Proposed Rehabilitation Works, Moone Village Bridge, Co. Kildare

Screening for Appropriate Assessment

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EXECUTIVE SUMMARY

Kildare County Council has proposed bridge rehabilitation on seven bridges. Ecofact were commissioned to complete a Screening for Appropriate Assessment (AA) for each of the seven bridges in 2021. The current document provides the Screening Report for Moone Village Bridge in Co. Kildare. This report assesses whether the proposed works at this bridge are likely to have a significant effect on the Natura 2000 site network and if an NIS is required.

Moone Village Bridge is located at Moone Village in Co. Kildare. The subject bridge is situated over the 1st order Timolin14 (Segment: 14_1517) stream, a tributary of the River Greese. The River Greese is connected to the River Barrow and the associated River Barrow and River Nore SAC. The SAC boundary is c. 15.6km downstream of Moone Village Bridge. Due to the hydrological connection there is a potential pathway for impacts to affect downstream aquatic features of interest for which the SAC is designated; such as White-clawed Crayfish, Lamprey species, Salmon and Otter. The River Greese which is c. 500m downstream does have populations of Atlantic Salmon and the Annex II species European Eel.

The bridge is overall relatively small in scale, however, significant structural repairs to the subject bridge are required which includes masonry re-pointing and repairs and the use of spray concrete and possibly even the replacement of the bridge. Due to the nature and location of the works there is a risk of water quality impacts, as well as disturbance and invasive species impacts arising from the works. These impacts could be transferred downstream to the designated SAC via the hydrological pathway or affect the qualifying interests of the SAC that have the potential to be present c. 500m downstream of the works in the River Greese.

Potential water quality impacts concern increased siltation and turbidity during the works, as well as pollution from surface run-off, accidental spillages of oils or fuels from machinery, or concrete / cement from the spraying of concrete, etc. Significant water quality impacts could potentially adversely affect designated water-dependent qualifying interests (such as the *"Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation"* habitat Salmon, Lamprey species, Otter and White-clawed Crayfish) of the SAC present downstream of the subject bridge in the River Barrow. Salmon, lampreys and Otter are likely to be present in the River Greese c. 500m downstream. Similarly, if invasive species are introduced or mobilised at the proposed works site they could potentially be carried via the watercourse and impact the downstream protected site and the associated qualifying interests. These impacts may affect important habitat that lies outside the SAC boundary also, which supports the designated species, such as Salmon spawning areas in the River Greese or Otter commuting/foraging habitat. It is also noted that some of the designated species, for example Otter, may commute outside of the SAC and use areas in the vicinity of the proposed works. The identified potential water quality and invasive species impacts are also considered as potentially contributing to existing similar pressures from other sources that are already having an impact on the SAC. Thereby, there is the potential for cumulative impacts.

From examination of the information available, it is concluded that there is the potential for indirect and cumulative impacts, relating mainly to water quality and invasive species, arising from the proposed bridge works at Moone Village Bridge in Co. Kildare. Mitigation measures cannot be provided in a Screening for Appropriate Assessment report as per case C-323/17 People Over Wind and Peter Sweetman v Coillte. Therefore, a Natura Impact Statement is required for the proposed bridge works.

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1. INTRODUCTION

Kildare County Council has proposed bridge rehabilitation on seven bridges. Ecofact were commissioned to complete a Screening for Appropriate Assessment for each of the seven bridges in 2021. The current report provides the Screening Report for Moone Village Bridge, Co. Kildare. Figure 1 shows the location of the subject bridge in relation to local Natura 2000 sites.

Appropriate Assessment is required under Article 6 of the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (1992) (SACs) or the Birds Directive (2009) (SPAs). The current document meets this requirement by providing a Screening Assessment of the development and follows the guidance for screening published by the Department of the Environment, Heritage and Local Government (DoEHLG 2010) *'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities'.*

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

> (1) Whether a plan or project is directly connected to or necessary for the management of the site, and;
> (2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

Screening is a pre-assessment procedure which considers whether an assessment (i.e. appropriate assessment) is required or not. A project or plan may only pass at the Screening stage if there is no reasonable scientific doubt remaining as to the absence of impacts on the Natura 2000 network. The current screening therefore sets out to determine whether the proposed project, alone or in combination with other plans and projects, is likely to have significant effects on any Qualifying Interests of the Natura 2000 sites within the study area. If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). When assessing the significance of potential effects, DoEHLG (2010) recommends that *"a precautionary approach is fundamental and, in cases of uncertainty, it should be assumed the effects could be significant".*

1.1 Legislative context

Part XAB of the 2000 Act and SI. No 477 of 2011 transpose into Irish law, Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive) and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). These Directives require Ireland to establish protected sites as part of a European wide network of sites (known in Ireland as European sites) for habitats and species that are of international importance for conservation. In Ireland, European sites include Special Areas of Conservation (SACs, including candidate SACs) and Special Protection Areas (SPAs)". Article 6, paragraphs 3 and 4 of the EC 'Habitats' Directive (1992) state that:

The 1997 Regulations were updated in 1998 by The European Communities (Natural Habitats) (Amendment) Regulations 1998 (S.I. No. 233/1998) to include Council Directive 97/62/EC which served to update Council Directive 92/43/EEC, adapting it to technical and scientific progress made in the intervening years.

The 1997 Regulations were again updated in 2005, by The European Communities (Natural Habitats) (Amendment) Regulations 2005 (S.I. No. 378/2005). This amendment served to consolidate the main nature conservation legislation enacted in Ireland, meaning The Wildlife Act 1976, The Wildlife (Amendment) Act 2000, The European Communities (Natural Habitats) Regulations 1997, The European Communities (Natural Habitats) (Amendment) Regulations 1998, and to draw direct reference upon Council Directive (2009/147/EC) on the conservation of wild birds – '*The Birds Directive'*.

The Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs) whereas the Habitats Directive does the same for habitats and other species groups with Special Areas of Conservation (SACs). It lists certain rare habitats (Annex I) and species (Annex II) whose conservation is of community interest. It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected areas throughout the European Community.

Article 6, paragraphs 3 and 4 of the Habitats Directive state that:

'6(3) Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.'

In case C-323/17 People Over Wind and Peter Sweetman v Coillte, the Court of Justice of the European Union (CJEU) ruled that mitigation measures could not be taken into account when undertaking a screening for Appropriate Assessment (AA). If mitigation measures are required to reduce or avoid a significant adverse effect, then Appropriate Assessment is required.

1.2 Consultation

The following bodies provided information for this report, via publicly available sources:

- National Parks and Wildlife Service (NPWS);
- National Biodiversity Data Centre (NBDC);
- Environmental Protection Agency (EPA).

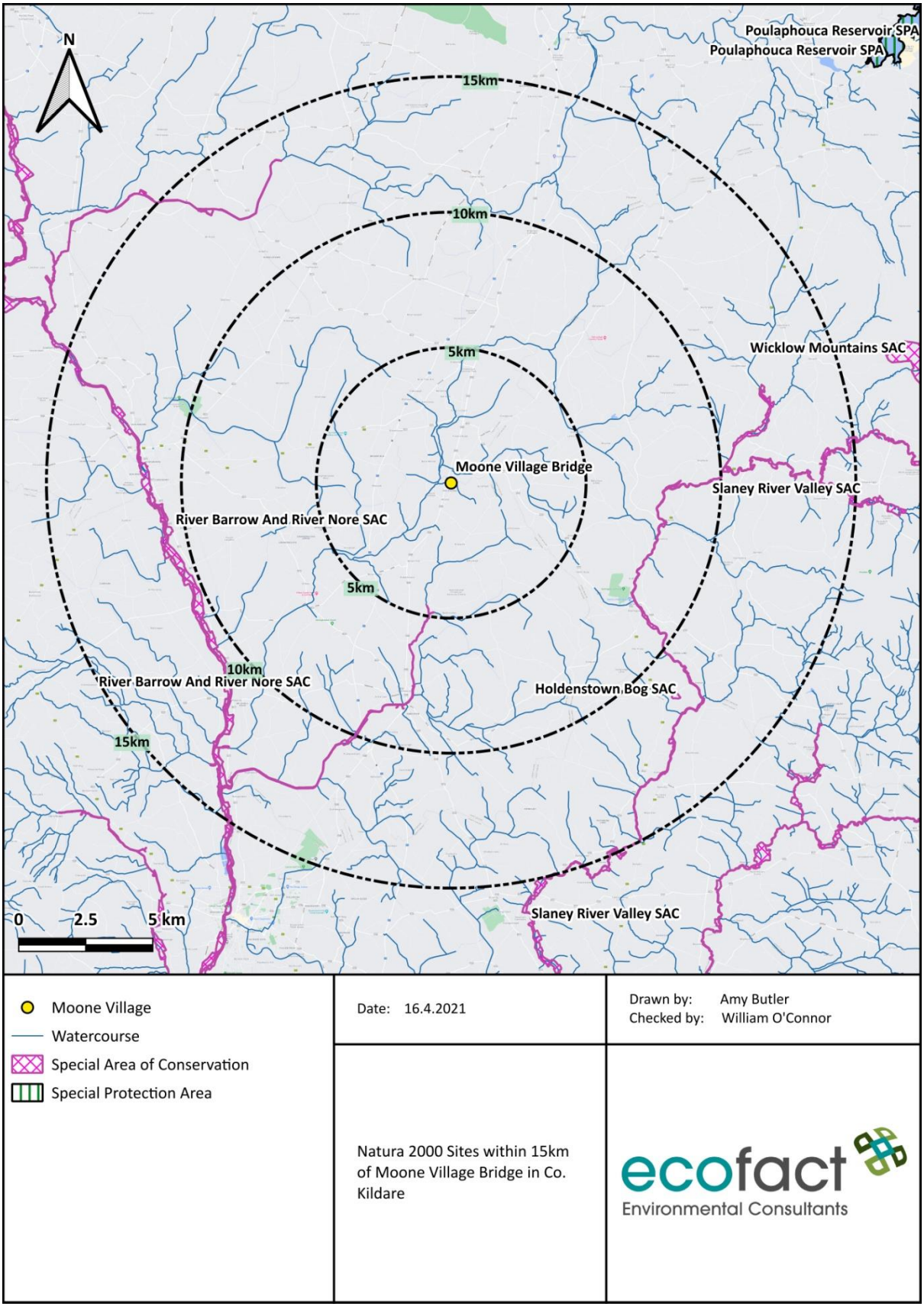

Figure 1 Location of Moone Village Bridge in the context of the Natura 2000 network.

2. METHODOLOGY

2.1 Desk study

A desktop study was undertaken to identify the extent and scope of the potentially affected designated Natura 2000 sites within the current study area in relation to the proposed development site. The desktop study identified the qualifying interests (species and habitats) relevant to the designated sites within the area.

Information sources reviewed as part of the current assessment included NPWS site synopses, as well as protected species data held on the NPWS/NBDC online databases. Scientific data on water quality and waterbodies relevant to the subject site was obtained from the websites of the EPA and catchments.ie. The conservation objectives documents as well as the conservation objectives supporting documents for Natura 2000 sites were reviewed on the NPWS website. A full bibliography of information sources reviewed is given in the reference section. Online aerial imagery was accessed to characterise the nature of proposed works locations near the Natura 2000 network.

2.2 Assessment Methodology

The European Commission Guidance Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC prescribes a staged process, as set out below, the need for each stage being dependent on the outcomes of the preceding stage.

1. Screening for Appropriate Assessment
2. Appropriate Assessment
3. Assessment of Alternative Solutions
4. Assessment where no alternative solutions exist and adverse impacts remain, i.e. the Imperative Reasons of Overriding Public Interest test, and compensatory measures

The current report is a Screening Report and therefore makes Stage One assessment only.
According to DoEHLG (2010), screening can result in the following possible conclusions or outcomes:

> **AA is not required.** Screening establishes that the plan or project is directly connected with or necessary to the nature conservation management of the site.
>
> **No potential for significant effects/AA is not required.** Screening establishes that there is no potential for significant effects and the project or plan can proceed as proposed. However, no changes may be made after this as this will invalidate the findings of screening. Documentation of the AA screening process, including conclusions reached and how decisions were made, must be kept on file**.**
>
> **Significant effects are certain, likely or uncertain.** The plan or project **must either proceed to Stage 2 (AA), or be rejected**. Rejection of a plan or project that is too potentially damaging and/or inappropriate ends the process and negates any need to proceed to Stage 2 (AA).

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. Thus, in line with the precautionary principle, it is unacceptable to fail to undertake an appropriate assessment on the basis that it is not certain that there are significant effects.

The approach to screening is likely to differ somewhat for plans and projects, depending on scale and on the likely effects. It is stated in DoEHLG (2010) that any Natura 2000 site within or adjacent to the proposed development area as well as any Natura 2000 sites within the likely zone of impact should be included for assessment. A distance of 15km is currently recommended by DoEHLG (2010) to loosely define the zone of impact in the case of plans but the distance could be much less than 15km, and in some cases less than 100m: this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects. In the case of the current project, where the proposed works are close to the River Barrow and River Nore SAC, these Natura 2000 sites, and indeed any other Natura 2000 sites in close proximity and / or those with downstream hydrological connectivity have been considered.

When doing a screening it is ***merely necessary to determine that there may be such an effect. '****The threshold at the first stage of Article 6(3) is a very low one. It operates merely as a trigger, in order to determine whether an appropriate assessment must be undertaken on the implications of the plan or project for the conservation objectives of the site.' (Finlay Geoghegan J. in Kelly -v- An Bord Pleanála 2013/802 JR).* A significant effect is defined as "*any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the site was designated, but excluding de minimis or inconsequential effects*" (EHS, 2002; English Nature, 2004 & 2006; Scottish Natural Heritage, 2006). Where the potential for a significant impact is identified, or if there is any uncertainty regarding an impact, then an Appropriate Assessment must be completed to assess if this effect would cause an integrity level impact. At Appropriate Assessment (NIS) stage mitigation can also be specified to reduce or avoid this effect. A screening assessment cannot replace the requirement of Appropriate Assessment so if any potential impact on qualifying interests or their habitats (e.g. siltation from works area during construction phase) is identified then Appropriate Assessment is required. Screening must be approached on a precautionary basis with the safeguards set out in Article 6(3) and (4) of the Habitats Directive triggered not by certainty - but by the possibility of significant effects.

3. DESCRIPTION OF PROJECT CHARACTERISTICS

Moone Village Bridge is located at the northern end of Moone Village on the Moone Road to the east of the R448. This is a small single-span structure over the 1st order Timolin14 (Segment: 14_1517) stream, a tributary of the River Greese. The location of the subject bridge is shown in Figure 2.

According to the bridge inspection report (Malachy Walsh & Partners, 2014) the proposed bridge works include the following components:

- Bridge surface – Replace soft verge with rubbing strips.
- Footways / Median – Sweep under routine maintenance.
- Parapets / Safety barrier – Masonry repairs and re-pointing. Vegetation removal.
- Embankments – Potential vegetation cutting.
- Wing / Spandrel / Retaining walls – Masonry re-pointing. Vegetation removal.
- Abutments – Masonry re-pointing.
- Deck / Slab / Arch barrel – Significant structure repairs required. After checking of hydraulic capacity either: reformation of arch shape using spray applied concrete with mesh reinforcement; or replacement of structure.
- Riverbed – Removal of vegetation and debris.

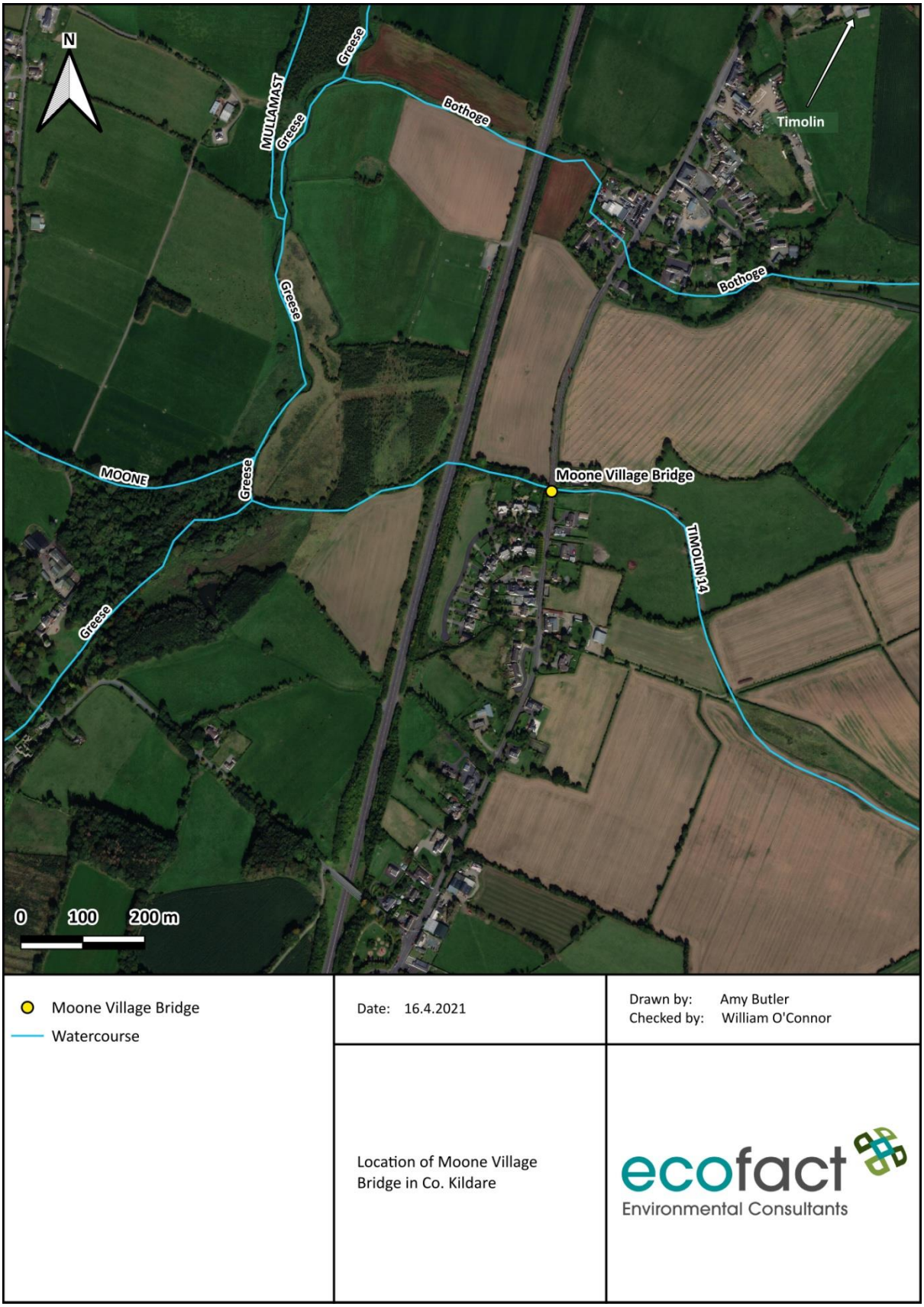

Figure 2 Location of the proposed bridge works at Moone Village Bridge in Co. Kildare.

4. IDENTIFICATION OF RELEVANT NATURA 2000 SITES

4.1 Rationale for Appropriate Assessment Screening

Article 6 assessments are required under the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (Special Areas of Conservation, hereafter referred to as SACs) or the Birds Directive (Special Protection Areas, hereafter referred to as SPAs).

Following the guidelines set out by DoEHLG (2010) Screening for Appropriate Assessment is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3); i.e. whether a plan or project can be excluded from Appropriate Assessment requirements because it is directly connected with or necessary to the management of the site; and the potential effects of a project or plan, either alone or in combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives, and considering whether these effects will be significant.

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

(1) Whether a plan or project is directly connected to or necessary for the management of the site, and;

(2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

The proposed development does not comply with the first screening test (i.e. the proposed works are not directly connected to or necessary for the management of any Natura 2000 site). The current Screening Assessment therefore sets out to determine whether the development, alone or in combination with other plans and projects, is likely to have significant effects on the Natura 2000 sites within the study area.

4.2 Natura 2000 sites considered for the proposed works

The location of the proposed road in the context of the Natura 2000 network is indicated in Figure 1 above. The Natura 2000 network is a network of nature protection areas across the European Union, comprising of Special Areas of Conservation (SAC's) and Special Protection Areas (SPA's). SACs are sites of international importance because of the presence of habitats or species that are of European importance, listed on the EU Habitats Directive (1992). SPAs are important for birds and these sites are designated based on the presence of internationally significant populations of bird species, listed in Annex I of the EU Birds Directive (2009). The SACs and SPAs within 15km of the proposed development are considered in the current screening and are listed in Table 1.

There are 3 Natura 2000 sites within a 15km radius of the proposed development site. There is a downstream hydrological pathway to the River Barrow and River Nore SAC. The other designated sites within the 15km radius are over 7km from the subject bridge.

Table 1 Designated Natura 2000 Sites and associated Qualifying Interests within 15km of the proposed bridge works.

Natura 2000 Site	Qualifying Interests	Distance (km)
Slaney River Valley SAC (000781)	Estuaries [1130]	7.8km East
	Mudflats and sandflats not covered by seawater at low tide [1140]	
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	
	Mediterranean salt meadows (Juncetalia maritimi) [1410]	
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	
	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	
	Petromyzon marinus (Sea Lamprey) [1095]	
	Lampetra planeri (Brook Lamprey) [1096]	
	Lampetra fluviatilis (River Lamprey) [1099]	
	Alosa fallax fallax (Twaite Shad) [1103]	
	Salmo salar (Salmon) [1106]	
	Lutra lutra (Otter) [1355]	
	Phoca vitulina (Harbour Seal) [1365]	
Holdenstown Bog SAC (001757)	Transition mires and quaking bogs [7140]	11.3km South-east
River Barrow and River Nore SAC (002162)	Estuaries [1130]	4.6km south (c. 15.6rkm downstream – River Barrow)
	Mudflats and sandflats not covered by seawater at low tide [1140]	
	Reefs [1170]	
	Salicornia and other annuals colonising mud and sand [1310]	
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	
	Mediterranean salt meadows (Juncetalia maritimi) [1410]	
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	
	European dry heaths [4030]	
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]	
	Petrifying springs with tufa formation (Cratoneurion) [7220]	
	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	
	Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]	
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	
	Austropotamobius pallipes (White-clawed Crayfish) [1092]	
	Petromyzon marinus (Sea Lamprey) [1095]	
	Lampetra planeri (Brook Lamprey) [1096]	
	Lampetra fluviatilis (River Lamprey) [1099]	
	Alosa fallax fallax (Twaite Shad) [1103]	
	Salmo salar (Salmon) [1106]	
	Lutra lutra (Otter) [1355]	
	Trichomanes speciosum (Killarney Fern) [1421]	
	Margaritifera durrovensis (Nore Pearl Mussel) [1990]	

5. POTENTIAL FOR EFFECTS

Table 2 below outlines the locations of the Qualifying Interests of Natura 2000 Sites within 15km of the proposed bridge works, as well as potential pathways for impacts.

Table 2 Designated Natura 2000 Sites within 15km of the proposed development, the potential location of Q.I.s in relation to the proposed works, potential pathways for impacts and potential impacts arising from the proposed works.

Natura 2000 Site	Qualifying Interests	Location in Relation to Subject Bridge Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
Slaney River Valley SAC (000781)	Estuaries [1130]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	None – No potential pathway – Significantly separated
	Mudflats and sandflats not covered by seawater at low tide [1140]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Mediterranean salt meadows (Juncetalia maritimi) [1410]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	

Natura 2000 Site	Qualifying Interests	Location in Relation to Subject Bridge Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Petromyzon marinus (Sea Lamprey) [1095]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Lampetra planeri (Brook Lamprey) [1096]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Lampetra fluviatilis (River Lamprey) [1099]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Alosa fallax fallax (Twaite Shad) [1103]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Salmo salar (Salmon) [1106]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Lutra lutra (Otter) [1355]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
	Phoca vitulina (Harbour Seal) [1365]	SAC is located at a distance from the subject bridge site with no hydrological pathway.	No	
Holdenstown Bog SAC (001757)	Transition mires and quaking bogs [7140]	SAC is located at a distance from the subject bridge site.	No	None – No potential pathway – Significantly separated
River Barrow and River Nore SAC (002162)	Estuaries [1130]	Occurs in lower reaches of River Barrow from just upstream of St. Mullins	No	None – No potential pathway – Significantly separated
	Mudflats and sandflats not covered by seawater at low tide [1140]	Occurs in lower reaches of River Barrow downstream of New Ross	No	

Natura 2000 Site	Qualifying Interests	Location in Relation to Subject Bridge Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
	Reefs [1170]	Occurs in lower reaches of River Barrow downstream of New Ross	No	
	Salicornia and other annuals colonising mud and sand [1310]	Occurs in lower reaches of River Barrow downstream of New Ross	No	
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	Occurs in lower reaches of River Barrow downstream of New Ross	No	
	Mediterranean salt meadows (Juncetalia maritimi) [1410]	Occurs in lower reaches of River Barrow downstream of New Ross	No	
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	Full extent not known. The main known area of interest is located in the King's tributary of the Nore (NPWS, 2011). Floating river vegetation is also well represented in the River Barrow and its tributaries.	Yes	Yes – Potential pathway for water quality and invasive species impacts to potentially affect this QI.
	European dry heaths [4030]	Terrestrial habitat main area in the foothills of the Blackstairs Mountains.	No	None – No potential pathway – Significantly separated
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]	Extent not known – associated with alluvial woodland which is present c.17rkm downstream	No	
	Petrifying springs with tufa formation (Cratoneurion) [7220]	Occurs in Nore catchment, main known area is Dysart Wood along the River Nore.	No	
	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	Terrestrial habitat, not present downstream; designated area in Nore catchment	No	
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	Located along Barrow banks c.17rkm downstream	No	

Natura 2000 Site	Qualifying Interests	Location in Relation to Subject Bridge Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
	Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]	Terrestrial species and records downstream of Goresbridge (Map7 – NPWS, 2011)	No	
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	Not present in the Barrow downstream – only present in the River Nore with which there is no downstream hydrological connection	No	
	Austropotamobius pallipes (White-clawed Crayfish) [1092]	Unlikely to be present due to outbreaks of Crayfish Plague in the Barrow Catchment but it has occurred in the SAC downstream of the proposed works in the past (Map 7 – NPWS, 2011)	Yes	Yes – Potential pathway for water quality and invasive species impacts to be transferred which could affect this QI.
	Petromyzon marinus (Sea Lamprey) [1095]	Unlikely to occur at the subject bridge site but could occur downstream of subject bridge in the River Barrow	Yes	
	Lampetra planeri (Brook Lamprey) [1096]	Likely to be present in the River Greese c. 500m downstream	Yes	
	Lampetra fluviatilis (River Lamprey) [1099]	Likely to be present in the River Greese c. 500m downstream	Yes	
	Alosa fallax fallax (Twaite Shad) [1103]	Confined to lower reaches of the Barrow catchment due to artificial barriers.	No	None – No potential pathway – Significantly separated
	Salmo salar (Salmon) [1106]	Present downstream of the subject bridge – known spawning habitat present in the River Greese (Delanty *et al.* 2017).	Yes	Yes – Potential pathway for water quality and invasive species impacts to be transferred which could affect this QI.
	Lutra lutra (Otter) [1355]	Likely to be present in the River Greese c. 500m downstream	Yes	

Natura 2000 Site	Qualifying Interests	Location in Relation to Subject Bridge Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
	Trichomanes speciosum (Killarney Fern) [1421]	Terrestrial species and records downstream of Goresbridge (Map7 – NPWS, 2011)	No	None – No potential pathway – Significantly separated
	Margaritifera durrovensis (Nore Pearl Mussel) [1990]	Only occurs in the River Nore catchment (Map 7 – NPWS, 2011)	No	None – No potential pathway – Significantly separated

The potential direct, indirect and cumulative impacts on Natura 2000 sites identified in Section 4 resulting from the proposed works are discussed below.

5.1 Potential direct impacts affecting Natura 2000 sites

5.1.1 Construction Phase

There would be no direct construction phase impacts arising from the proposed works at Moone Village Bridge as this bridge site is not located within any Natura 2000 site and is located at a distance from the Natura 2000 network.

5.1.2 Operational Phase

There would be no direct operational phase impacts arising from the proposed works at Moone Village Bridge as this bridge site is not located within any Natura 2000 site and is located at a distance from the Natura 2000 network.

5.2 Potential indirect impacts affecting Natura 2000 sites

Indirect (or secondary) impacts are defined as effects that are “caused by and result from the activity although they are later in time or further removed in distance, but still reasonably foreseeable” (Bowers-Marriott, 1997).

5.2.1 River Barrow and River Nore SAC

5.2.1.1 Construction Phase

The subject bridge is located over the Timolin14 (Segment: 14_1517) stream, a tributary of the River Greese which in turn is a tributary of the River Barrow. The watercourse provides a potential hydrological pathway to the SAC. The proposed bridge works, although overall relatively small in scale, do involve significant structural repairs to the subject bridge. Due to the nature of the works, including masonry re-pointing and repairs and the use of spray concrete and possibly even the replacement of the bridge, there is a risk of water quality impacts, and invasive species impacts, at the bridge site resulting from the works. These impacts could then be transferred downstream to the designated SAC. Qualifying Interests of the SAC are also likely to occur in the River Greese which is just c. 500m downstream.

Potential water quality impacts concern increased siltation and turbidity during the works, as well as pollution from surface run-off, accidental spillages of oils or fuels from machinery, accidental spilages of concrete / cement, etc. Significant water quality impacts would potentially adversely affect designated water-dependent qualifying interests (such as "*Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation"* habitat, Salmon, Lamprey species, Otter and White-clawed Crayfish) of the SAC present downstream of the subject bridge in the River Barrow. These impacts may affect important habitat that lies outside the SAC boundary also, which supports the designated species, such as Salmon spawning areas in the River Greese and/or Otter foraging and commuting habitat. Similarly, if invasive species are introduced or mobilised at the proposed works site they could potentially be carried via the watercourse and impact the downstream protected site and the associated features of interest. It is also noted that some of the designated species, for example Otter, may commute outside of the SAC and use areas in the vicinity of the proposed works. Therefore, the designated species could potentially be affected by temporary disturbance impacts as a result of increased activity during the proposed works.

Effects from these potential impacts from the works which are considered relatively small in scale are expected to be minor. The subject bridge site is also located at a considerable distance from the SAC. However, due to the risk of some water quality and invasive species impacts arising and the hydrological pathway to the SAC, as well as the likelihood of designated species commuting out of the SAC and possible disturbance impacts, mitigation measure will be necessary to protect the watercourse and protected species. Mitigation cannot be provided at the Screening stage of Appropriate Assessment.

5.2.1.2 Operational Phase

No significant operational phase impacts of the proposed bridge works are anticipated. The subject bridge is an existing structure and there would be no change of use of the subject site as a result of the proposed repairs. There is no potential for impacts to affect any Natura 2000 sites due to significant separation.

5.3 Potential cumulative impacts affecting the Natura 2000 site

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997).

5.3.1 River Barrow and River Nore SAC

The standard data Natura 2000 form for the River Barrow and River Nore SAC notes the following as having a High impact on the SAC: modifying structures of inland watercourses, agricultural intensification, surface water pollution, erosion, dykes and flood defences on inland watercourses. There are also several Medium impact pressures listed as affecting the designated site including other human alterations to natural river systems, forestry related impacts, peat extraction, cattle grazing, change in abiotic conditions, fishing and harvesting aquatic resources and invasive species. Due to the hydrological connection to the SAC there is a risk of potential water quality and invasive species impacts arising from the proposed works being carried to the downstream SAC. Although the impacts are expected to be minor at this distance downstream of the bridge they may contribute to existing pressures in the SAC. Therefore, mitigation measure should be implemented to prevent significant impacts during the proposed bridge works upstream of the SAC.

6. SCREENING STATEMENT WITH CONCLUSIONS

According to the guidance published by the DoEHLG (2010), Screening for Appropriate Assessment can either identify that an Appropriate Assessment is not required, where a project / proposal is directly related to the management of the site; or that there is no potential for significant effects affecting the Natura 2000 network; or that significant effects are certain, likely or uncertain (i.e., the project must either proceed to Stage 2 (AA) or be rejected).

From examination of the information available, it is concluded that there is potential for indirect and cumulative impacts relating to disturbance, water quality and invasive species to arise from the proposed bridge works at Moone Village Bridge in Co. Kildare. It is considered that mitigation will be required to prevent significant adverse impacts on the River Barrow and River Nore SAC. Mitigation measures cannot be provided in a Screening for Appropriate Assessment report as per case C-323/17 People Over Wind and Peter Sweetman v Coillte. Therefore, a Natura Impact Statement is required for the proposed works at Moone Village Bridge.

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PLATES

Plate 1 Moone Village Bridge.

Plate 2 The stream at the site is clearly maintained and has high banks.

Plate 3 The upstream side showed clear evidence of recent vegetation clearance and debris.

Plate 4 Moone Village bridge is very low with minimal space underneath.

APPENDIX 1 NPWS SITE SYNOPSES

SITE NAME: River Barrow and River Nore SAC
SITE CODE: 002162

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

Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains before passing through a band of Carboniferous shales and sandstones. The Nore, for a large part of its course, traverses limestone plains and then Old Red Sandstone for a short stretch below Thomastown. Before joining the Barrow it runs over intrusive rocks poor in silica. The upper reaches of the Barrow also run through limestone. The middle reaches and many of the eastern tributaries, sourced in the Blackstairs Mountains, run through Leinster Granite. The southern end, like the Nore runs over intrusive rocks poor in silica. Waterford Harbour is a deep valley excavated by glacial floodwaters when the sea level was lower than today. The coast shelves quite rapidly along much of the shore.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [1130] Estuaries; [1140] Tidal Mudflats and Sandflats; [1170] Reefs; [1310] Salicornia Mud; [1330] Atlantic Salt Meadows; [1410] Mediterranean Salt Meadows; [3260] Floating River Vegetation; [4030] Dry Heath; [6430] Hydrophilous Tall Herb Communities; [7220] Petrifying Springs*; [91A0] Old Oak Woodlands; [91E0] Alluvial Forests*; [1016] Desmoulin's Whorl Snail (Vertigo moulinsiana); [1029] Freshwater Pearl Mussel (Margaritifera margaritifera); [1092] White-clawed Crayfish (Austropotamobius pallipes); [1095] Sea Lamprey (Petromyzon marinus); [1096] Brook Lamprey (Lampetra planeri); [1099] River Lamprey (Lampetra fluviatilis); [1103] Twaite Shad (Alosa fallax); [1106] Atlantic Salmon (Salmo salar); [1355] Otter (Lutra lutra); [1421] Killarney Fern (Trichomanes speciosum); and [1990] Nore Freshwater Pearl Mussel (Margaritifera durrovensis).

Good examples of alluvial forest (a priority habitat on Annex I of the E.U. Habitats Directive) are seen at Rathsnagadan, Murphy's of the River, in Abbeyleix estate and along other shorter stretches of both the tidal and freshwater elements of the site. Typical species seen include Almond Willow (Salix triandra), White Willow (S. alba), Rusty Willow (S. cinerea subsp. oleifolia), Crack Willow (S. fragilis) and Osier (S. viminalis), along with Iris (Iris pseudacorus), Hemlock Water-dropwort (Oenanthe crocata), Wild Angelica (Angelica sylvestris), Thin-spiked Wood-sedge (Carex strigosa), Pendulous Sedge (C. pendula), Meadowsweet (Filipendula ulmaria), Common Valerian (Valeriana officinalis) and the Red Data Book species Nettle-leaved Bellflower (Campanula trachelium).

A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore. This is a rare habitat in Ireland and one listed with priority status on Annex I of the E.U. Habitats Directive. These hard water springs are characterised by lime encrustations, often associated with small waterfalls. A rich bryophyte flora is typical of the habitat and two diagnostic species, Palustriella commutata and Eucladium verticillatum, have been recorded.

The best examples of old oak woodlands are seen in the ancient Park Hill woodland in the estate at Abbeyleix; at Kyleadohir, on the Delour, Forest Wood House, Kylecorragh and Brownstown Woods on the Nore; and at Cloghristic Wood, Drummond Wood and Borris Demesne on the Barrow, though other patches occur throughout the site. Abbeyleix Woods is a large tract of mixed deciduous woodland which is one of the only remaining true ancient woodlands in Ireland. Historical records show that Park Hill has been continuously wooded since the 16th century and has the most complete written record of any woodland in the country. It supports a variety of woodland habitats and an exceptional diversity of species including 22 native trees, 44 bryophytes and 92 lichens. It also contains eight indicator species of ancient woodlands. Park Hill is also the site of two rare plants, Nettle-leaved Bellflower and the moss Leucodon sciuroides. The rare Myxomycete fungus, Licea minima has been recorded from woodland at Abbeyleix.

Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. The steep valley side is covered by oak (Quercus spp.), Holly (Ilex aquifolium), Hazel (Corylus avellana) and Downy Birch (Betula pubescens), with some Beech (Fagus sylvatica) and Ash (Fraxinus excelsior). All the trees are regenerating through a cover of Bramble (Rubus fruticosus agg.), Foxglove (Digitalis purpurea), Great Wood-rush (Luzula sylvatica) and Broad Buckler-fern (Dryopteris dilatata).

On the steeply sloping banks of the River Nore, about 5 km west of New Ross, in Co. Kilkenny, Kylecorragh Woods form a prominent feature in the landscape. This is an excellent example of relatively undisturbed, relict oak woodland with a very good tree canopy. The wood is quite damp and there is a rich and varied ground flora. At Brownstown, a small, mature oak dominated woodland occurs on a steep slope. There is younger woodland to the north and east of it. Regeneration throughout is evident. The understorey is similar to the woods at Brownsford. The ground flora of this woodland is developed on acidic, brown earth type soil and comprises a thick carpet of Bilberry (Vaccinium myrtillus), Heather (Calluna vulgaris), Hard Fern (Blechnum spicant), Common Cow-wheat (Melampyrum pratense) and Bracken (Pteridium aquilinum).

Borris Demesne contains a very good example of a semi-natural broadleaved woodland in very good condition. There is quite a high degree of natural regeneration of oak and Ash through the woodland. At the northern end of the estate oak species predominate. Drummond Wood, also on the Barrow, consists of three blocks of deciduous woods situated on steep slopes above the river. The deciduous trees are mostly oak species. The woods have a well-established understorey of Holly, and the herb layer is varied, with Bramble abundant. The whitebeam Sorbus devoniensis has also been recorded here.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Characteristic species of the habitat include Meadowsweet, Purple Loosestrife (Lythrum salicaria), Marsh Ragwort (Senecio aquaticus), Ground Ivy (Glechoma hederacea) and Hedge Bindweed (Calystegia sepium). Indian Balsam (Impatiens glandulifera), an introduced and invasive species, is abundant in places.

Floating river vegetation is well represented in the Barrow and in the many tributaries of the site. In the Barrow the species found include water-starworts (Callitriche spp.), Canadian Pondweed (Elodea canadensis), Bulbous Rush (Juncus bulbosus), water-milfoils (Myriophyllum spp.), the pondweed Potamogeton x nitens, Broad-leaved Pondweed (P. natans), Fennel Pondweed (P. pectinatus), Perfoliated Pondweed (P. perfoliatus) and crowfoots (Ranunculus spp.). The water quality of the Barrow has improved since the vegetation survey was carried out (EPA, 1996).

Dry heath at the site occurs in pockets along the steep valley sides of the rivers especially in the Barrow Valley and along the Barrow tributaries where they occur in the foothills of the Blackstairs Mountains. The dry heath vegetation along the slopes of the river bank consists of Bracken and Gorse (Ulex europaeus) with patches of acidic grassland vegetation. Additional typical species include Heath Bedstraw (Galium saxatile), Foxglove, Common Sorrel (Rumex acetosa) and Creeping Bent (Agrostis stolonifera). On the steep slopes above New Ross the Red Data Book species Greater Broomrape (Orobanche rapum-genistae) has been recorded. Where rocky outcrops are shown on the maps Bilberry and Great Wood-rush are present. At Ballyhack a small area of dry heath is interspersed with patches of lowland dry grassland. These support a number of clover species, including the legally protected Clustered Clover (Trifolium glomeratum) - a species known from only one other site in Ireland. This grassland community is especially well developed on the west side of the mud-capped walls by the road. On the east of the cliffs a group of rock-dwelling species occur, i.e. English Stonecrop (Sedum anglicum), Sheep's-bit (Jasione montana) and Wild Madder (Rubia peregrina). These rocks also support good lichen and moss assemblages with Ramalina subfarinacea and Hedwigia ciliata.

Dry heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. Close to the Blackstairs Mountains, in the foothills associated with the Aughnabrisky, Aughavaud and Mountain Rivers there are small patches of wet heath dominated by Purple Moor-grass (Molinia caerulea) with Heather, Tormentil (Potentilla erecta), Carnation Sedge (Carex panicea) and Bell Heather (Erica cinerea).

Salt meadows occur at the southern section of the site in old meadows where the embankment has been breached, along the tidal stretches of in-flowing rivers below Stokestown House, in a narrow band on the channel side of Common Reed (Phragmites australis) beds and in narrow fragmented strips along the open shoreline. In the larger areas of salt meadow, notably at Carrickcloney, Ballinlaw Ferry and Rochestown on the west bank; Fisherstown, Alderton and Great Island to Dunbrody on the east bank, the Atlantic and Mediterranean sub types are generally intermixed. At the upper edge of the salt meadow in the narrow ecotonal areas bordering the grasslands where there is significant percolation of salt water, the legally protected species Borrer's Saltmarsh-grass (Puccinellia fasciculata) and Meadow Barley (Hordeum secalinum) are found. The very rare and also legally protected Divided Sedge (Carex divisa) is also found. Sea Rush (Juncus maritimus) is also present. Other plants recorded and associated with salt meadows include Sea Aster (Aster tripolium), Thrift (Armeria maritima), Sea Couch (Elymus pycnanthus), Spear-leaved Orache (Atriplex prostrata), Lesser Sea-spurrey (Spergularia marina), Sea Arrowgrass (Triglochin maritima) and Sea Plantain (Plantago maritima).

Glassworts (Salicornia spp.) and other annuals colonising mud and sand are found in the creeks of the saltmarshes and at the seaward edges of them. The habitat also occurs in small amounts on some stretches of the shore free of stones.

The estuary and the other E.U. Habitats Directive Annex I habitats within it form a large component of the site. Extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. Good quality intertidal sand and mudflats have developed on a linear shelf on the western side of Waterford Harbour, extending for over 6 km from north to south between Passage East and Creadaun Head, and in places are over 1 km wide. The sediments are mostly firm sands, though grade into muddy sands towards the upper shore. They have a typical macro-invertebrate fauna, characterised by polychaetes and bivalves. Common species include Arenicola marina, Nephtys hombergii, Scoloplos armiger, Lanice conchilega and Cerastoderma edule. An extensive area of honey-comb worm biogenic reef occurs adjacent to Duncannon, Co. Wexford on the eastern shore of the estuary. It is formed by the polychaete worm Sabellaria alveolata. This intertidal

Sabellaria alveolata reef is formed as a sheet of interlocking tubes over a considerable area of exposed bedrock. This polychaete species constructs tubes, composed of aggregated sand grains, in tightly packed masses with a distinctive honeycomb-like appearance. These can be up to 25cm proud of the substrate and form hummocks, sheets or more massive formations. A range of species are reported from these reefs including: Enteromorpha sp.; Ulva sp.; Fucus vesiculosus; Fucus serratus; Polysiphonia sp.; Chondrus crispus; Palmaria palmate; Coralinus officialis; Nemertea sp.; Actinia equine; Patella vulgate; Littorina littorea; Littorina obtusata and Mytilus edulis.

The western shore of the harbour is generally stony and backed by low cliffs of glacial drift. At Woodstown there is a sandy beach, now much influenced by recreation pressure and erosion. Behind it a lagoonal marsh has been impounded which runs westwards from Gaultiere Lodge along the course of a slow stream. An extensive reedbed occurs here. At the edges is a tall fen dominated by sedges (Carex spp.), Meadowsweet, willowherbs (Epilobium spp.) and rushes (Juncus spp.). Wet woodland also occurs.

The dunes which fringe the strand at Duncannon are dominated by Marram (Ammophila arenaria) towards the sea. Other species present include Wild Clary/Sage (Salvia verbenaca), a rare Red Data Book species. The rocks around Duncannon ford have a rich flora of seaweeds typical of a moderately exposed shore and the cliffs themselves support a number of coastal species on ledges, including Thrift, Rock Samphire (Crithmum maritimum) and Buck's-horn Plantain (Plantago coronopus).

Other habitats which occur throughout the site include wet grassland, marsh, reedswamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds.

Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. These are Killarney Fern (Trichomanes speciosum), Divided Sedge, Clustered Clover, Basil Thyme (Acinos arvensis), Red Hemp-nettle (Galeopsis angustifolia), Borrer's Saltmarsh-grass, Meadow Barley, Opposite-leaved Pondweed (Groenlandia densa), Meadow Saffron/Autumn Crocus (Colchicum autumnale), Wild Clary/Sage, Nettle-leaved Bellflower, Saw-wort (Serratula tinctoria), Bird Cherry (Prunus padus), Blue Fleabane (Erigeron acer), Fly Orchid (Ophrys insectifera), Ivy Broomrape (Orobanche hederae) and Greater Broomrape. Of these, the first nine are protected under the Flora (Protection) Order, 2015. Divided Sedge was thought to be extinct but has been found in a few locations in the site since 1990. In addition plants which do not have a very wide distribution in the country are found in the site including Thin-spiked Wood-sedge, Field Garlic (Allium oleraceum) and Summer Snowflake. Six rare lichens, indicators of ancient woodland, are found including Lobaria laetevirens and L. pulmonaria. The rare moss Leucodon sciuroides also occurs.

The site is very important for the presence of a number of E.U. Habitats Directive Annex II animal species including Freshwater Pearl Mussel (both Margaritifera margaritifera and M. m. durrovensis), White-clawed Crayfish, Salmon, Twaite Shad, three lamprey species – Sea Lamprey, Brook Lamprey and River Lamprey, the tiny whorl snail Vertigo moulinsiana and Otter. This is the only site in the world for the hard water form of the Freshwater Pearl Mussel, M. m. durrovensis, and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The Barrow/Nore is mainly a grilse fishery though spring salmon fishing is good in the vicinity of Thomastown and Inistioge on the Nore. The upper stretches of the Barrow and Nore, particularly the Owenass River, are very important for spawning.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Badger, Irish Hare and Common Frog. The rare Red Data Book fish species Smelt (Osmerus eperlanus) occurs in estuarine stretches of the site. In addition to the

Freshwater Pearl Mussel, the site also supports two other freshwater mussel species, Anodonta anatina and A. cygnea.

Three rare invertebrates have been recorded in alluvial woodland at Murphy's of the River. These are: Neoascia obliqua (Order Diptera: Syrphidae), Tetanocera freyi (Order Diptera: Sciomyzidae) and Dictya umbrarum (Order Diptera: Sciomyzidae). The rare invertebrate, Mitostoma chrysomelas (Order Arachnida), occurs in the old oak woodland at Abbeyleix and only two other sites in the country. Two flies (Order Diptera) Chrysogaster virescens and Hybomitra muhlfeldi also occur at this woodland.

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species, including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois, and also along the Barrow Estuary in Waterford Harbour. There is also an extensive autumnal roosting site in the reedbeds of the Barrow Estuary used by Swallows before they leave the country. The old oak woodland at Abbeyleix has a typical bird fauna including Jay, Long-eared Owl and Raven. The reedbed at Woodstown supports populations of typical waterbirds including Mallard, Snipe, Sedge Warbler and Water Rail.

Land use at the site consists mainly of agricultural activities – mostly intensive in nature and principally grazing and silage production. Slurry is spread over much of the area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within the site. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing in the estuary and a mussel bed also. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath, are also popular. There is a golf course on the banks of the Nore at Mount Juliet and GAA pitches on the banks at Inistioge and Thomastown. There are active and disused sand and gravel pits throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port. Shipping to and from Waterford and Belview ports also passes through the estuary.

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

Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt

meadows and the population of the hard water form of the Freshwater Pearl Mussel, which is limited to a 10 km stretch of the Nore, add further interest to this site.