

LEINSTER BRIDGES REACTIVE MAINTENANCE

Response to Request for Further Information

July 2021



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Appendix A - Visqueen plastic sheeting product data sheet

1. INTRODUCTION

1.1 Terms of Reference

Roughan & O'Donovan Consulting Engineers ('ROD') have been engaged by Transport Infrastructure Ireland ('TII') to provide ecological consultancy services for the reactive maintenance at Ballyragget Pipe Bridge [KK-N77-005.00], Tagoat Bridge [WX-N25-002.00], and Mattymount Bridge [WW-N81-004.00] ('the proposed works').

1.2 Statement of Purpose

In April 2021, TII submitted a Natura Impact Statement (NIS) for the proposed reactive maintenance works at Ballyragget Pipe Bridge, Tagoat Bridge, and Mattymount Bridge to the Minister for Tourism, Culture, Arts, Gaeltacht, Sport and Media ('the Department') pursuant to the requirements of Regulation 42(9)(c) of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended).

On the 24th May 2021, comments were received on the NIS for the proposed works. The purpose of this document is to present a response to these comments. This document has been prepared by ROD on behalf of TII.

It is the view of the authors that the responses and clarifications presented in this document demonstrate beyond all reasonable scientific doubt that the proposed works, either individually or in combination with other plans or projects, in view of best scientific knowledge, will not adversely affect the integrity of the European Sites concerned.

1.3 Document Layout

Italicised text in the boxes below is reproduced verbatim from the response letter received from the Department containing requests for additional information to be contained in the NIS. The text which follows each query contains ROD's response to the comment in question. The layout and order of this document follows that of the letter received from the Department.

2. BALLYRAGGET PIPE BRIDGE [KK-N77-005.00]

“it is stated that the project will also include removal of exposed rebar on northeast spandrel wall next to fence (0.1 m2). The Department advises that this element of the project must be described.”

This work item will involve removing the concrete around the base of the rebar, cutting it below surrounding surface level and then infilling the area with new concrete to create an even surface.

The mitigation measures which will be implemented for this work item are as follows:

- The works will be undertaken on foot.
- Concrete will be mixed in a watertight container at least 20 m from the watercourse.
- Only one bucket of mixed concrete will be brought to the works site at any time.
- A mobile catch-net will be used to prevent wet concrete falling on the ground or entering the watercourse.
- The catch-net will be approved by the Employer's Representative and the Employer'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.

2.1 Baseline Data

“Given that the main adverse effects from the proposed project are related to water quality, the Department considers that baseline water quality data should be presented and reference should be made to water quality requirements of Qualifying Interests (QI's) within the projects zone of influence.”

The Water Framework Directive (WFD) ecological status of the river at the location of the structure is rated as 'Good' (EPA, 2021). This is based on the abundance of aquatic plant and animal species, the availability of nutrients, and aspects such as temperature and pollution. Morphological features, such as quantity, water flow, water depths and structures of the riverbed are also considered. 'Good' status means that there is a slight variation from undisturbed conditions at the time at which this status was awarded between 2013 and 2018, which was the most recent date of assessment. The natural morphology and flow of the river has been altered at this location, primarily due to the existing pipe culvert. Additionally, the watercourse may receive run-off from the surrounding agricultural lands. However, there is no evidence of pollution at the location of the structure.

The EPA also use the Q-value system for evaluating river quality by using biotic indices that reflects average water quality at any location. This is typically carried out by kick sampling the riverbed at a sample station for aquatic invertebrates. The invertebrates are then identified, and each species contributes a score based on their sensitivity to or tolerance of pollution which is used to estimate the water quality of the river. There is a sample station at the location of the bridge. This station was last sampled in 2019 with a Q-value of 4. These values mean that the river at the location of the sample station is 'unpolluted' and in 'satisfactory condition'. These values also correlate with the WFD status of 'Good'.

The following mitigation measures have been proposed and were contained in the NIS which was submitted to the Department, to avoid water quality impacts arising from the proposed works:

Installation of concrete base (70m²):

- The Contractor will be required to appoint an **Ecological Clerk of Works (ECoW)**; the following outline scope of works will allow the Contractor to provide a scope of works to TII for these professional services. Furthermore, ROD will provide an appropriately qualified ecologist (“**the Employer’s Ecologist**”) in order to provide oversight of the works and the ECoW role to TII. However, it should be noted that responsibility for delivery of environmental measures ultimately lies with the appointed Contractor. ECoW will be required to fulfil the following tasks:
 - Review of engineering & ecological documentation / ongoing liaison with Contractor / ROD / TII.
 - Preconstruction ecology visit.
 - The scope of the visit will be informed by the characteristics of the site (as set out in the NIS and subsequent correspondence) and will at a minimum include a check for Otter, nesting birds and invasive plant species.
 - The preconstruction survey must occur prior to the Contractor mobilising on site, but also as close to the mobilisation date as is practical. The ECoW will prepare a technical memo on the findings which will be provided to the Contractor; it will also be provided to the Employer’s Ecologist and TII.
 - Presentation of Toolbox Talk to site staff prior to commencement of works on site.
 - The ECoW will be required to attend site during mobilisation, notably during the establishment of surface water control measures in order to ensure they are working effectively and to communicate its status to the Employer’s Ecologist and TII.
 - The ECoW will also be required to attend site during de-mobilisation, removal of surface water control measures and reinstatement of natural flow patterns.
 - Once available the Contractor will provide an outline programme of works to the ECoW. This will allow the ECoW to determine, when, if any, additional site visits may be needed.
 - In addition to preparing a scope of works for predictable tasks, the ECoW will be required to be available for any on-site emergencies. This will be used to cover situations such as:
 - i) If the programme of works is significantly altered by delays or adverse weather conditions; or
 - ii) If the site needs to be demolished due to a predicted bad weather event.
- The Employer’s Ecologist will provide oversight to the above on behalf of TII. This will also include for site visits to ensure all proposed mitigation measures are in face operating effectively.
- The installation of the concrete base will take place in dry weather and when no heavy rain is forecast in the next seven days. The commencement of the works will be approved by the Employer’s Representative.

- Water will be diverted away from the works area using temporary dams above and below the structure. The dams will be constructed using sandbags and plastic sheeting or similar. Rubber 'aqua dams' are also acceptable. The area between the dams will then be dewatered using a pump.
- A flume will be constructed to carry the stream through the culvert while allowing the concrete base to be installed. The flume will have a screen at the inlet to prevent fish and debris entering it.
- All water being pumped out will pass through a silt trap to prevent silt entering the water downstream. The silt trap will be approved by the Employer's Representative and the Employer's Ecologist.
- The pump will be supervised at all times to ensure it is operating correctly.
- Following dewatering, any silt, gravel or other debris in the culvert will be removed either by hand using buckets or by suction to a vehicle on the bridge deck, where it will be disposed of off-site. If power hosing is used to loosen debris from the culvert, the water shall be clean, fresh and potable and obtained from a Public Utility Undertaking approved by the Employer's Representative.
- Any material scoured from the base prior to concrete pouring, including the contents of the silt trap, will be collected and disposed of off-site.
- A corrosion inhibitor and primer will be applied to the steel. These products will be approved for use in water and certified as non-toxic to aquatic ecosystems. Products containing polyurethane based coatings are considered the safest for use in aquatic environments, whereas products containing 4-tert-butylphenol (4tBP) will not be used. The selected product will be approved for use by the Employer's Representative and the Employer's Ecologist.
- While the concrete is setting, the dams will be checked daily to ensure they are working correctly.
- The concrete base will be checked by the Employer's Representative prior to removal of the dam to ensure the base is dry.
- All equipment, including PPE, which comes into contact with the watercourse will be cleaned prior to use and will be disinfected prior to leaving each site using Virkon Aquatic or similar. Equipment will be disinfected at least 20 m from the watercourse.
- A method statement will be produced by the Contractor and approved by the Employer's Representative and the Employer's Ecologist. It will also be submitted to IFI for approval. The method statement will contain the following measures to protect water quality:
 - Cementitious material shall not be allowed to enter the watercourse.
 - Plant are not permitted to enter the watercourse.
 - Stockpiling of materials and/or storage of fuels shall not be permitted at the site.
 - Refuelling shall not be permitted within 50 m of the watercourse.
 - Spill kits shall be available on-site.

Removal of exposed rebar on northeast spandrel wall next to fence (0.1m²).

- The works will be undertaken on foot.
- Concrete will be mixed in a watertight container at least 20 m from the watercourse.
- Only one bucket of mixed concrete will be brought to the works site at any time.

- A mobile catch-net will be used to prevent wet concrete falling on the ground or entering the water course.
- The catch-net will be approved by the Employer's Representative and the Employer'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 watercourse will be clean and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Further details on the Qualifying Interests with attributes and targets relating to water quality are provided in table 2.1 below.

Table 2.1 Qualifying Interests with sensitivities to water quality (NPWS, 2011a).

Qualifying Interest	Water Quality Attribute Measure	Target	Impacts from Proposed Works	Residual Impacts following Mitigation
<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>
<p>[1092] White-clawed crayfish (<i>Austropotamobius pallipes</i>)</p>	<p>EPA Q-value</p>	<p>At least Q3-4 at all sites sampled by EPA.</p>	<p>The proposed works could result in impacts that would reduce the Q-value of the river at the location of the structure in the absence of mitigation measures, through the accidental input of pollutants. Therefore, mitigation is required.</p>	<p>The mitigation measures outlined above will significantly reduce the risk of accidental pollution, including input of cementitious materials or hydrocarbons into the river. Any water quality impacts which could arise in the unlikely event of accidental pollution would constitute a temporary slight to imperceptible negative impact, if they were to occur at all.</p>
<p>[1103] Twaité shad (<i>Alosa fallax</i>)</p>	<p>Oxygen levels: Milligrams per litre</p>	<p>No lower than 5 mg/l.</p>	<p>The proposed works will not result in any measurable changes to the oxygen levels of the water within the river at the location of the structure. Therefore, impacts on this Qualifying Interest through this attribute can be ruled out.</p>	<p>No mitigation required.</p>
<p>[1106] Atlantic salmon (<i>Salmo salar</i>)</p>	<p>EPA Q-value</p>	<p>At least Q4 at all sites sampled by EPA.</p>	<p>The proposed works could result in impacts that would reduce the Q-value of the river at the location of the structure, in the absence of mitigation measures, through the accidental input of pollutants. Therefore, mitigation is required.</p>	<p>The mitigation measures outlined above will significantly reduce the risk of accidental pollution, including input of cementitious materials or hydrocarbons into the river. Any water quality impacts which could arise in the unlikely event of accidental pollution</p>

				would constitute a temporary slight to imperceptible negative impact , if they were to occur at all.
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[3260] Water course of plain to montane levels with <i>Ranunculoion fluitantis</i> and <i>callitricho-Batrachion</i> vegetation	Suspended solids: Milligrams per litre	The concentration of suspended solids in the water column should be sufficiently low to prevent excessive deposition of fine sediments.	The proposed works could give rise to enough suspended solids to cause excessive deposition of fine sediments. Therefore, mitigation is required.	Provided the mitigation measures outlined above are implemented, the probability of the proposed works giving rise to water quality impacts in the form of increased suspended solids is very low and would constitute a temporary slight to imperceptible negative impact , if they were to occur at all.
	Nutrients: Milligrams per litre	The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition.	The proposed works will not give rise to any additional input of nutrients to the river in the absence of mitigation. Therefore, impacts on this Qualifying Interest through this attribute can be ruled out.	No mitigation required.
[7720] *Petrifying springs with tufa formation (<i>Cratoneurion</i>)	Water chemistry measures	Maintain oligotrophic and calcareous conditions.	The proposed works could result in impacts on the pH of the river, in the absence of mitigation measures, through the accidental input of pollutants. There is no risk of alterations to the oligotrophic conditions from the works.	The mitigation measures outlined above will significantly reduce the risk of accidental pollution, including input of cementitious materials or hydrocarbons into the river. Any water quality impacts which could arise in the unlikely event of accidental pollution would constitute a temporary slight to imperceptible negative impact , if they were to occur at all.

“The NIS states that the site was surveyed in 2018. Details of this survey should be provided in the NIS along with a review of the validity of the survey given its age (> 3 years old).”

An ecological survey, which included a survey for Otter, was carried out on the 10th January 2018 by ROD Ecologist Patrick O’Shea MCIEEM. Patrick is an ecologist with over 8 years’ experience and holds a BA (Mod) Hons in Botany from Trinity College Dublin and an MSc in Ecological Management & Conservation Biology from Queen’s University Belfast.

The purpose of the Otter survey was to identify signs of Otter at the structure. The Otter survey was based on the *“Guidelines for the treatment of Otters prior to the Construction of National Road Schemes”* (NRA, 2008) and involved a systematic search of the riverbanks for physical evidence of Otter e.g. spraints, prints, slides, trails, couches and holts. The survey methodology was also cognisant of the recommendations in the *“Otter Threat Response Plan 2009-2011”* (NPWS, 2009) which recognises the importance of the riparian buffer (10 m on both banks) for Otter. The survey area extended approximately 30 m downstream of the culvert. There is no upstream channel, as this structure drains a field. The field boundaries within 30 m of the structure were also surveyed. As the stream is normally dry, it is considered unlikely to support otter. The survey provided historical data in relation to Otter at the location of the structure. Notes on the ephemeral nature of the stream, the habitats present in the vicinity of the culvert and the physical structure of the site remain to be valid as they will not have undergone significant changes since the survey was undertaken. Therefore, it can be concluded that the site remains unsuitable for Otter.

The watercourse at the works location is normally dry, and therefore is unsuitable for Freshwater Pearl Mussel. For this reason, the conclusion is still considered valid.

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

“Mitigation is included for otter, which indicates that there is a likelihood of direct impacts on this QI species. Therefore, the Department advises that an otter survey must be carried out. Otters are prone to disturbance, within 150m of natal holts and therefore the survey must be adequate to determine such impacts.”

An Otter Survey was carried out during the site visit on the 10th January 2018.

The area around the structure and an area within 30 m of the structure were surveyed in 2018. The culvert is normally dry and has no flow. The works are entirely within the culvert and will take place over a period of 2-3 weeks. The distance of 150 m quoted relates to the construction of bridges over watercourses, and the potential impacts of road bridge construction are clearly of a different magnitude than the maintenance works proposed in the NIS. In terms of impacts to the wider area, noise and visual disturbance from the works are considered to be less than the ambient noise and disturbance from the national road above.

As the stream is normally dry, it is considered unlikely to support Otter. The results of the survey are considered valid given the ephemeral nature of the stream, the habitats present in the vicinity of the culvert and the nature and duration of the works.

2.2 Assessment of Adverse Effects

“The NIS states that there is potential for adverse effects on freshwater pearl mussel, white-clawed crayfish, lamprey species, Atlantic salmon, otter and kingfisher. The NIS should list all the Qualifying Interest of the sites within the projects zone of influence and specify how adverse effects have been ruled in or out in each case with reference to the sites’ conservation objectives. Should adverse effects be ruled in, details of these effects (i.e. indirect, direct, temporary, permanent) as well as their significance should be provided with reference to the sites conservation objectives.”

A detailed assessment of the potential adverse effects that the proposed works could give rise to on the Qualifying Interests of the European sites within the zone of influence is provided in tables 2.2 and 2.3 below.

Table 2.2 Assessment of Adverse Effects on the Qualifying Interests of the River Barrow and River Nore SAC [002162].

Qualifying Interest	Conservation Objective as per NPWS (2011a)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Desmoulin's whorl snail (<i>Vertigo moulinsiana</i>) [1016]	<i>"To maintain the favourable conservation condition of Desmoulin's whorl snail in the River Barrow and River Nore SAC"</i>	Desmoulin's Whorl Snail and suitable habitat for this species such as calcareous wetlands with reeds and sedges, are not present at the location of the proposed works. Due to the nature and location of the proposed works in relation to this Qualifying Interest, the fact that this species is semi-terrestrial, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
White-clawed crayfish (<i>Austropotamobius pallipes</i>) [1092]	<i>"To maintain the favourable conservation condition of White-clawed crayfish in the River Barrow and River Nore SAC"</i>	White-clawed crayfish have been recorded c. 4.7 km downstream and c. 6.9 km upstream of the bridge (NPWS, 2011a). Considering their mobility, they are considered to be present at the confluence with the River Nore, and in ephemeral pools which are present along the stream after flood events. White-clawed crayfish are sensitive to the water quality impacts caused by the input of wet cementitious material, sediment and other pollutants. White-clawed crayfish are potentially present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.	Yes
Sea lamprey (<i>Petromyzon marinus</i>) [1095]	<i>"To restore the favourable conservation condition of Sea lamprey in the River Barrow and River Nore SAC"</i>	Sea Lamprey, Brook Lamprey, River Lamprey and Atlantic Salmon are all known to migrate up the River Nore in order to spawn. These species are sensitive to the water quality impacts caused by the input of wet cementitious material, sediment, and other pollutants to the river systems they inhabit. These species could also	Yes

Qualifying Interest	Conservation Objective as per NPWS (2011a)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Brook lamprey (<i>Lampetra planeri</i>) [1096]	<i>"To restore the favourable conservation condition of Brook lamprey in the River Barrow and River Nore SAC"</i>	be present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objectives for these Qualifying Interests cannot be ruled out.	
River lamprey (<i>Lampetra fluviatilis</i>) [1099]	<i>"To restore the favourable conservation condition of River lamprey in the River Barrow and River Nore SAC"</i>		
Atlantic salmon (<i>Salmo salar</i>) [1106]	<i>"To restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC"</i>		
Twaite shad (<i>Alosa fallax</i>) [1103]	<i>"To restore the favourable conservation condition of Twaite shad in the River Barrow and River Nore SAC"</i>	The natural range of Twaite Shad only extends to the tidal limit within the river. Therefore, they can only be located 51.4 km downstream of the proposed works at a minimum (NPWS 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
Estuaries [1130]	<i>"To maintain the favourable conservation condition of Estuaries in the River Barrow and River Nore SAC"</i>	Estuaries occur at least 51.4 km downstream of the proposed works (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
Mudflats and sandflats not covered by seawater at low tide [1140]	<i>"To maintain the favourable conservation condition of the Mudflats and sandflats not covered by seawater at low tide in the River Barrow and River Nore SAC"</i>	Intertidal mudflats occur at least 68.3 km downstream of the proposed works (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No

Qualifying Interest	Conservation Objective as per NPWS (2011a)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Reefs [1170]	NPWS (2011a) does not contain a site-specific Conservation Objective for Reefs. Therefore, as per advice from the NPWS, the Conservation Objective for Reefs in another European site, in this case the Hook Head SAC [000764], was used: <i>"To maintain the favourable conservation condition of Reefs"</i> (NPWS, 2011b).	Reefs are located downstream of the proposed works in the saltwater and transitional waters of the River Barrow and River Nore SAC. Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
Salicornia and other annuals colonizing mud and sand [1310]	<i>"To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in the River Barrow and River Nore SAC"</i>	Salicornia and other annuals colonising mud and sand occur at least 80.6 km downstream of the proposed works (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]	<i>"To restore the favourable conservation condition of Atlantic salt meadows in the River Barrow and River Nore SAC"</i>	Atlantic salt meadows occur at least 77 km downstream of the proposed works (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
Otter (<i>Lutra lutra</i>) [1355]	<i>"To restore the favourable conservation condition of Otter in the River Barrow and River Nore SAC"</i>	Otters are likely to be present in the vicinity of the proposed works. The fish species that Otters rely on as a food source are sensitive to the water quality impacts caused by the input of cementitious material, sediment and other pollutants to the river systems they inhabit. These fish species will also potentially be present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.	Yes
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	<i>"To restore the favourable conservation condition of Mediterranean salt meadows in the River Barrow and River Nore SAC"</i>	Mediterranean salt meadows occur at least 85.6 km downstream of the proposed works (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No

Qualifying Interest	Conservation Objective as per NPWS (2011a)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Killarney fern (<i>Trichomanes speciosum</i>) [1421]	<i>"To maintain the favourable conservation condition of Killarney Fern in the River Barrow and River Nore SAC"</i>	Suitable habitat for Killarney Fern is not found in the vicinity of the proposed works. The closest record of Killarney Fern to the structure is 54.1 km downstream. Thus, there are no pathways for impacts from the proposed works to Killarney Fern. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]	<i>"To maintain the favourable conservation condition of Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation in the River Barrow and River Nore SAC"</i>	This habitat is not present at the location of the bridge as there is no aquatic macrophyte growth along the riverbed. Nevertheless, it is expected that this habitat type is located just downstream of the structure, in the main channel of the River Nore. Aquatic vegetation is sensitive to the sedimentation of the water column as the sediment can settle on aquatic vegetation and inhibit their ability to photosynthesise. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.	Yes
European dry heaths [4030]	<i>"To maintain the favourable conservation condition of European dry heaths in the River Barrow and River Nore SAC"</i>	European dry heaths are not present within the zone of influence. The closest example of this habitat type within the SAC is at the foothills of the Blackstairs Mountains along the River Barrow Valley (NPWS, 2011a). In addition to this, this habitat is not sensitive to the water quality impacts that are likely to arise from the proposed works. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No

Qualifying Interest	Conservation Objective as per NPWS (2011a)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
<p>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]</p>	<p><i>“To maintain the favourable conservation condition of Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels in the River Barrow and River Nore SAC”</i></p>	<p>No examples of hydrophilous tall herb fringe communities occur within the footprint of the proposed works. This habitat type occurs in association with some riverside woodlands, unmanaged river islands and in narrow bands along the floodplain of slow flowing stretches of the river. Therefore, it is likely to be present along the River Nore and connected watercourses. The extent of this habitat throughout the SAC has not yet been mapped (NPWS, 2011a), therefore according to the precautionary principle it is assumed to be within the receiving environment downstream of the proposed works. Owing to the nature of the proposed works and the sensitivity of this habitat type to water quality impacts caused by the input of wet cementitious materials, sediment and other pollutants, there is potential for indirect effects. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.</p>	<p>Yes</p>
<p>*Petrifying springs with tufa formation (Cratoneurion) [7220]</p>	<p><i>“To maintain the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion) in the River Barrow and River Nore SAC”</i></p>	<p>Petrifying springs are not present within the footprint of the proposed works. Nevertheless, there are records of this habitat 42.2 km downstream of the structure. The proposed works could result in impacts on the pH of the river, in the absence of mitigation measures, through the accidental input of pollutants. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.</p>	<p>Yes</p>
<p>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]</p>	<p><i>“To restore the favourable conservation condition of Old oak woodland with <i>Ilex</i> and <i>Blechnum</i> in the River Barrow and River Nore SAC”</i></p>	<p>The nearest record of Old sessile oak woods is located 42.4 km downstream of the proposed works (NPWS, 2011a). However, this habitat is not sensitive to the types of water quality impacts that are likely to arise from the proposed works. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.</p>	<p>No</p>

Qualifying Interest	Conservation Objective as per NPWS (2011a)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]	<i>"To restore the favourable conservation condition of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) in the River Barrow and River Nore SAC"</i>	The nearest record of Alluvial forests is located approximately 22.5 km downstream of the proposed works (NPWS, 2011a). There are pathways for impacts between the works and this Qualifying Interest, where flood waters could transport pollutants to this Qualifying Interest, however, given the scale and duration of the proposed works, this would not constitute an adverse effect. Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No

Table 2.3 Assessment of Adverse Effects on the Qualifying Interests of the River Nore SPA [004233].

Qualifying Interest	Conservation Objective as per NPWS (2021)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Kingfisher (<i>Alcedo atthis</i>) [A229]	The Conservation Objective for this SPA is generic is as follows: <i>"To maintain or restore the favourable conservation condition of the bird species listed as Species Conservation Interests for this SPA"</i>	Kingfisher are likely to be present in the vicinity of the proposed works. The fish species that Kingfishers rely on as a food source are sensitive to the water quality impacts caused by the input of cementitious material, sediment and other pollutants to the river systems they inhabit. These fish species will also potentially be present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.	Yes

*“The NIS states that the remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit (>50 km downstream at Inistioge) or are terrestrial habitats which are not hydrologically connected to or present at the location of the works. However, the Department considers that the QI habitat ‘[3260] Water courses of plain to montane levels with the Ranuncion fluitantis and Callitricho-Batrachion vegetation’ may lie within the project’s zone of influence and this should be clarified. All other QIs including ‘91E0 * Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)’ and ‘6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels’ must be considered further.”*

A detailed assessment of adverse effects that may arise from the proposed works on each of the Qualifying Interests of the European sites located within the zone of influence is provided in Tables 2.2 and 2.3 above.

“The Department considers that, in the absence of adequate surveying in this area, disturbance to otter holts cannot be discounted and advises that this should be considered further as the proposed project will take place within the main otter breeding season (May to August). Consideration of disturbance to breeding otter should be considered in the wider area as well as within the project footprint. TII guidelines state that no works should be undertaken within 150m of any holts at which breeding females or cubs are present.”

The area around the structure and an area within 30 m of the structure were surveyed on the 10th January 2018. The culvert is normally dry and has no flow, only carrying water when levels are higher than normal. The works are entirely within the culvert and will take place over a period of 2-3 weeks. The distance of 150 m quoted relates to the construction of bridges over watercourses. The potential impacts of road bridge construction are clearly of a different magnitude than the maintenance works proposed in the NIS. In terms of impacts to the wider area, noise and visual disturbance from the works are considered to be less than the ambient noise and disturbance from the national road above.

As the stream is normally dry, it is considered unlikely to support otter. The results of the survey are considered valid given the ephemeral nature of the stream, the habitats present in the vicinity of the culvert and the nature and duration of the works.

2.3 Mitigation

2.3.1 Water Quality

“The majority of mitigation outlined in the NIS relates to the protection of water quality. The Department considers that physiochemical trigger values for cessation of operations must be included. These should be based on the requirements of water dependent Qualifying Interests as outlined in conservation objective attributes and targets and should consider baseline water quality within the project’s zone of influence. The degree of monitoring should be commensurate with the level of risk to water quality involved. It should be explicitly stated that no herbicide will be used on this project, including to treat tree stumps.”

The river downstream of the proposed works will be monitored for any physiochemical changes that occur during construction works, when water is present. When the stream is dry, as is expected for the duration of the works, no monitoring will take place. Operations will cease if the physiochemical parameters pass the following limits:

Table 2.4 Parameter limits for water monitoring.

Parameter	Acceptable Range
Suspended Solids	<25 mg/l
Dissolved Oxygen	>5 mg/l
pH	>7

These figures are based on the requirements for Qualifying Interests where detailed and following national standards which are based on the freshwater (salmonid) quality regulations within the EU Directive 2006/44/EEC, where specifications are not provided.

The stream is normally dry, however if flow is present and the flume is in use, monitoring of water quality shall be undertaken by the contractor within the stream before it enters the River Nore. Samples will be taken every second day during the week leading up to the commencement of the works, every day during the proposed works, and every second day following the completion of the works for a period of one week. Samples shall be taken from at least one location at an appropriate distance downstream of the structure. The location of the monitoring stations can be decided by the Employer's Representative and the Employer's Ecologist.

The results of the water quality monitoring programme will be reviewed by the Employer's Representative and Employer's Ecologist on an ongoing basis during the works. In the event of any non-compliance with regulatory limits for any of the water quality parameters monitored, an investigation shall be undertaken to identify the source of this non-compliance and corrective action will be taken where this is deemed to be associated with the proposed development.

Vegetation removal will be carried out mechanically, wherever possible. If herbicides are used, the Contractor will adhere to legislation, regulations, and best practice guidelines for the use of herbicide near water and in European sites.

“Details of the corrosion inhibitor and primer to be applied to the steel. It is not sufficient to state that the selected product will be approved for use by the Employer's Representative and the Contractor's Ecologist. An assessment of the likely impacts resulting from the use of the specified product must be included in the NIS.”

As detailed in the NIS, the corrosion inhibitor and primer products will be approved for use in water and certified as non-toxic to aquatic ecosystems when dry. Products containing polyurethane based coatings are considered the safest for use in aquatic environments, whereas products containing 4-tert-butylphenol (4tBP) will not be used. The selected product will be approved for use by the Employer's Representative and the Employer's Ecologist.

The primer and corrosion inhibitor will be applied to culvert which will be cleaned down to bare steel and dry. Once applied, it will be allowed to dry before the concrete invert is poured.

“The silt trap into which water will be pumped, its capacity and proven effectiveness. The predicted volume of water to be pumped based on stream flow data should also be provided along with monitoring requirements to ensure effective functioning.”

It is likely that the works will be carried out while the stream has no flow. To mitigate for the risk of rainfall leading to water passing through the works area, two dams will be constructed in advance of the works; one on the upstream side of the structure and the other on the downstream side. A 300-500 mm plastic pipe will carry the stream from the upstream side of the structure across the works area at an elevation of approximately 100 mm, using gravity, before depositing it downstream of the dam below the structure. As this water will have no interaction with the work area, there is no opportunity for this water to collect any sediment, therefore a silt trap is not required. A large rock/pile of rocks will be placed under the outlet of the flume in order to dissipate the energy of the flow to avoid scouring of the stream bed and the mobilisation of sediment. Once the dams are constructed and the flume is in place, the work area will be dewatered using a pump. This water will be pumped onto land, at least 25 m from the river's edge, and the water shall pass through a silt sock at the end of the flume during this process. The combination of the silt sock and the vegetation will prevent silt entering the watercourse downstream. Any water that collects in the works area while the works are taking place will be pumped into mobile bowser and disposed of off-site.

The estimated rate of flow at this structure is 0.02 m³/s, although in dry conditions there is no flow, therefore this will be the expected volume of water to be pumped through the work area. The flume will be a 300-500 mm plastic pipe, which is big enough to accommodate normal flow volumes.

If the flume is carrying water, the water downstream of the structure will be monitored for concentrations of suspended solids daily while the works are being carried out to ensure that the dams and flume are working effectively. Parameters for water quality monitoring are set out in table 2.4 above. This will only need to be carried out in the event of unexpected rainfall as the proposed works will only commence when there is a dry forecast for the expected duration of the works.

“Any details to be included in the proposed Method Statement which will be relied on as mitigation and are not already included in the NIS.”

There are no further details to be included in the proposed method statement which will be relied upon as mitigation that are not already included in the NIS.

“The Department considers that physiochemical monitoring is required downstream of the works and should be included in the NIS. Specific monitoring points should be specified. The degree of monitoring should be commensurate with the level of risk to water quality involved.”

Physiochemical monitoring will be undertaken if there is flow in the stream. The physiochemical monitoring parameters are specified in table 2.4 above. The monitoring stations can be located anywhere between the location of the proposed works and the confluence of the stream with the River Nore.

“Details of the mobile catch nets which will be used to prevent mortar and/or wet concrete entering the river channel must be provided.”

Visqueen heavy duty plastic sheeting or similar will be used as the plastic sheeting to prevent any mortar or wet concrete entering the stream (see Appendix A for product data sheet). There will be enough plastic sheeting to cover the entire area underneath the works, which will be carried out while the riverbed is dry only.

“Details of the flume which will be constructed to carry the stream through the structure including the screen at the inlet to prevent fish and debris entering it.”

The pipe used to flume flows through the work area will be a 300-500 mm diameter pipe depending on the flow volumes, laid 100 mm above the riverbed with graded natural rock bunds formed at inlet and outlet. The pipe will be fitted with a filter at the inlet, with gaps no bigger than 1 mm diameter, to ensure fish do not enter the flume.

“Given the sensitivity of this location within an SAC, detailed emergency procedures to be followed in the case of any accidental spillages should be included in the NIS.”

Emergency spill kits will be available on site and staff will be trained in their use. A reporting system will be established on site to record accidents and/or spillages on site and the resultant action to remedy the incident. As the stream is ephemeral, an accident or pollution event is highly unlikely.

2.4 Residual Impacts and Conclusion/Recommendation

The Department recommends that the conclusion of the NIS should take into account the three projects documented in the NIS and should be towards the end of the document to account for in-combination effects of the three bridge repair projects, if any.”

While the proposed works have potential to cause adverse effects, any residual impacts from the proposed works at Ballyragget Pipe Bridge following the implementation of the mitigation measures will be imperceptible. In addition to this, the three structures referred to in this NIS are located on different river systems with no connectivity between them. Therefore, the proposed works cannot lead to an in-combination adverse effect.

2.5 Other Ecological Impacts

“In addition to Appropriate Assessment, in the interests of biodiversity protection, the Department recommends that the following surveys should take place prior to the commencement of this project; nesting bird survey”

The bat suitability assessment was carried out at the structure and the surrounding vegetation that will be affected by the proposed works on 10th January 2018. The bat suitability assessment was conducted adhering to best practice guidance (TII/NRA, 2006; Collins (ed.), 2016) and involved a visual assessment and categorisation of the bridge structure and trees capable of supporting roosting bats. The assessment was carried out using the recognised criteria outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins (ed.), 2016). The vegetation and trees surrounding the structure did not support any suitable roosting opportunities and there are no crevices or gaps in the steel culvert.

To comply with Inland Fisheries Guidelines on the timing of in-stream works, the works will take place before the end of September. The works require the removal of vegetation during the period of the 1st of March to the 31st August, which under normal circumstances would constitute an offence under Section 40 of the Wildlife Act 1976 (as amended). Section 40 contains a number of exemptions, including Section 40 (2) (e) *the clearance of vegetation in the development or preparation of sites on which any building or other structure is intended to be provided.* Wild birds and their nests are

protection under Section 19 of the Wildlife Act 1976 (as amended). To comply with Section 19, the EcoW will check all vegetation to be removed for nesting birds prior to clearance. If any nesting birds are found, the vegetation will be left until the breeding effort is complete and all birds have left the nest.

3. TAGOAT BRIDGE [WX-N25-002.00]

3.1 European Sites

“Given that there are a number of other Natura 2000 sites with hydrological connectivity to the proposed project, the Department recommends that the NIS includes a summary of the AA screening report, documenting how these other sites were excluded.”

Table 3.1 AA Screening for Reactive Maintenance works at Tagoat Bridge.

Site Name and Number	Dist. from site (km)	Proposed Works	Is there potential for Significant effects?	Likely Significant Effects?
Slaney River Valley SAC	5.9 km (7km hydrological distance)	Seal pavement cracks (2m). Sweep and clean surface (28m ²). Clean drain gully (1 no.). Install rubbing strip (6m ²). Repoint masonry at inlet (river) face (5m ²). Remove vegetation within 1 m (50m ²). Install concrete base (40m ²).	The works have potential to give rise to water quality impacts through the accidental introduction of wet concrete, hydrocarbons, and chemicals. This pollution will be carried along the hydrological connection between the structure and the SAC in high enough concentrations to create impacts on the Qualifying Interests of this European site. Therefore, likely significant effects cannot be ruled out at this stage	Yes
Wexford Harbour and Slobs SPA	3 km (3.9km hydrological distance)		The works have potential to give rise to water quality impacts through the accidental introduction of wet concrete, hydrocarbons, and chemicals. This pollution will be carried along the hydrological connection between the structure and the SPA in high enough concentrations to create impacts on the Qualifying Interests of this European site. Therefore, significant effects cannot be ruled out at this stage	Yes
Raven Point Nature Reserve SAC	10.8 km (12.6km hydrological distance)		The works have potential to give rise to water quality impacts through the accidental introduction of wet concrete, hydrocarbons, and chemicals. Given the small quantities of material being used and the assimilative capacity of the stream and Wexford Harbour, any pollutants that could accidentally enter the watercourse would dissipate to imperceptible levels before reaching this European Site. Therefore, likely significant effects can be ruled out.	No
Raven Point SPA	7.5 km (9.4km hydrological distance)		The works have potential to give rise to water quality impacts through the accidental introduction of wet concrete, hydrocarbons, and chemicals. Given the small quantities of material being used and the assimilative capacity of the stream and Wexford Harbour, any pollutants that could accidentally enter the watercourse would dissipate to imperceptible levels below the threshold of what could be considered direct or indirect likely significant effects.	No

3.2 Baseline Data

“Given that the main adverse effects from the proposed project are related to water quality, the Department considers that baseline water quality data should be presented and reference should be made to water quality requirements of Qualifying Interest (QI) species and habitats within the projects zone of influence.”

The WDF ecological status and Q-value of the river at the location of the structure has not been assigned (EPA, 2021). The river channel at this location highly modified and almost entirely artificial. Additionally, the water may have received some pollution in the form of run-off from the surrounding artificial surfaces.

The following mitigation measures have been proposed and were contained in the NIS which was submitted to the Department, to avoid water quality impacts arising from the proposed works:

Installation of concrete base (40m²):

- The Contractor will be required to appoint an **Ecological Clerk of Works (ECoW)**; the following outline scope of works will allow the Contractor to provide a scope of works to TII for these professional services. Furthermore, ROD will provide an appropriately qualified ecologist (“**the Employer’s Ecologist**”) in order to provide oversight of the works and the ECoW role to TII. However, it should be noted that responsibility for delivery of environmental measures ultimately lies with the appointed Contractor. The ECoW will be required to fulfil the following tasks:
 - Review of engineering & ecological documentation / ongoing liaison with Contractor / ROD / TII.
 - Preconstruction ecology visit.
 - The scope of the visit will be informed by the characteristics of the site (as set out in the NIS and subsequent correspondence) and will at a minimum include a check for Otter, nesting birds and invasive plant species.
 - The preconstruction survey must occur prior to the Contractor mobilising on site, but also as close to the mobilisation date as is practical. The ECoW will prepare a technical memo on the findings which will be provided to the Contractor; it will also be provided to the Employer’s Ecologist and TII.
 - Presentation of Toolbox Talk to site staff prior to commencement of works on site.
 - The ECoW will be required to attend site during mobilisation, notably during the establishment of surface water control measures in order to ensure they are working effectively and to communicate its status to the Employer’s Ecologist and TII.
 - The ECoW will also be required to attend site during de-mobilisation, removal of surface water control measures and reinstatement of natural flow patterns.
 - Once available the Contractor will provide an outline programme of works to the ECoW. This will allow the ECoW to determine, when, if any, additional site visits may be needed.

- In addition to preparing a scope of works for predictable tasks, the ECoW will be required to be available for any on-site emergencies. This will be used to cover situations such as:
 - iii) If the programme of works is significantly altered by delays or adverse weather conditions; or
 - iv) If the site needs to be demolished due to a predicted bad weather event.
- The Employer's Ecologist will provide oversight to the above on behalf of TII. This will also include for site visits to ensure all proposed mitigation measures are in place and operating effectively.
- The installation of the concrete base will take place in dry weather and when no heavy rain is forecast in the next seven days. The commencement of the works will be approved by the Employer's Representative.
- The installation of the concrete base will take place in dry weather and when no heavy rain is forecast in the next seven days. The commencement of the works will be approved by the Employer's Representative.
- The installation of the concrete base will take place in dry weather and when no heavy rain is forecast in the next seven days. The commencement of the works will be approved by the Employer's Representative.
- The installation of the concrete base will take place in dry weather and when no heavy rain is forecast in the next seven days. The commencement of the works will be approved by the Employer's Representative.
- The pump will be supervised at all times to ensure it is operating correctly.
- The dams will be checked prior to cleaning of the structure base to ensure there are no leaks.
- Following dewatering, any silt, gravel or other debris in the culvert will be removed either by hand using buckets or by suction to a vehicle on the bridge deck, where it will be disposed of off-site. If power hosing is used to loosen debris from the culvert, the water shall be clean, fresh and potable and obtained from a Public Utility Undertaking approved by the Employer's Representative.
- Any material scoured from the base prior to concrete pouring, including the contents of the silt trap, will be collected, and disposed of off-site.
- A corrosion inhibitor and primer will be applied to the steel. These products will be approved for use in water and certified as non-toxic to aquatic ecosystems. Products containing polyurethane based coatings are considered the safest for use in aquatic environments, whereas products containing 4-tert-butylphenol (4tBP) will not be used. The selected product will be approved for use by the Employer's Representative and the Employer's Ecologist.
- While the concrete is setting, the dams will be checked daily to ensure they are working correctly.
- The concrete base will be checked by the Employer's Representative prior to removal of the dam to ensure the base is dry.
- All equipment, including PPE, which comes into contact with the watercourse will be cleaned prior to use and will be disinfected prior to leaving each site using Virkon Aquatic or similar. Equipment will be disinfected at least 20 m from the watercourse.
- A method statement will be produced by the Contractor and approved by the Employer's Representative and the Employer's Ecologist. It will also be submitted

to IFI for approval. The method statement will contain the following measures to protect water quality:

- Cementitious material will not be allowed to enter the watercourse.
- Plant are not permitted to enter the watercourse.
- Stockpiling of materials and/or storage of fuels shall not be permitted at the site.
- Refuelling shall not be permitted within 50 m of the watercourse.
- Spill kits shall be available on-site.

Removal of exposed rebar on northeast spandrel wall next to fence (0.1m²):

- The works will be undertaken on foot.
- Concrete will be mixed in a watertight container at least 20 m from the watercourse.
- Only one bucket of mixed concrete will be brought to the works site at any time.
- A mobile catch-net will be used to prevent wet concrete falling on the ground or entering the watercourse.
- The catch-net will be approved by the Employer's Representative and the Employer's Ecologist.
- Wet concrete will only be used where no rain is forecast for at least 12 hours.

Further detail on the Qualifying Interests with attributes relating to water quality provided in table 3.2 below.

Table 3.2 Qualifying Interests with sensitivities to water quality (NPWS, 2011c).

Qualifying Interest	Water Quality Attribute Measure	Target	Impacts from Proposed Works	Residual Impacts following Mitigation
[1103] Twaite shad (<i>Alosa fallax</i>)	Oxygen levels: Milligrams per litre	No lower than 5mg/l.	The proposed works will not result in any measurable changes to the oxygen levels of the water within the river at the location of the structure. Therefore, impacts on this Qualifying Interest through this attribute can be ruled out.	No mitigation required.
[1106] Atlantic salmon (<i>Salmo salar</i>)	EPA Q-value	At least Q4 at all sites sampled by EPA.	The proposed works could result in impacts that would reduce the Q-value of the river at the location of the structure, in the absence of mitigation measures, through the accidental input of pollutants. Therefore, mitigation is required.	The mitigation measures outlined above will significantly reduce the risk of accidental pollution, including input of cementitious materials or hydrocarbons into the river. Any water quality impacts which could arise in the unlikely event of accidental pollution would constitute a temporary slight to imperceptible negative impact if they were to occur at all.
[3260] Water course of plain to montane levels with <i>Ranunculioon fluitantis</i> and <i>callitricho-Batrachion</i> vegetation	Nutrients: Milligrams per litre	The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition.	The proposed works will not give rise to any additional input of nutrients to the river in the absence of mitigation. Therefore, impacts on this Qualifying Interest through this attribute can be ruled out.	No mitigation required.

“Field survey details should be included and if the assessment was desk based only, this must be specified.”

An ecological survey, which included a survey for Otter, was carried out on the 12th December 2017 by ROD Ecologist Patrick O’Shea MCIEEM. Patrick is an ecologist with over 8 years’ experience and holds a BA (Mod) Hons in Botany from Trinity College Dublin and an MSc in Ecological Management & Conservation Biology from Queen’s University Belfast.

The purpose of the Otter survey was to identify signs of Otter at the structure. The Otter survey was based on the “*Guidelines for the treatment of Otters prior to the Construction of National Road Schemes*” (NRA, 2008) and involved a systematic search of the riverbanks for physical evidence of Otter e.g. spraints, prints, slides, trails, couches and holts. The survey methodology was also cognisant of the recommendations in the “*Otter Threat Response Plan 2009-2011*” (NPWS, 2009) which recognises the importance of the riparian buffer (10 m on both banks) for Otter. The survey was limited to within a 30 m stretch on the downstream side of the structure and there was no access to the upstream side of the structure.

The results of the survey are considered valid given the artificial nature of the habitats present in the vicinity of the culvert, and the nature and duration of the works.

“Mitigation is included for otter, which indicates that there is a likelihood of direct impacts on this species, the Department advises that an otter survey must be carried out. Otters are prone to disturbance, within 150m of natal holts and therefore the survey must be adequate to determine such impacts.”

An Otter Survey was carried out during the site visit on the 12th of December 2017.

The area around the structure and an area within 30 m downstream of the structure were surveyed in 2017. The watercourse has been channelised and has artificial banks upstream of the structure and is open downstream of the structure where it forms the boundary of a pub car park. The works are entirely within the culvert and will take place over a period of 2-3 weeks. The distance of 150 m quoted relates to the construction of bridges over watercourses, and the potential impacts of road bridge construction are clearly of a different magnitude than the maintenance works proposed in the NIS. In terms of impacts to the wider area, noise and visual disturbance from the works are considered to be less than the ambient noise and disturbance from the national road above.

“it is unclear whether the current structure is providing a barrier to otter movement, particularly in times of high flow. Cylindrical culverts fill rapidly after rainfall, leading to high water speeds. Otters are disinclined to use water-filled culverts without dry pathways. It is not stated whether any provision for otter has been made in the existing culvert structure.”

There is no provision for otter passage as part of the works. The works will lead to no change in the barrier effect (if any), formed by the existing culvert.

3.3 Assessment of Adverse Effects

“The NIS should focus on assessing the implications for the site of the project, individually or in combination with other plans or projects, in view of the site’s conservation objectives. The NIS states that there is potential for adverse effects on the Qualifying Interests of the European Sites that occur downstream of the works. The NIS should list all the Qualifying Interest of the sites within the projects zone of influence and specify how adverse effects have been ruled in or out in each case with reference to the sites’ conservation objectives. Should adverse effects be ruled in, details of these effects (i.e. indirect, direct, temporary, permanent) as well as their significance should be provided with reference to the sites conservation objectives.”

A detailed assessment of the potential adverse effects that the proposed works could give rise to on the Qualifying Interests of the European sites within the zone of influence is provided in tables 3.3 and 3.4 below

Table 3.3 Assessment of Adverse Effects on the Qualifying Interests of the Slaney River Valley SAC [000781].

Qualifying Interest	Conservation Objective as per NPWS (2011c)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
<p>[REDACTED]</p>	<p>[REDACTED]</p>	<p>[REDACTED]</p>	<p>[REDACTED]</p>
<p>Sea lamprey (<i>Petromyzon marinus</i>) [1095]</p>	<p><i>“To restore the favourable conservation condition of Sea lamprey in the Slaney River Valley SAC”</i></p>	<p>Sea Lamprey, Brook Lamprey, River Lamprey, Twaite Shad and Atlantic Salmon are all present within the estuary downstream of the structure and could also potentially migrate up the Whitehouse River to reproduce. These species are sensitive to the water quality impacts caused by the input of wet cementitious material, sediment and other pollutants to the river systems they inhabit. These species could also be present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objectives for these Qualifying Interests cannot be ruled out.</p>	<p>Yes</p>
<p>Brook lamprey (<i>Lampetra planeri</i>) [1096]</p>	<p><i>“To restore the favourable conservation condition of Brook lamprey in the Slaney River Valley SAC”</i></p>		
<p>River lamprey (<i>Lampetra fluviatilis</i>) [1099]</p>	<p><i>“To restore the favourable conservation condition of River lamprey in the Slaney River Valley SAC”</i></p>		
<p>Twaite shad (<i>Alosa fallax</i>) [1103]</p>	<p><i>“To restore the favourable conservation condition of Twaite shad in the Slaney River Valley SAC”</i></p>		
<p>Atlantic salmon (<i>Salmo salar</i>) [1106]</p>	<p><i>“To restore the favourable conservation condition of Salmon in the Slaney River Valley SAC”</i></p>		

Qualifying Interest	Conservation Objective as per NPWS (2011c)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Estuaries [1130]	<i>“To maintain the favourable conservation condition of Estuaries in the Slaney River Valley SAC”</i>	Estuaries occur approximately 6.3 km downstream of the proposed works at a minimum (NPWS, 2011c). The distribution of communities within this habitat could potentially be altered as they can be sensitive to the water quality impacts caused by the input of wet cementitious material, sediment and other pollutants to the aquatic and marine habitats that they inhabit. Therefore, adverse effects on the Conservation Objectives for these Qualifying Interests cannot be ruled out.	Yes
Mudflats and sandflats not covered by seawater at low tide [1140]	<i>“To maintain the favourable conservation condition of the Mudflats and sandflats not covered by seawater at low tide in Slaney River Valley SAC”</i>	Intertidal mudflats occur approximately 7 km downstream of the proposed works (NPWS, 2011c). The distribution of communities within this habitat could potentially be altered as they can be sensitive to the water quality impacts caused by the input of wet cementitious material, sediment and other pollutants to the aquatic and marine habitats that they inhabit. Therefore, adverse effects on the Conservation Objectives for these Qualifying Interests cannot be ruled out.	Yes
Otter (<i>Lutra lutra</i>) [1355]	<i>“To restore the favourable conservation condition of Otter in the Slaney River Valley SAC”</i>	Otters are likely to be present in the vicinity of the proposed works. The fish species that Otters rely on as a food source are sensitive to the water quality impacts caused by the input of cementitious material, sediment and other pollutants to the river systems they inhabit. These fish species will also potentially be present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.	Yes
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]	<i>“To maintain the favourable conservation condition of Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation in the Slaney River Valley SAC”</i>	This habitat is not present at the location of the bridge as there is no aquatic macrophyte growth along the riverbed. Nevertheless, it is expected that this habitat type is located downstream of the structure, in the main channel of the Whitehouse River. Aquatic vegetation is sensitive to the sedimentation of the water column as the sediment can settle on aquatic vegetation and inhibit their ability to photosynthesise. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.	Yes
Harbour Seal (<i>Phoca vitulina</i>) [1365]	<i>“To maintain the favourable conservation condition of Harbour Seal in the Slaney River Valley SAC”</i>	Harbour Seal are typically located within the estuary which begins 7 km downstream of the proposed works. Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the Whitehouse River and estuary, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No

Qualifying Interest	Conservation Objective as per NPWS (2011c)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]	<i>"To restore the favourable conservation condition of Old oak woodland with Ilex and Blechnum in the Slaney River Valley SAC"</i>	Old sessile oak woods are not located along the Whitehouse River or any of its tributaries (NPWS, 2011c). There are no pathways from the proposed works to this Qualifying Interest. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]	<i>"To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in the Slaney River Valley SAC"</i>	Alluvial forests are not located along the Whitehouse River or any of its tributaries (NPWS, 2011c). There are no pathways from the proposed works to this Qualifying Interest. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No

Table 3.4 Assessment of Adverse Effects on the Qualifying Interests of the Wexford Harbour and Slobs SPA [000781].

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Little Grebe (<i>Tachybaptus ruficollis</i>) [A004]	<i>"To maintain the favourable conservation condition of Little Grebe in Wexford Harbour and Slobs SPA"</i>	The Attributes and Targets of the Conservation Objectives for these Qualifying Interests focus on "Population trend" and "Distribution". The potential effects arising from the proposed works on these Attributes are indirect impacts from spillages of contaminants, altering suitable habitats and prey availability for these species. The proposed works are hydrologically connected to the Wexford Harbour and Slobs SPA, which is located c. 4 km downstream. This provides a pathway for contaminants such as concrete and sediments that may be spilled during construction to be transported to the site. However, the quantities of concrete and sediment that will be used and produced during construction will be small and the level of impact these spillages may have on water quality within the	No
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	<i>"To maintain the favourable conservation condition of Great Crested Grebe in Wexford Harbour and Slobs SPA"</i>		No
Cormarant (<i>Phalacrocorax carbo</i>) [A017]	<i>"To maintain the favourable conservation condition of Cormarant in Wexford Harbour and Slobs SPA"</i>		No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Grey Heron (<i>Ardea cinerea</i>) [A028]	<i>"To maintain the favourable conservation condition of Grey Heron in Wexford Harbour and Slobs SPA"</i>	site will be negligible considering the volume of water and the dilution capacity of the Whitehouse River.	No
Bewick's Swan (<i>Cygnus columbianus</i>) [A037]	<i>"To maintain the favourable conservation condition of Bewick's Swan in Wexford Harbour and Slobs SPA"</i>	Considering the temporary nature and location of the proposed works in relation to the habitats of the Qualifying Interest, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on these Qualifying Interests.	No
Whooper Swan (<i>Cygnus cygnus</i>) [A038]	<i>"To maintain the favourable conservation condition of Whooper Swan in Wexford Harbour and Slobs SPA"</i>		No
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	<i>"To maintain the favourable conservation condition of Light-bellied Brent Goose in Wexford Harbour and Slobs SPA"</i>		No
Shelduck (<i>Tadorna tadorna</i>) [A048]	<i>"To maintain the favourable conservation condition of Shelduck in Wexford Harbour and Slobs SPA"</i>		No
Wigeon (<i>Anas Penelope</i>) [A050]	<i>"To maintain the favourable conservation condition of Wigeon in Wexford Harbour and Slobs SPA"</i>		No
Teal (<i>Anas crecca</i>) [A052]	<i>"To maintain the favourable conservation condition of Teal in Wexford Harbour and Slobs SPA"</i>		No
Mallard (<i>Anas platyrhynchos</i>) [A053]	<i>"To maintain the favourable conservation condition of Mallard in Wexford Harbour and Slobs SPA"</i>		No
Pintail (<i>Anas acuta</i>) [A054]	<i>"To maintain the favourable conservation condition of Pintail in Wexford Harbour and Slobs SPA"</i>		No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Scaup (<i>Aythya marila</i>) [A062]	<i>"To maintain the favourable conservation condition of Scaup in Wexford Harbour and Slobs SPA"</i>	As above.	No
Goldeneye (<i>Bucephala clangula</i>) [A067]	<i>"To maintain the favourable conservation condition of Goldeneye in Wexford Harbour and Slobs SPA"</i>		No
Red-breasted Merganser (<i>Mergus serrator</i>) [A069]	<i>"To maintain the favourable conservation condition of Red-breasted Merganser in Wexford Harbour and Slobs SPA"</i>		No
Coot (<i>Fulica atra</i>) [A125]	<i>"To maintain the favourable conservation condition of Coot in Wexford Harbour and Slobs SPA"</i>		No
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	<i>"To maintain the favourable conservation condition of Oystercatcher in Wexford Harbour and Slobs SPA"</i>		No
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	<i>"To maintain the favourable conservation condition of Golden Plover in Wexford Harbour and Slobs SPA"</i>		No
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	<i>"To maintain the favourable conservation condition of Grey Plover in Wexford Harbour and Slobs SPA"</i>		No
Lapwing (<i>Vanellus vanellus</i>) [A142]	<i>"To maintain the favourable conservation condition of Lapwing in Wexford Harbour and Slobs SPA"</i>		No
Knot (<i>Calidris canutus</i>) [A143]	<i>"To maintain the favourable conservation condition of Knot in Wexford Harbour and Slobs SPA"</i>		No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Sanderling (<i>Calidris alba</i>) [A144]	<i>"To maintain the favourable conservation condition of Sanderling in Wexford Harbour and Slobbs SPA"</i>	As above.	No
Dunlin (<i>Calidris alpina</i>) [A149]	<i>"To maintain the favourable conservation condition of Dunlin in Wexford Harbour and Slobbs SPA"</i>		No
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	<i>"To maintain the favourable conservation condition of Black-tailed Godwit in Wexford Harbour and Slobbs SPA"</i>		No
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	<i>"To maintain the favourable conservation condition of Bar-tailed Godwit in Wexford Harbour and Slobbs SPA"</i>		No
Curlew (<i>Numenius arquata</i>) [A160]	<i>"To maintain the favourable conservation condition of Curlew in Wexford Harbour and Slobbs SPA"</i>		No
Redshank (<i>Tringa totanus</i>) [A162]	<i>"To maintain the favourable conservation condition of Redshank in Wexford Harbour and Slobbs SPA"</i>		No
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	<i>"To maintain the favourable conservation condition of Black-headed Gull in Wexford Harbour and Slobbs SPA"</i>		No
Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	<i>"To maintain the favourable conservation condition of Lesser Black-backed Gull in Wexford Harbour and Slobbs SPA"</i>		No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]	<i>"To maintain the favourable conservation condition of Greenland White-fronted Goose in Wexford Harbour and Slobs SPA"</i>	As above.	No
Little Tern (<i>Sterna albifrons</i>) [A195]	<i>"To maintain the favourable conservation condition of Little Tern in Wexford Harbour and Slobs SPA"</i>	<p>The Attributes of this Conservation Objective include <i>"Breeding population abundance: apparently occupied nests (AONs)", "Productivity rate: fledged young per breeding pair", "Distribution: breeding colonies", "Prey biomass available", "Barriers to connectivity" and "Disturbance at breeding site"</i>. The main impact arising from the proposed works on these Attributes relate to spillages of contaminants, altering suitable habitats for these species.</p> <p>The SPA is hydrologically connected to the proposed works which is located c. 4 km upstream. This provides a pathway for contaminants such as concrete and sediments that may be spilled during the proposed works. However, the quantities of concrete and sediment that will be used and produced during works will be small and the level of impact these spillages may have on water quality within the site will be negligible considering the volume of water and the dilution capacity of the Whitehouse River.</p> <p>Considering the temporary nature, small scale and location of the works and the assimilative capacity of the Whitehouse River, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on this Qualifying Interest.</p>	No
Hen Harrier (<i>Circus cyaneus</i>) [A082]	<i>"To maintain the favourable conservation condition of Hen Harrier in Wexford Harbour and Slobs SPA"</i>	<p>The Attributes of this Conservation Objective include <i>"Roost attendance: individual hen harriers", "Suitable foraging habitat", Roost site: condition", and "Disturbance at roost site"</i>.</p> <p>As the proposed works do not have any pathways for impacts on this Qualifying Interest due to their terrestrial nature, and the distance of the proposed works from this Qualifying Interest, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on this Qualifying Interest.</p>	No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Wetlands [A999]	<i>“To maintain the favourable conservation condition of wetland habitat in Wexford Harbour and Sloba SPA as a resource for the regularly-occurring migratory waterbirds that utilise it”</i>	<p>The sole Attribute of this Conservation Objective “<i>Habitat area</i>”. The proposed works will not result in the loss of any areas of this habitat within the SPA. The only potential impact that the project may have on this Qualifying Interest is an impact on water quality.</p> <p>There are no works proposed within the SPA, and therefore there will be no reduction in habitat area as a result of the proposed works.</p>	No

3.4 Otter

“The Department considers that, in the absence of adequate surveying in this area, disturbance to otter holts cannot be discounted and advises that this should be considered further as the proposed project will take place within the main otter breeding season (May to August). Consideration of disturbance to breeding otter should be considered in the wider area as well as within the project footprint. TII guidelines state that no works should be undertaken within 150m of any holts at which breeding females or cubs are present.”

An Otter Survey was carried out during the site visit on the 12th December 2017. The watercourse has been channelised and has artificial banks upstream of the structure and is open downstream of the structure where it forms the boundary of a pub car park. The works are entirely within the culvert and will take place over a period of 2-3 weeks. The distance of 150 m quoted relates to the construction of bridges over watercourses, and the potential impacts of road bridge construction are clearly of a different magnitude than the maintenance works proposed in the NIS. In terms of impacts to the wider area, noise and visual disturbance from the works are considered to be less than the ambient noise and disturbance from the national road above.

“The existing culvert may be a barrier to otter movement, particularly, during period of high flow. It is not clear whether the proposed works will increase this barrier effect.”

There is no provision for otter passage as part of the works. The works will lead to no change in the barrier effect (if any), formed by the existing culvert.

3.5 Mitigation

3.5.1 Water Quality

“The Department considers that water quality impacts are likely to result from this project in the absence of mitigation and notes that the majority of mitigation outlined in the NIS relates to the protection of water quality. The Department considers that physiochemical trigger values for cessation of operations must be included. These should be based on the requirements of water dependent Qualifying Interests as outlined in conservation objective attributes and targets and should consider baseline water quality within the project’s zone of influence. It should be explicitly stated that no herbicide will be used on this project, including to treat tree stumps.”

The river both upstream and downstream of the proposed works shall be monitored for any physiochemical changes that occur during construction works. Operations shall cease if the physiochemical parameters pass the following limits:

Table 3.5 Parameter limits for water monitoring.

Parameter	Limit
Suspended Solids	<25mg/l
Dissolved Oxygen	>5mg/l
pH	>7

These figures are based on the requirements for Qualifying Interests where detailed and following national standards which are based on the freshwater (salmonid) quality regulations within the EU Directive 2006/44/EEC where specifications are not provided.

Monitoring of water quality shall be undertaken within the stream, with samples taken every second day during the week leading up to the commencement of the works, every day during the proposed works, and every second day following the completion of the works. Samples shall be taken from at least two different locations, including at least one location at an appropriate distance upstream of the structure and at least one other at an appropriate distance downstream of the structure. The locations of the monitoring stations can be decided by the Employer's Representative and the Employer's Ecologist.

The results of the water quality monitoring programme will be reviewed by the Employer's Representative and Employer's Ecologist on an ongoing basis during construction. In the event of any non-compliance with regulatory limits for any of the water quality parameters monitored, an investigation shall be undertaken to identify the source of this non-compliance and corrective action will be taken where this is deemed to be associated with the proposed development.

Vegetation removal will be carried out mechanically, wherever possible. If herbicides are used, the Contractor will adhere to legislation, Regulations, and best practice guidelines for the use of herbicide near water and in European sites.

"Details of the corrosion inhibitor and primer to be applied to the steel. It is not sufficient to state that the selected product will be approved for use by the Employer's Representative and the Contractor's Ecologist. An assessment of the likely impacts resulting from the use of the specified product must be included in the NIS."

As detailed in the NIS, the corrosion inhibitor and primer products will be approved for use in water and certified as non-toxic to aquatic ecosystems when dry. Products containing polyurethane based coatings are considered the safest for use in aquatic environments, whereas products containing 4-tert-butylphenol (4tBP) will not be used. The selected product will be approved for use by the Employer's Representative and the Employer's Ecologist.

The primer and corrosion inhibitor will be applied the cleaned and dried steel and allowed to dry before the concrete invert is poured.

"The silt trap into which water will be pumped, its capacity and proven effectiveness. The predicted volume of water to be pumped based on stream flow data should also be provided along with monitoring requirements to ensure effective functioning."

Two dams will be constructed in advance of the works; one on the upstream side of the structure and the other on the downstream side. A 300-500 mm plastic pipe will carry the stream from the upstream side of the structure across the works area at an elevation of approximately 100 mm, using gravity, before depositing it downstream of the dam below the structure. As this water will have no interaction with the work area, there is no opportunity for this water to collect any sediment, therefore a silt trap is not required. A large rock/pile of rocks will be placed under the outlet of the flume in order to dissipate the energy of the flow to avoid scouring of the stream bed and the mobilisation of sediment. Once the dams are constructed and the flume is in place, the works area will be dewatered using a pump. This water will be pumped onto land, at least 25 m from the river's edge, and the water shall pass through a silt sock at the end of the flume during this process. The combination of the silt sock and the vegetation will prevent silt entering the watercourse downstream. Any water that collects in the

works area while the works are taking place will be pumped into mobile bowser and disposed of off-site.

The size and capacity of the pump will determine how long it takes to clear the work area. There is currently no data available on the rate of flow at this area, however the stream is very small during normal flows. The flume will be a 300-500 mm plastic pipe, which is big enough to accommodate normal flow volumes.

The water downstream of the structure will be monitored for concentrations of suspended solids daily while the works are being carried out to ensure that the dams and flume are working effectively. Parameters for water quality monitoring are set out in table 2.4 above. This should only need to be carried out in the event of unexpected rainfall as the proposed works should only commence when there is a dry forecast for the expected duration of the works.

“Any details to be included in the proposed Method Statement which will be relied on as mitigation and are not already included in the NIS.”

There are no further details to be included in the proposed method statement which will be relied upon as mitigation that are not already included in the NIS.

“The Department considers that physiochemical monitoring is required downstream of the works and should be included in the NIS. Specific monitoring points should be specified.”

The physiochemical monitoring requirements are specified in table 3.5 above. The monitoring stations can be located anywhere within 100 m of the proposed works, both upstream and downstream.

“Details of the mobile catch nets which will be used to prevent mortar and/or wet concrete entering the river channel must be provided.”

Visqueen heavy duty plastic sheeting or similar will be used as the plastic sheeting to prevent any mortar or wet concrete entering the stream (see Appendix A for product data sheet). There will be enough plastic sheeting to cover the entire area underneath the works, which will be carried out while the riverbed is dry only.

“Details of the flume which will be constructed to carry the stream through the structure including the screen at the inlet to prevent fish and debris entering it.”

The pipe used to flume flows through the work area will be a 300-500 mm diameter pipe depending on the flow volumes, laid 100 mm above the riverbed with graded natural rock bunds formed at inlet and outlet. The pipe will be fitted with a filter at the inlet, with gaps no bigger than 1 mm diameter, to ensure fish do not enter the flume.

“Given the sensitivity of this location within an SAC, detailed emergency procedures to be followed in the case of any accidental spillages should be included in the NIS.”

Emergency spill kits will be available on site and staff will be trained in their use. A reporting system will be established on site to record accidents and/or spillages on site and the resultant action to remedy the incident.

3.5.2 Otter

“The mitigation section of the NIS states that the area inside the dam will be fitted with a ramp to allow otter to escape and that otter will be prevented from entering pipes by using screens, silt bags or other capping. However, this may mean that commuting otters will be directed onto a road to re-join the stream. This should be clarified and if this is the case, the possibility of road casualties should be assessed and mitigation put in place, if necessary.”

The ramps will allow Otter to climb over the dams and across the works area rather than blocking their path and forcing them to cross the road.

3.6 Residual Impacts and Conclusion/ Recommendation

“The Department recommends that the conclusion of the NIS should take into account the three projects documented in the NIS and should be towards the end of the document to account for in-combination effects of the three bridge repair projects, if any.”

While the proposed works have potential to cause adverse effects, any residual impacts from the proposed works at Tagoat Bridge, following the implementation of the mitigation measures, will be imperceptible. In addition to this, the three structures in this NIS are located on different river systems with no connectivity between them. Therefore, the proposed works cannot lead to an in-combination adverse effect.

3.7 Other Ecological Impacts

“In addition to Appropriate Assessment, in the interests of biodiversity protection, the Department recommends that the following surveys should take place prior to the commencement of this project; nesting bird survey and bat survey.”

The bat suitability assessment was carried out at the structure and the surrounding vegetation that will be affected by the proposed works on 17th December 2017. The bat suitability assessment was conducted adhering to best practice guidance (TII/NRA, 2006; Collins (ed.), 2016) and involved a visual assessment and categorisation of the bridge structure and trees capable of supporting roosting bats. The assessment was carried out using the recognised criteria outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins (ed.), 2016). The vegetation and trees surrounding the structure did not support any suitable roosting opportunities and while there some gaps in the masonry of the bridge, these were wet and shallow. The roof of the masonry arch barrel is c. 1 m above the riverbed, and this is considered too low for bats to roost in.

To comply with Inland Fisheries Guidelines on the timing of in-stream works, the works will take place before the end of September. The works require the removal of vegetation during the period of the 1st of March to the 31st August, which under normal circumstances would constitute an offence under Section 40 of the Wildlife Act 1976 (as amended). Section 40 contains a number of exemptions, including Section 40 (2) (e) *the clearance of vegetation in the development or preparation of sites on which any building or other structure is intended to be provided*. Wild birds and their nests are protection under Section 19 of the Wildlife Act 1976 (as amended). To comply with Section 19, the EcoW will check all vegetation to be removed for nesting birds prior to clearance. If any nesting birds are found, the vegetation will be left until the breeding effort is complete and all birds have left the nest.

4. MATTYMOUNT BRIDGE [WW-N81-004.00]

4.1 Baseline Data

“Given that the main adverse effects from the proposed project are related to water quality, the Department considers that baseline water quality data should be presented and reference should be made to water quality requirements of Qualifying Interest species and habitats within the projects zone of influence.”

The WFD ecological status of the river at the location is ‘High’ on the downstream side this transition to ‘Moderate’ status 150 m downstream of the structure (EPA, 2021). This is based on the abundance of aquatic plant and animal species, the availability of nutrients, and aspects such as temperature and pollution. Morphological features, such as quantity, water flow, water depths and structures of the riverbed are also considered. ‘High’ status means that the river is in its most natural condition and ‘Moderate’ status means that there is a moderate deviation from the natural condition that this river should be in in the absence of human pressure at the time at which this status was awarded between 2013 and 2018, which was the most recent update. The natural morphology and flow of the river has been altered at this location due to the existing masonry-arch bridge. Additionally, the water may have received some pollution in the form of run-off from the surrounding agricultural lands. However, there is no evidence of the effects of extensive pollution at the location of the structure (EPA, 2021).

The EPA also use the Q-value system for evaluating river quality by using biotic indices that reflects average water quality at any location. This is typically carried out by kick sampling the riverbed at a sample station for aquatic invertebrates. The invertebrates are then identified, and each species contributes a score based on their sensitivity to or tolerance of pollution which is used to estimate the water quality of the river. There is a sample station location 150 m downstream of the structure along the River Slaney. This station was last sampled in 2019 with a Q-value of 4-5. These values mean that the river at the location of the sample station is ‘Unpolluted’ and in ‘Satisfactory condition’. These values also correlate with the WFD status of ‘High’. (EPA, 2021).

The following mitigation measures have been proposed and were contained in the NIS which was submitted to the Department, to avoid water quality impacts arising from the proposed works:

Installation of concrete base (40m²):

- The Contractor will be required to appoint an **Ecological Clerk of Works (ECoW)**; the following outline scope of works will allow the Contractor to provide a scope of works to TII for these professional services. Furthermore, ROD will provide an appropriately qualified ecologist (“**the Employer’s Ecologist**”) in order to provide oversight of the works and the ECoW role to TII. However, it should be noted that responsibility for delivery of environmental measures ultimately lies with the appointed Contractor. The ECoW will be required to fulfil the following tasks:
 - Review of engineering & ecological documentation / ongoing liaison with Contractor / ROD / TII.
 - Preconstruction ecology visit.
 - The scope of the visit will be informed by the characteristics of the site (as set out in the NIS and subsequent correspondence) and will at a

- minimum include a check for Otter, nesting birds and invasive plant species.
- The preconstruction survey must occur prior to the Contractor mobilising on site, but also as close to the mobilisation date as is practical. The ECoW will prepare a technical memo on the findings which will be provided to the Contractor; it will also be provided to Employer's Ecologist and TII.
 - Presentation of Toolbox Talk to site staff prior to commencement of works on site.
 - The ECoW will be required to attend site during mobilisation, notably during the establishment of surface water control measures in order to ensure they are working effectively and to communicate its status to the Employer's Ecologist and TII.
 - The ECoW will also be required to attend site during de-mobilisation, removal of surface water control measures and reinstatement of natural flow patterns.
 - Once available the Contractor will provide an outline programme of works to the ECoW. This will allow the ECoW to determine, when, if any, additional site visits may be needed.
 - In addition to preparing a scope of works for predictable tasks, the ECoW will be required to be available for any on-site emergencies. This will be used to cover situations such as:
 - v) If the programme of works is significantly altered by delays or adverse weather conditions; or
 - vi) If the site needs to be demolished due to a predicted bad weather event.
- The Employer's Ecologist will provide oversight to the above on behalf of TII. This will also include for site visits to ensure all proposed mitigation measures are in place operating effectively.
 - The installation of the concrete apron will only take place where rain is not forecast for the 24 hours before after the works begin. This will be approved by the Employer's Representative.
 - A dam will be constructed around the damaged masonry from the upstream end, which will allow water to escape naturally.
 - Any remaining water will be removed using a pump. All water being pumped out will pass through a silt trap to prevent silt entering the water downstream. The silt trap will be approved by the Employer's Representative and the Employer's Ecologist.
 - The pump will be supervised at all times to ensure it is operating correctly.
 - Following dewatering, any silt, gravel or other debris along the damaged area will be removed.
 - Concrete will be mixed at least 20 m from the watercourse.
 - Only one bucket of wet concrete will be brought to the works area at any time.
 - The concrete apron will be checked by the Employer's Representative prior to removal of the dam to ensure that the apron is dry.
 - All equipment, including PPE, which comes into contact with the watercourse will be clean prior to use and will be disinfected prior to leaving each site using Virkon Aquatic or similar.

Repair of masonry on wingwall above the water level (1m²):

- The damaged area will be dewatered as described above.
- Repointing will be undertaken on foot from the dewatered area.
- The catch-net will be approved by the Employer's Representative and the Employer'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.
- 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.

Further detail on the Qualifying Interests with attributes relating to water quality provided in table 4.1 below.

Table 4.1 Qualifying Interests with sensitivities to water quality (NPWS 2011c).

Qualifying Interest	Water Quality Attribute Measure	Target	Impacts from Proposed Works	Residual Impacts following Mitigation
[1103] Twaite shad (<i>Alosa fallax</i>)	Oxygen levels: Milligrams per litre	No lower than 5mg/l.	The proposed works will not result in any measurable changes to the oxygen levels of the water within the river at the location of the structure. Therefore, impacts on this Qualifying Interest through this attribute can be ruled out.	No mitigation required.
[1106] Atlantic salmon (<i>Salmo salar</i>)	EPA Q-value	At least Q4 at all sites sampled by EPA.	The proposed works could result in impacts that would reduce the Q-value of the river at the location of the structure, in the absence of mitigation measures, through the accidental input of pollutants. Therefore, mitigation is required.	The mitigation measures outlined above will significantly reduce the risk of accidental pollution, including input of cementitious materials or hydrocarbons to the river. Any water quality impacts which could arise in the unlikely event of accidental pollution would constitute a temporary slight to imperceptible negative impact if they were to occur at all.
[3260] Water course of plain to montane levels with <i>Ranunculoon fluitantis</i> and <i>callitricho-Batrachion</i> vegetation	Nutrients: Milligrams per litre	The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition.	The proposed works will not give rise to any additional input of nutrients to the river in the absence of mitigation. Therefore, impacts on this Qualifying Interest through this attribute can be ruled out.	No mitigation required.

“Field survey details should be included and if the assessment was desk based only, this must be specified.”

A site survey, including an Otter survey, was carried out on the 29th November 2017 by ROD ecologist Owen O’Keefe MCIEEM. Owen is an ecologist with over 5 years’ experience and holds a BSc Hons in Ecology from University College Cork.

The purpose of the Otter survey was to identify signs of Otter at the structure. The Otter survey was based on the *“Guidelines for the treatment of Otters prior to the Construction of National Road Schemes”* (NRA, 2008) and involved a systematic search of the riverbanks for physical evidence of Otter e.g. spraints, prints, slides, trails, couches and holts. The survey methodology was also cognisant of the recommendations in the *“Otter Threat Response Plan 2009-2011”* (NPWS, 2009) which recognises the importance of the riparian buffer (10 m on both banks) for Otter. The survey was limited to within a 30 m stretch on the downstream side of the structure and there was no access to the upstream side of the structure. The works location was surveyed from the bridge deck.

“As mitigation is included for otter, with indicates that there is a likelihood of direct impacts on this species, the Department advises that an otter survey must be carried out. Otters are prone to disturbance, within 150m of natal holts and therefore the survey must be adequate to determine such impacts.”

An Otter Survey was carried out during the site visit on the 29th of November 2017. The area around the structure and an area within 30 m downstream of the structure was surveyed in 2017. The watercourse below the bridge has been modified in recent years and a series of stepped baffles has been installed to improve fish passage above the bridge. The watercourse above the structure is slow flowing and is bounded by a private garden on the south side and a field on the north side. Poaching on the north bank was evident. The works are entirely within the culvert and will take place over a period of 2-3 weeks. The distance of 150 m quoted relates to the construction of bridges over watercourses, and the potential impacts of road bridge construction are clearly of a different magnitude than the maintenance works proposed in the NIS. In terms of impacts to the wider area, noise and visual disturbance from the works are considered to be less than the ambient noise and disturbance from the national road above.

4.2 Assessment of Adverse Effects

“The NIS states that there is potential for adverse effects on Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation, Freshwater Pearl Mussel, Lamprey species, Atlantic Salmon and Otter. The remaining Qualifying Interests are associated with estuarine habitats downstream below the tidal limit (>50 km downstream) or are terrestrial habitats which are not hydrologically connected to the works. The NIS should list all the Qualifying Interest of the sites within the projects zone of influence and specify how adverse effects have been ruled in or out in each case with reference to the sites’ conservation objectives. Should adverse effects be ruled in, details of these effects (i.e. indirect, direct, temporary, permanent) as well as their significance should be provided with reference to the sites conservation objectives.”

A detailed assessment of the potential adverse effects that the proposed works could give rise to on the Qualifying Interests of the European sites within the zone of influence is provided in tables 4.2 and 4.3

Table 4.2 Assessment of Adverse Effects on the Qualifying Interests of the Slaney River Valley SAC [002162].

Qualifying Interest	Conservation Objective as per NPWS (2011c)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
<p>[REDACTED]</p>	<p>[REDACTED]</p>	<p>[REDACTED]</p>	<p>[REDACTED]</p>
<p>Sea lamprey (<i>Petromyzon marinus</i>) [1095]</p>	<p><i>“To restore the favourable conservation condition of Sea lamprey in the Slaney River Valley SAC”</i></p>	<p>Sea Lamprey, Brook Lamprey, River Lamprey, Twaite Shad and Atlantic Salmon are all known to migrate up the Slaney River in order to reproduce. These species are sensitive to the water quality impacts caused by the input of wet cementitious material, sediment and other pollutants to the river systems they inhabit. These species could also be present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objectives for these Qualifying Interests cannot be ruled out.</p>	<p>Yes</p>
<p>Brook lamprey (<i>Lampetra planeri</i>) [1096]</p>	<p><i>“To restore the favourable conservation condition of Brook lamprey in the Slaney River Valley SAC”</i></p>		
<p>River lamprey (<i>Lampetra fluviatilis</i>) [1099]</p>	<p><i>“To restore the favourable conservation condition of River lamprey in the Slaney River Valley SAC”</i></p>		
<p>Atlantic salmon (<i>Salmo salar</i>) [1106]</p>	<p><i>“To restore the favourable conservation condition of Salmon in the Slaney River Valley SAC”</i></p>		
<p>Twaite shad (<i>Alosa fallax</i>) [1103]</p>	<p><i>“To restore the favourable conservation condition of Twaite shad in the Slaney River Valley SAC”</i></p>	<p>The natural range of Twaite Shad only extends to the tidal limit within the river. Therefore, they can only be located 73.2 km downstream of the proposed works at a minimum (NPWS, 2011c). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Slaney, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.</p>	<p>No</p>

Qualifying Interest	Conservation Objective as per NPWS (2011c)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Estuaries [1130]	<i>"To maintain the favourable conservation condition of Estuaries in the Slaney River Valley SAC"</i>	Estuaries occur at least 73.2 km downstream of the proposed works (NPWS, 2011c). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the Slaney River, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
Mudflats and sandflats not covered by seawater at low tide [1140]	<i>"To maintain the favourable conservation condition of the Mudflats and sandflats not covered by seawater at low tide in Slaney River Valley SAC"</i>	Intertidal mudflats occur approximately 70.9 km downstream of the proposed works at a minimum (NPWS, 2011c). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the Slaney River, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
Otter (<i>Lutra lutra</i>) [1355]	<i>"To restore the favourable conservation condition of Otter in the Slaney River Valley SAC"</i>	Otters are likely to be present in the vicinity of the proposed works. The fish species that Otters rely on as a food source are sensitive to the water quality impacts caused by the input of cementitious material, sediment and other pollutants to the river systems they inhabit. These fish species will also potentially be present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.	Yes
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]	<i>"To maintain the favourable conservation condition of Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation in the Slaney River Valley SAC"</i>	This habitat is present at the location of the bridge. Aquatic vegetation is sensitive to the sedimentation of the water column as the sediment can settle on aquatic vegetation and inhibit their ability to photosynthesise. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.	Yes
Harbour Seal (<i>Phoca vitulina</i>) [1365]	<i>"To maintain the favourable conservation condition of Harbour Seal in the Slaney River Valley SAC"</i>	Harbour Seal are typically located within the estuary which begins 73.2 km downstream of the proposed works (NPWS, 2011c). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the Slaney River and estuary, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No

Qualifying Interest	Conservation Objective as per NPWS (2011c)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]	<i>"To restore the favourable conservation condition of Old oak woodland with Ilex and Blechnum in the Slaney River Valley SAC"</i>	The nearest record of Old sessile oak woods is located 32 km downstream of the proposed works. This habitat is also located 1.4 km upstream of the proposed works (NPWS, 2011c). However, this habitat is not sensitive to the types of water quality impacts that are likely to arise from the proposed works. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No
*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]	<i>"To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in the Slaney River Valley SAC"</i>	The nearest record of Alluvial forests is located approximately 33 km downstream of the proposed works. This habitat is also located 1.4 km upstream of the proposed works (NPWS, 2011c). There are pathways for impacts between the works and this Qualifying Interest, where flood waters could transport pollutants to this Qualifying Interest, however, given the scale and duration of the proposed works, this would not constitute an adverse effect. Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Slaney, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.	No

Table 4.3 Assessment of Adverse Effects on the Qualifying Interests of the Wexford Harbour and Slobs SPA [000781].

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Little Grebe (<i>Tachybaptus ruficollis</i>) [A004]	<i>"To maintain the favourable conservation condition of Little Grebe in Wexford Harbour and Slobs SPA"</i>	The Attributes and Targets of the Conservation Objectives for these Qualifying Interests focus on "Population trend" and "Distribution". The main impacts arising from the Project on these Attributes are indirect impacts from spillages of contaminants, altering suitable habitats for these species. The Wexford Harbour and Slobs SPA is hydrologically connected to the proposed works which is located c. 71.5 km upstream. This provides a pathway for contaminants such as concrete and sediments that may be spilled during construction to be transported to the site. However, the quantities of concrete and sediment that will be used and produced during construction will be small and the level of impact these spillages	No
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	<i>"To maintain the favourable conservation condition of Great Crested Grebe in Wexford Harbour and Slobs SPA"</i>		No
Cormarant (<i>Phalacrocorax carbo</i>) [A017]	<i>"To maintain the favourable conservation condition of Cormarant in Wexford Harbour and Slobs SPA"</i>		No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Grey Heron (<i>Ardea cinerea</i>) [A028]	<i>"To maintain the favourable conservation condition of Grey Heron in Wexford Harbour and Slobs SPA"</i>	may have on water quality within the site will be negligible considering the volume of water and the dilution capacity of the Slaney River.	No
Bewick's Swan (<i>Cygnus columbianus</i>) [A037]	<i>"To maintain the favourable conservation condition of Bewick's Swan in Wexford Harbour and Slobs SPA"</i>	Considering the temporary nature and location of the proposed works in relation to the roosting and foraging locations for this Qualifying Interest Slaney River, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on these Qualifying Interests.	No
Whooper Swan (<i>Cygnus cygnus</i>) [A038]	<i>"To maintain the favourable conservation condition of Whooper Swan in Wexford Harbour and Slobs SPA"</i>		No
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	<i>"To maintain the favourable conservation condition of Light-bellied Brent Goose in Wexford Harbour and Slobs SPA"</i>		No
Shelduck (<i>Tadorna tadorna</i>) [A048]	<i>"To maintain the favourable conservation condition of Shelduck in Wexford Harbour and Slobs SPA"</i>		No
Wigeon (<i>Anas Penelope</i>) [A050]	<i>"To maintain the favourable conservation condition of Wigeon in Wexford Harbour and Slobs SPA"</i>		No
Teal (<i>Anas crecca</i>) [A052]	<i>"To maintain the favourable conservation condition of Teal in Wexford Harbour and Slobs SPA"</i>		No
Mallard (<i>Anas platyrhynchos</i>) [A053]	<i>"To maintain the favourable conservation condition of Mallard in Wexford Harbour and Slobs SPA"</i>		No
Pintail (<i>Anas acuta</i>) [A054]	<i>"To maintain the favourable conservation condition of Pintail in Wexford Harbour and Slobs SPA"</i>		No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Scaup (<i>Aythya marila</i>) [A062]	<i>"To maintain the favourable conservation condition of Scaup in Wexford Harbour and Slobs SPA"</i>	As above.	No
Goldeneye (<i>Bucephala clangula</i>) [A067]	<i>"To maintain the favourable conservation condition of Goldeneye in Wexford Harbour and Slobs SPA"</i>		No
Red-breasted Merganser (<i>Mergus serrator</i>) [A069]	<i>"To maintain the favourable conservation condition of Red-breasted Merganser in Wexford Harbour and Slobs SPA"</i>		No
Coot (<i>Fulica atra</i>) [A125]	<i>"To maintain the favourable conservation condition of Coot in Wexford Harbour and Slobs SPA"</i>		No
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	<i>"To maintain the favourable conservation condition of Oystercatcher in Wexford Harbour and Slobs SPA"</i>		No
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	<i>"To maintain the favourable conservation condition of Golden Plover in Wexford Harbour and Slobs SPA"</i>		No
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	<i>"To maintain the favourable conservation condition of Grey Plover in Wexford Harbour and Slobs SPA"</i>		No
Lapwing (<i>Vanellus vanellus</i>) [A142]	<i>"To maintain the favourable conservation condition of Lapwing in Wexford Harbour and Slobs SPA"</i>		No
Knot (<i>Calidris canutus</i>) [A143]	<i>"To maintain the favourable conservation condition of Knot in Wexford Harbour and Slobs SPA"</i>		No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Sanderling (<i>Calidris alba</i>) [A144]	<i>"To maintain the favourable conservation condition of Sanderling in Wexford Harbour and Slobbs SPA"</i>	As above.	No
Dunlin (<i>Calidris alpina</i>) [A149]	<i>"To maintain the favourable conservation condition of Dunlin in Wexford Harbour and Slobbs SPA"</i>		No
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	<i>"To maintain the favourable conservation condition of Black-tailed Godwit in Wexford Harbour and Slobbs SPA"</i>		No
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	<i>"To maintain the favourable conservation condition of Bar-tailed Godwit in Wexford Harbour and Slobbs SPA"</i>		No
Curlew (<i>Numenius arquata</i>) [A160]	<i>"To maintain the favourable conservation condition of Curlew in Wexford Harbour and Slobbs SPA"</i>		No
Redshank (<i>Tringa totanus</i>) [A162]	<i>"To maintain the favourable conservation condition of Redshank in Wexford Harbour and Slobbs SPA"</i>		No
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	<i>"To maintain the favourable conservation condition of Black-headed Gull in Wexford Harbour and Slobbs SPA"</i>		No
Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	<i>"To maintain the favourable conservation condition of Lesser Black-backed Gull in Wexford Harbour and Slobbs SPA"</i>		No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]	<i>"To maintain the favourable conservation condition of Greenland White-fronted Goose in Wexford Harbour and Slobs SPA"</i>	As above.	No
Little Tern (<i>Sterna albifrons</i>) [A195]	<i>"To maintain the favourable conservation condition of Little Tern in Wexford Harbour and Slobs SPA"</i>	<p>The Attributes of this Conservation Objective include <i>"Breeding population abundance: apparently occupied nests (AONs)", "Productivity rate: fledged young per breeding pair", "Distribution: breeding colonies", "Prey biomass available", "Barriers to connectivity" and "Disturbance at breeding site"</i>. The main impact arising from the proposed works on these Attributes relate to spillages of contaminants, altering suitable habitats for these species.</p> <p>The SPA is hydrologically connected to the proposed works which is located c. 71.5 km upstream. This provides a pathway for contaminants such as concrete and sediments that may be spilled during the proposed works. However, the quantities of concrete and sediment that will be used and produced during works will be small and the level of impact these spillages may have on water quality within the site will be negligible considering the volume of water and the dilution capacity of the Slaney River.</p> <p>Considering the temporary nature, small scale and location of the works and the assimilative capacity of the Slaney River, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on this Qualifying Interest.</p>	No
Hen Harrier (<i>Circus cyaneus</i>) [A082]	<i>"To maintain the favourable conservation condition of Hen Harrier in Wexford Harbour and Slobs SPA"</i>	<p>The Attributes of this Conservation Objective include <i>"Roost attendance: individual hen harriers", "Suitable foraging habitat", Roost site: condition", and Disturbance at roost site"</i>.</p> <p>As the proposed works do not have any pathways for impacts on this Qualifying Interest due to its terrestrial nature, and the distance of the proposed works from this Qualifying Interest, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on this Qualifying Interest.</p>	No

Qualifying Interest	Conservation Objective as per NPWS (2012)	Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Wetlands [A999]	<i>“To maintain the favourable conservation condition of wetland habitat in Wexford Harbour and Slobs SPA as a resource for the regularly-occurring migratory waterbirds that utilise it”</i>	<p>The sole Attribute of this Conservation Objective “<i>Habitat area</i>”. The proposed works will not result in the loss of any areas of this habitat within the SPA. The only potential impact that the project may have on this Qualifying Interest is an impact on water quality.</p> <p>The hydrological connection provides a pathway for contaminants such as cementitious material, sediment and other pollutants that may be spilled during the proposed works. However, the quantities of these materials that will be used and produced during the proposed works will be small and the level of impact these spillages may have on water quality within the site will be negligible considering the volume of water and the dilution capacity of the Slaney River. Thus, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on this Qualifying Interest.</p>	No

4.3 Mitigation

4.3.1 Water Quality

“The Department considers that water quality impacts are likely to result from this project in the absence of mitigation and notes that the majority of mitigation outlined in the NIS relates to the protection of water quality. The Department considers that physiochemical trigger values for cessation of operations must be included. These should be based on the requirements of water dependent Qualifying Interests as outlined in conservation objective attributes and targets and should consider baseline water quality within the project’s zone of influence. It should be explicitly stated that no herbicide will be used on this project, including to treat tree stumps.”

The river both upstream and downstream of the proposed works will be monitored for any physiochemical changes that occur during construction works. Operations shall cease if the physiochemical parameters pass the following limits:

Table 4.4 Parameter limits for water monitoring.

Parameter	Limit
Suspended Solids	<25mg/l
Dissolved Oxygen	>5mg/l
pH	>7

These figures are based on the requirements for Qualifying Interests where detailed and following national standards which are based on the freshwater (salmonid) quality regulations within the EU Directive 2006/44/EEC where specifications are not provided.

Monitoring of water quality shall be undertaken by the contractor, with samples taken every second day during the week leading up to the commencement of the works, every day during the proposed works, and every second day following the completion of the works. Samples shall be taken from at least two different locations, including at least one location at an appropriate distance upstream of the structure and at least one other at an appropriate distance downstream of the structure before the confluence with the River Slaney. The locations of the monitoring stations can be decided by the Employer’s Representative and the Employer’s Ecologist.

The results of the water quality monitoring programme will be reviewed by the Employer’s Representative and Employer’s Ecologist on an ongoing basis during construction. In the event of any non-compliance with regulatory limits for any of the water quality parameters monitored, an investigation shall be undertaken to identify the source of this non-compliance and corrective action will be taken where this is deemed to be associated with the proposed development.

Vegetation removal will be carried out mechanically, wherever possible. If herbicides are used, the Contractor will adhere to legislation, regulations, and best practice guidelines for the use of herbicide near water and in European sites.

“Details of the corrosion inhibitor and primer to be applied to the steel. It is not sufficient to state that the selected product will be approved for use by the Employer’s Representative and the Contractor’s Ecologist. An assessment of the likely impacts resulting from the use of the specified product must be included in the NIS.”

Mattymount Bridge is not a steel culvert, and no corrosion inhibitor or primer will be used during the proposed works. Section 3.2 and 3.3 of the NIS describe the works at Mattymount Bridge.

“The silt trap into which water will be pumped, its capacity and proven effectiveness. The predicted volume of water to be pumped based on stream flow data should also be provided along with monitoring requirements to ensure effective functioning.”

A dam will be constructed surrounding the works area using sandbags. The works area is along the northeast wing wall, where scouring has occurred. The river channel will remain open.

Once the dam is constructed, the works area will be dewatered using a pump. This water will be pumped onto land, at least 25 m from the river's edge, and the water shall pass through a silt sock before flowing back into the river. The combination of the silt sock and the vegetation will prevent silt entering the watercourse. Any water that collects in the works area while the works are taking place will be pumped into mobile bowser and disposed of off-site.

“Any details to be included in the proposed Method Statement which will be relied on as mitigation and are not already included in the NIS.”

There are no further details to be included in the proposed method statement which will be relied upon as mitigation that are not already included in the NIS.

“The Department considers that physiochemical monitoring is required downstream of the works and should be included in the NIS. Specific monitoring points should be specified.”

The physiochemical monitoring requirements are specified in table 4.4 above. The monitoring station can be located anywhere between the location of the proposed works and the confluence with the River Slaney. The sampling must take place before the two rivers begin to mix in order to obtain accurate results.

Details of the mobile catch nets which will be used to prevent mortar and/or wet concrete entering the river channel must be provided.

Visqueen heavy duty plastic sheeting or similar will be used as the plastic sheeting to prevent any mortar or wet concrete entering the stream (see Appendix A for product data sheet). There will be enough plastic sheeting to cover the entire area underneath the works, which will be carried out while the riverbed is dry only.

Details of the flume which will be constructed to carry the stream through the structure including the screen at the inlet to prevent fish and debris entering it.

The watercourse will not be dammed, and no flume is required. Section 3.2 and 3.3 of the NIS describe the works at Mattymount Bridge.

“Given the sensitivity of this location within an SAC, detailed emergency procedures to be followed in the case of any accidental spillages should be included in the NIS.”

Emergency spill kits will be available on site and staff will be trained in their use. A reporting system will be established on site to record accidents and/or spillages on site and the resultant action to remedy the incident.

4.3.2 Otter

“The mitigation section of the NIS states that the area inside the dam will be fitted with a ramp to allow otter to escape and that otter will be prevented from entering pipes by using screens, silt bags or other capping. However, this may mean that commuting otters will be directed onto a national road to re-join the stream. This should be clarified and if this is the case, the possibility of road casualties should be assessed and mitigation measures included in the NIS, if necessary.”

The ramp proposed in the NIS will allow Otter to climb out of the works area, should one become trapped. The works will not form any barrier to Otter passage whatsoever.

4.4 Residual Impacts and Conclusion/Recommendation

“The Department recommends that the conclusion of the NIS should take into account the three projects documented in the NIS and should be towards the end of the document to account for in-combination effects of the three bridge repair projects, if any.”

While the proposed works have potential to cause adverse effects, any residual impacts from the proposed works at Mattymount Bridge following the implementation of the mitigation measures will be imperceptible. In addition to this, the three structures in this NIS are located on different river systems with no connectivity between them. Therefore, the proposed works cannot lead to an in-combination adverse effect.

4.5 Other Ecological Impacts

“In addition to Appropriate Assessment, in the interests of biodiversity protection, the Department recommends that the following surveys should take place prior to the commencement of this project; nesting bird survey and bat survey.”

The bat suitability assessment was carried out at the structure and the surrounding vegetation that will be affected by the proposed works on 29th November 2017. The bat suitability assessment was conducted adhering to best practice guidance (TII/NRA, 2006; Collins (ed.), 2016) and involved a visual assessment and categorisation of the bridge structure and trees capable of supporting roosting bats. The assessment was carried out using the recognised criteria outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins (ed.), 2016). The vegetation and trees surrounding the structure did not support any suitable roosting opportunities and while there some gaps in the masonry of the bridge, most of these were wet and unsuitable. The bridge was thoroughly checked for bats and none were found.

To comply with Inland Fisheries Guidelines on the timing of in-stream works, the works will take place before the end of September. The works require the removal of vegetation during the period of the 1st of March to the 31st August, which under normal circumstances would constitute an offence under Section 40 of the Wildlife Act 1976 (as amended). Section 40 contains a number of exemptions, including Section 40 (2) (e) *the clearance of vegetation in the development or preparation of sites on which any building or other structure is intended to be provided*. Wild birds and their nests are protection under Section 19 of the Wildlife Act 1976 (as amended). To comply with Section 19, the EcoW will check all vegetation to be removed for nesting birds prior to

clearance. If any nesting birds are found, the vegetation will be left until the breeding effort is complete and all birds have left the nest.

5. CONCLUSION

It is the view of the authors that it has been demonstrated, beyond all reasonable scientific doubt, that the proposed works at Ballyragget Pipe Bridge, Tagoat Bridge and Mattymount Bridge will not give rise to adverse effects on the Qualifying Interests of any European Site, either alone or in-combination with other plans and projects.

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APPENDIX A

Visqueen plastic sheeting product data sheet

Visqueen Clear Temporary Protective Sheeting (TPS)

Features and benefits

- Virgin polymers - providing high visual clarity
- Large roll formats - Ideal for draping, screening, covering or hanging
- Barrier properties - provides protection against showers and dust
- LDPE based - reusable and recyclable
- Multi-use - provides protection for various light duty applications whilst buildings undergo refurbishment or in new build projects
- Manufactured in the UK by Visqueen

Product description

Visqueen Clear TPS is a high quality clear polyethylene temporary protective sheeting which provides high visual clarity. It is supplied on a core in rolls of 4m x 25m.

Approvals and standards

- Quality Management System ISO 9001:2015
- Occupational Health and Safety System ISO 18001:2007
- Environmental Management System ISO 14001:2015

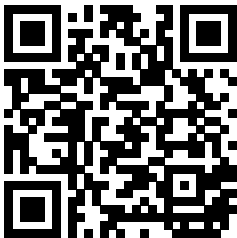
Usage

Visqueen Clear TPS is a polyethylene sheeting that provides effective protection in demanding on site conditions. It is suitable for screening, wrapping large objects and other site construction materials such as bricks, blocks, timber and plasterboards. It's ideal for when the protected product(s) needs to remain visible from beneath the sheeting. It can be used in various other applications whilst buildings undergo refurbishment work, or in new build construction projects whilst also providing protection from showers and dust.

System components

- VisqueenPro Single Sided Tape, 75mm x 25m

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Available to order from the 19th April

VISQUEEN ZEDEX
NON-COMBUSTIBLE DPC

Visqueen Zedex Non-Combustible Damp Proof Course
A2 - s1, d0 to BS EN 13501-1:2018

To discover the Visqueen difference visit www.visqueen.com or call us on +44 (0) 333 202 6800

Visqueen Clear Temporary Protective Sheeting (TPS)

Storage and handling

Visqueen Clear TPS should be stored horizontally, under cover in its original packaging.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

Visqueen Clear TPS can be cut with a sharp retractable safety knife or robust scissors.

Surfaces to be covered should be free from sharp protrusions. The film should be installed as soon as all surfaces or fixtures are clean.

Installation

Unroll Visqueen Clear TPS and cut to fit the area that needs protecting.

For large covered areas it may be necessary to lap adjacent film sheets and a taped joint is recommended to ensure continuity of protection. When taping, allow an overlap of at least 50mm and secure the joint using VisqueenPro Single Sided Tape. Prior to taping ensure that the lap area is clean and free from dust and any moisture.

Usable temperature range

It is recommended that Visqueen Clear TPS and the associated system component should not be used below 5°C.

Additional information

The product is recyclable and categorised under LDPE recycling code 4.

Visqueen is part of Berry bpi, the largest European recycler of polyethylene. This product is recyclable and should be segregated on site in accordance with site management procedures for plastic waste. We have 4 recycling sites in the UK where the plastic waste could be recycled and converted back into a second life product. Please contact us to find out more.



Visqueen Clear Temporary Protective Sheeting (TPS)

Property	Value
Roll size	4m x 25m
VisqueenPro Single Sided Tape - roll size	75mm x 25m

Health and safety information

Refer to Visqueen Clear TPS material safety datasheet (MSDS)

Visqueen Clear Temporary Protective Sheeting (TPS)

About Visqueen

The Visqueen name has long been recognised as one of the leading manufacturers of high quality advanced membrane technologies and design based solutions by specifiers, distributors, builders merchants and contractors throughout the UK and Europe.

For further guidance on the Visqueen services shown below, please refer to the relevant section of the Visqueen website (www.visqueen.com) or contact Visqueen Technical Services on +44 (0) 333 202 6800 or enquiries@visqueen.com

Complete Range, Complete Solution



Structural Waterproofing



Gas Protection



Damp Proof Membrane



Tapes



Damp Proof Course



Stormwater



Vapour Control

Visqueen Technical Support

Visqueen combine an extensive product portfolio with industry leading levels of service and support which includes guidance over the phone, bespoke CAD drawings to help with complex detailing, electronic NBS specifications and access to a dedicated team of highly knowledgeable and experienced field based Technical Support Managers.

Visqueen Technical Support is available to all our customers including architects, specifiers, distributors, builders merchants, contractors and end users. All of our technical team have been awarded the industry recognised qualification Certificated Surveyor in Structural Waterproofing (CSSW).

Visqueen CPD Seminars

The Visqueen Continuing Professional Development (CPD) Seminars provide up-to-date information on changes within Building Regulations/Building Standards and nationally recognised industry guidance affecting damp proofing, water vapour control, hazardous ground gas protection and below ground structural waterproofing.

The one hour seminars have been produced for design specialists within the construction sector and are delivered by our team of Technical Support Managers.

Visqueen PI designs and special projects

From initial design to the completed project, Visqueen are with you every step of the way. Whether it be hazardous ground gas protection and/or below ground waterproofing protection employing barrier, structurally integral or drained systems, Visqueen can offer professional indemnity (PI) insurance for bespoke Visqueen design solutions.

Visqueen Technical Support Managers work with all stakeholders to provide cost effective Visqueen solutions offering complete peace of mind throughout the construction phase and beyond.

Visqueen Training Academy

Based at our manufacturing facility in Derbyshire, the Visqueen Training Academy is available to support Visqueen customers throughout the UK by providing a wide range of both theory and practical skills related training.

Courses include one day product awareness training for our distributors and builders merchants to help them in their day-to-day jobs, through to intensive three day courses giving detailed hands-on training in the practical skills required for safe and robust product installation.