Anderson, R., Killeen, I.J. & Regan, E.C. (2009) Ireland Red List No. 2 – Non-Marine Molluscs. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Appendix B

Two Bridge Sites on River Slaney

Freshwater Pearl Mussel (Stage 1 Surveys)

Version: 27th June 2019

Prepared by: -

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TABLE OF CONTENTS

1. INTRODUCTION

Ecofact Environmental Consultants Ltd. carried out Stage 1 Freshwater Pearl Mussel (FPM) Surveys at two bridge sites on the River Slaney. There are routine maintenance works proposed for both sites that would involve the removal of storm debris. The purpose of these surveys was to establish if FPM are present / absent in the proposed instream maintenance works zone of influence. The two survey sites were visited during June 2019 under low flows and ideal survey conditions.

Stage 1 FPM Surveys were conducted on the river from 50m downstream to 50m upstream (as per tender specifications) of the two bridges. The survey work was undertaken by Dr. William O'Connor under NPWS License no. C152/2019.

2. METHODOLOGY

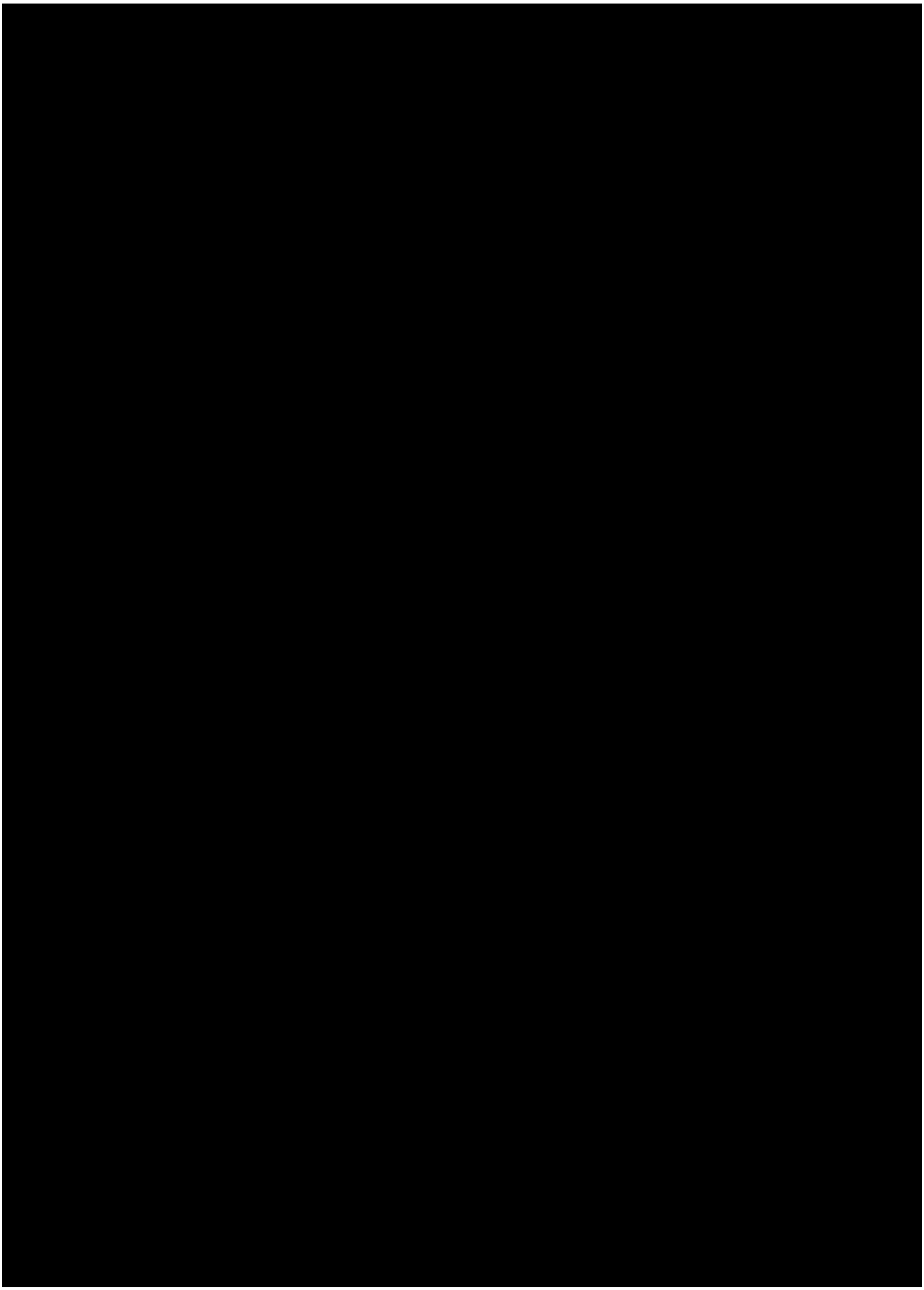
2.1 Desktop review

A desk-study was undertaken to identify existing records for the Freshwater Pearl Mussel from within the affected river catchments, and to identify the potential for this species to occur within the study area. A desk study review of the National Parks and Wildlife Service (NPWS) designations for this species relating to the affected rivers and the relevant legislation in place for the protection of this species was also undertaken. A GIS file of previous Freshwater Pearl Mussel records supplied by the NPWS was also used in this assessment. Figure 1 below illustrates the location of the six bridges with SACs, FPM records and watercourses indicated.

2.2 Field Surveys

Surveying for Freshwater Pearl Mussel (FPM) was carried out under license (NPWS License No. C152/2019) following the NPWS guidance *'Margaritifera margaritifera Stage 1 and Stage 2 survey guidelines'* (Anon, 2004). Only Stage 1 surveys were carried out for the current assessment under Northwest Term Maintenance contract no. 3. The surveys undertaken were to establish whether FPM were present in the river channel, employing a wading / bathyscope survey aided with a hand held diving light for sections of the survey under bridges. The Stage 1 surveys comprised up to 50m upstream and downstream of each of the six bridge locations. Photographs were taken at each site during the FPM survey.

As per the NPWS guidance *'Margaritifera margaritifera Stage 1 and Stage 2 survey guidelines'* (Anon, 2004), the objective of a Stage 1 FPM survey is to establish whether adult *Margaritifera margaritifera* are present or not in a river. General information on mussel numbers and habitat is recorded in a Stage 1 survey. However, once this information is recorded, the river must be exited and further searching is left for a Stage 2 survey.



3. RESULTS

3.1 Site 1 (Rathvilly Bridge)

Rathvilly Bridge is located on the 5th order River Slaney (EPA Segment Code: 12_3699) in Rathvilly Village, Co. Carlow. This site is located within the Slaney River Valley Special Area of Conservation (SAC) (000781).

The FPM records in the River Slaney catchment are mostly confined to the River Derreen. However, there are FPM records nearby which are located downstream of this site as show in Figure 1. There is an EPA monitoring station (EPA station code: 12S021000) at Rathvilly Bridge that was rated Q4 in 2016 equivalent to WFD status "Good". At Rathvilly Bridge the river is rated "Moderate" river waterbody WFD status 2010-2015 and is considered an "At risk" waterbody. Approximately 5km upstream from this site there is an EPA monitoring station (EPA station code: 12S020800) which was rated Q3-4 in 2016 equivalent to WFD status "Moderate".

The site was visited during June 2019. A survey of 50m upstream and 50m downstream of the bridge was carried out. The substrate at this site was sub-optimal for FPM due to it being mobile and unstable along with the presence of fine sediment.

One old partial FPM shell found downstream of Rathvilly Bridge during the current survey. No live mussels were present.

Plate 1 River Slaney looking upstream from Rathvilly Bridge, June 2019. Freshwater Pearl Mussel (FPM) habitat was considered suboptimal at this survey stretch due to substrates present. No live FPMs were recorded.

Plate 2 River Slaney looking upstream to Rathvilly Bridge from downstream survey extent, June 2019.

Plate 3 River Slaney substrates at the Rathvilly Bridge survey stretch consisted of loose / mobile cobbles and gravel, with sand/silt.

Plate 4 One old partial FPM shell found downstream of Rathvilly Bridge during the current survey. No live mussels were present.

3.2 Site 2 (Eldon Bridge)

Eldon Bridge is located north of Baltinglass Co. Wicklow. The site is located on the 4th order River Slaney (EPA Segment Code: 12_1538). This site is located within the Slaney River Valley Special Area of Conservation (SAC) (000781).

[redacted] The EPA do not carry out monitoring at the Eldon Bridge site however there is an EPA monitoring station (Station code: 12S020600) approximately 1km upstream. This site was rated Q4-5 in 2016 equivalent to WFD status "High". The River Slaney at Eldon Bridge is considered to be "Poor" river waterbody WFD status 2010-2015 and is considered to be an "At risk" waterbody. Figure 1 shows the location of the Eldon Bridge site in relation to Rathvilly Bridge and other FPM records in the catchment.

The site was visited during June 2019. An area extending to 50m upstream and downstream of the bridge was surveyed. There were no live mussels or shells recorded. The habitat at this site was sub-optimal for FPM. The substrate present at the site was mobile and made up of fine particles.

Plate 5 River Slaney at Eldon Bridge, June 2019. Freshwater Pearl Mussel (FPM) habitat was also considered suboptimal at this survey stretch due to substrates present. No live FPMs or dead shells were recorded.

Plate 6 River Slaney looking upstream from Eldon Bridge from downstream survey extent, June 2019.

Plate 3 River Slaney substrates at the Eldon Bridge survey stretch consisted of compacted cobbles and gravel with silt, and loose cobble/gravel areas also. This substrate is suboptimal for FPMs. No mussels were recorded.

Plate 7 Possible Kingfisher nest tunnel downstream of Eldon Bridge, June 2019. This is located within 50m of the bridge but would not be affected by works on the bridge.

4. RECOMMENDATIONS

The following are recommendations considered necessary to assess direct impacts on FPMs only.

4.1 Site 1 (Rathvilly Bridge)

No mussels are present within 50m upstream and downstream of this bridge. There was a partial dead shell (very old) recorded immediately downstream of the bridge. No recommendations for further surveys are made. No mussels are present here and habitat is suboptimal.

Freshwater Pearl Mussels do occur in the River Slaney downstream of here.

4.2 Site 2 (Eldon Bridge)

No mussels are present within 50m upstream and downstream of this bridge. No recommendations for further surveys are made. No mussels are present here and habitat is suboptimal.

Freshwater Pearl Mussels do occur in the River Slaney downstream of here.

REFERENCES

Anon (2004) *Margaritifera margaritifera.* Stage 1 and Stage 2 survey guidelines. Irish Wildlife Manuals, No. 12. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland. https://www.npws.ie/sites/default/files/publications/pdf/IWM12.pdf

Kelly, F.L., Harison, A., Connor, L., Wightman, G., Matson, R., Hanna, G., Feeney, R., Morrissey, E., O' Callaghan, R., Wogerbauer, C., Rocks, K., Hayden, B. and Stafford, T. (2010) Sampling for the Water Framework Directive – River 2009. The Central and Regional Fisheries Boards Swords Business Campus, Swords, Co. Dublin.
http://www.wfdfish.ie/wp-content/uploads/2011/01/SERBD_rivers_report_2009.pdf