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Laois River Works

Stradbally Bridge - Silt Removal Works. Natura Impact Statement

Laois County Council

11/06/2022

Notice

This document and its contents have been prepared and are intended solely as information for Laois County Council and use in relation to proposed works at Stradbally Bridge on the N80, Stradbally, Co. Laois

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Document history

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1. Introduction

Atkins Ireland have been commissioned by Laois County Council (LCC) to prepare a Screening for Appropriate Assessment report for the proposed works at Stradbally Bridge on the N80, Stradbally, Co. Laois. The proposed project comprises removal of small vegetated gravel and silt deposits/ berms within the river channel downstream of Stradbally Bridge on the N80.

1.1. Proposed Works

The proposed project is located on the Stradbally River downstream of the N80 Bridge in Stradbally town, Co. Laois. The river at this location is within the Barrow and River Nore Special Area of Conservation (Site Code 002162). The location of the proposed project and the work locations are illustrated in Figures 1.1.

The topping of the vegetated gravel and silt deposits/ berms within the channel will involve the removal of material above the riverbed level at the time of the proposed works using an excavator. The exposed deposited silt will be removed using an excavator to the top of the riverbed; no excavation of the riverbed is permitted. The proposed works will be carried out during July 1st and September 30th inclusive and will be carried out during a period of low water levels.

1.1.1. Description of proposed Works

The following description is extracted from the Works Method Statement, which is included in full in Appendix B.

The proposed works area is situated immediately downstream of the N80 Bridge. The instream vegetated deposits are present in the centre and on the banks of the channel and vegetated predominately by reed canary grass. The composition of the deposits is gravel and silt, upon which the rooted vegetation is growing. The riverbed either side of the vegetated deposits consists of gravel and cobble with silt present along the fringes of the channel.

In order to ensure that works are undertaken in a proper fashion Laois County Council will appoint a Works Supervisor, and an Engineer to the proposed project. Works will be undertaken by subcontractor to Laois County Council.

The following summaries the proposed scope of works to be undertaken at Stradbally Bridge by Laois County Council: -

Plant

- Vacuum Excavator Truck
- 1t mini digger
- Hiab – low loader

Labour

- Supervisor
- Vacuum Excavator Operator
- Excavator Operator

Materials

- Sedimats 1.2m x 3m long sections immediately and @ 50m.

The works area and location where the Vacuum Excavator Truck is to be parked on the public road are shown on Figure 1.1.

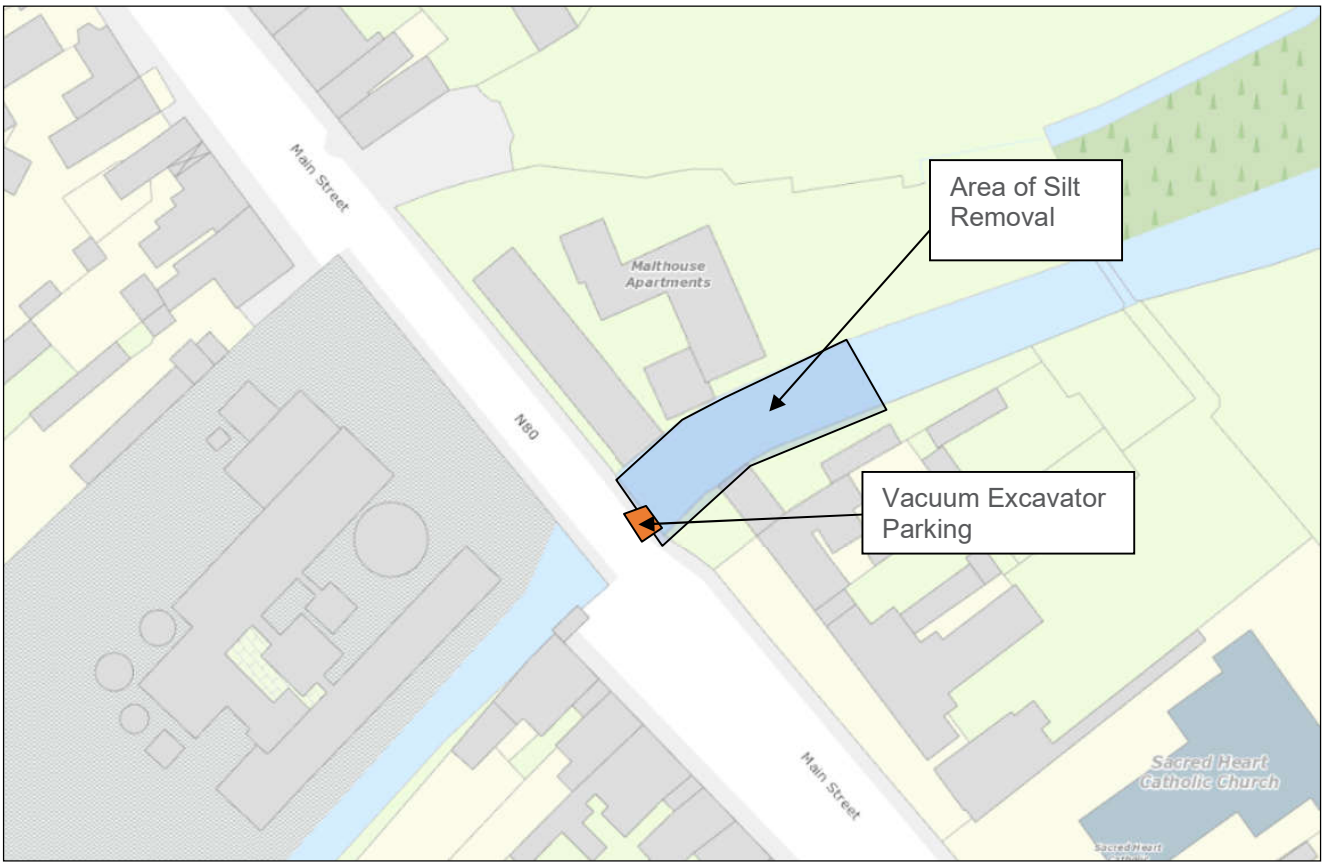


Figure 1.1 Location of proposed works at the N80 River Bridge in Stradbally, Co. Laois.

The works crew will be briefed on the ecological sensitivity of the site and the Works Method Statement by the Project Engineer prior to works commencing on site.

Plate 1.1 illustrates the parking area on the public road where the vacuum excavator truck will park to undertake works. This will necessitate the temporary closing of a lane on the N80 and implementation of an appropriate traffic management system.

Plate 1.1 Location for parking the vacuum excavator truck.

Plate 1.2 Vacuum Excavator.

Plate 1.3 Example of similar works demonstrating how accumulated silts are only reduced at the time of works.

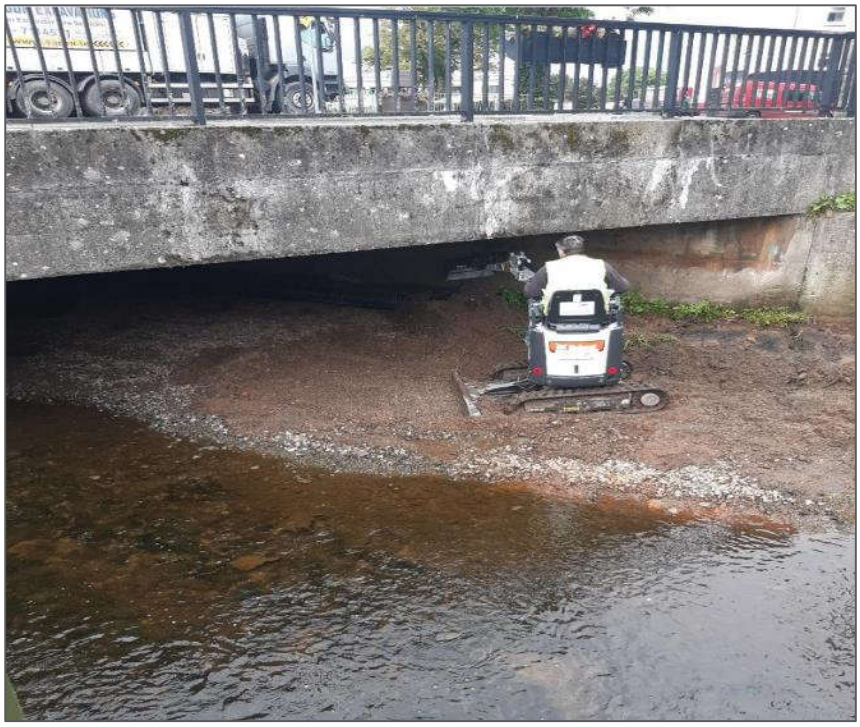


Plate 1.4 Example of similar works showing the small 1t excavator feeding silt material to suction line from the vacuum excavator truck (note the clean water adjoining the works).

Plate 1.5 Example of proposed sedimat.

1.1.1.1. Summary of Proposed Works

1. The proposed works shall be carried out during the period 1st July to 30th September, inclusive.

2. NPWS and IFI will be informed in advance of works commencing.

3. The excavator and vacuum excavator will be come to site fully fuelled up and serviced and there will not be any need for filling of oils or lubricants on site or for storage of fuels or oils on site.

4. The Laois County Council Supervisor shall monitor the 10-day forecast. The works shall not take place during high river flows or prior to forecasts of heavy rainfall. The objective would be to time works to a period of low flow within the river.

5. All site staff will be informed of work methods to be employed on site, as well as the sensitivity of the River Barrow and River Nore SAC via the dissemination of a tool-box talk. This shall include the requirement for protection of aquatic and riverside habitats.

6. Prior to the commencement of works, sedimats will be placed immediately downstream of the works area. A second and third set of sedimats will be placed a further 50m downstream of the works area. There placement on site will be supervised by the Project Ecologist.

7. Traffic Management will be in place.

8. Works will be carried out during day-time hours only. The mini excavator will be unloaded and lowered down onto a pile of silt from low-loader parked on the N80 bridge. The Vacuum Excavator will park on the N80 footpath and partially on the Carlow bound land.

9. Machinery shall not enter the water as part of the works. The excavator will track along the top of the silt deposits on the left hand side of the river to maximum 50m from the river bridge. Operative will set up 225mm plastic pipes laying them on top of the silt deposits. This plastic pipe is used to feed the material back to the suction hose from the vacuum excavator parked on the bridge

10. The vegetated silt and gravel deposits within the channel will be reduced to riverbed level at the time the proposed works are carried out. There shall be no excavation of the riverbed. The material will be scraped down using the 1t excavator and placed at the end of the 225mm pipe from where it will be sucked back to the truck.

11. As noted, works will take place when flows are low within the river. This will allow for the riverbed / river level to be clearly identifiable relative to the silt / gravel deposits. Works will be undertaken as follows: -

a. Prior to the removal of silts, vegetation on the silt deposit will be cut back and removed.

b. The silt removal will start at the furthest point from the truck and work back towards the river bridge. Operator will disassemble the 225mm pipe as they progress back towards the start. As stated in measure no. 2, this will be done during dry weather conditions where no heavy rainfall is anticipated on the 10-day forecast.

c. No material will be stored on the river bank.

d. Emergency spill kits will be available on site and staff will be trained in their use.

e. Operators and the LCC supervisor will check the 1t excavator and the vacuum excavator immediately after they arrive on site and before starting work to confirm the absence of leakages. Any leakages should be reported immediately and addressed. Excavator will not be permitted to work if any leaks are identified.

f. Daily checks will be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective will be removed from site immediately.

g. As an added precaution, prior to the commencement of works, sedimats will be placed immediately downstream of the works area in order to protect water quality locally. There placement on site will be supervised by the Project Ecologist.

2. Scope of Study

The aim of this report is to provide supporting information to assist the competent authority to carry out an Appropriate Assessment determination with respect to the proposed project.

2.1. Legislative Context

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora, known as the 'Habitats Directive' provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 – 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservations of an EU-wide network of sites known as European sites. European sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC).

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans or projects that could potentially affect European sites. Article 6(3) establishes the requirement for Appropriate Assessment: -

> *"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."*

Article 6 (4) deals with the steps that should be taken when it is determined, as a result of Appropriate Assessment, that a plan or project will adversely affect a European site. Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures need to be addressed in this case. Article 6(4) states: -

> *"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."*

2.2. Appropriate Assessment Process

Guidance on the AA process was produced by the European Commission (EC, 2001; 2018), which was subsequently used to develop guidance for Ireland by the Department of Environment, Heritage and Local Government in 2009 (DEHLG, 2009), National Parks and Wildlife Service in 2018[1] (NPWS 2018) and the Office of the Planning Regulator (2021). These guidance documents set out a staged approach to complete the AA process and outline the issues and tests at each stage. The stages outlined below are taken from the guidance document Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DEHLG, 2009).

[1] https://www.npws.ie/development-consultations

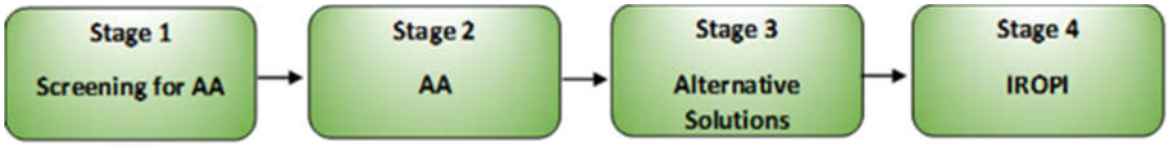


Figure 2.1 Appropriate Assessment Process (Source: DEHLG, 2009).

2.2.1. Screening for Appropriate Assessment

Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3): -

i. Whether a plan or project is directly connected to or necessary for the management of the site; and
ii. Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

If the effects are deemed to be significant, potentially significant, or uncertain, then the process must proceed to Appropriate Assessment.

2.2.2. Appropriate Assessment

Appropriate Assessment considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a European site, and includes any necessary mitigation measures.

The competent authority can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site(s) concerned. If this cannot be determined, and where sufficient mitigation cannot be achieved, the alternative solutions need to be considered and the process proceeds to the consideration of alternative solutions.

2.2.3. Alternative Solutions

This examines any alternative solutions or options that could enable the plan or project to proceed without adverse effects on the integrity of a European site. The process must return to AA as alternatives will require assessment in order to proceed. Demonstrating that all reasonable alternatives have been considered and assessed, and that the least damaging option has been selected, it is necessary to examine whether there are imperative reasons of overriding interest (IROPI).

2.2.4. IROPI

This examines whether there are imperative reasons of overriding public interest for allowing a plan or project that will have adverse effects on the integrity of a European site to proceed in cases where it has been established that no less damaging alternative solution exists. Compensatory measures must be proposed and assessed, of which the Commission must be informed.

The AA process only progresses through the full process for certain plans and projects. For example, for a project not connected with the management of a European site and where no likely significant effects on a European site in view of its conservation objectives are identified, the process stops at Screening for AA. Throughout the process the precautionary principle must be applied, which requires that the conservation objectives of Natura 2000 should prevail where there is uncertainty (EC, 2001; 2018).

3. Methods

3.1. Legislation & Guidance Documents

This report was prepared with reference and due consideration to the following documents and due regard for relevant case law, including but not limited to: -

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna (Habitats Directive);
- Statutory Instrument No. 477/2011 — European Communities (Birds and Natural Habitats) Regulations 2011;
- National Parks and Wildlife Service - Development Consultations[2] (NPWS, 2018)
- European Commission (2018). Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC;
- European Commission (2021). Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC;
- Department of the Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities; and,
- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01; and,
- Case C-323/17 People Over Wind & anor. V. Coillte and other relevant court rulings and case law.

3.2. Desk Study

A desk study was carried out to collate information available on European sites in the vicinity of the proposed project. These areas were viewed using Google Earth, Google maps[3] and Bing maps[4] (last accessed on (12/04/2021).

The National Parks and Wildlife Service (NPWS) online databases were reviewed concerning European sites and their features of interest in the vicinity of the proposed project. The Environmental Protection Agency (EPA) mapping[5] system was used to identify any hydrological connection between the proposed project and European sites, this information was supported by site walkover surveys.

Locations and boundaries of all European sites within the potential zone of influence of the proposed project were identified and reviewed using the NPWS online map viewer. Boundary shapefiles were also downloaded from this site to facilitate the preparation of project graphics.

Desktop information on relevant European sites was reviewed on the NPWS website, including the site synopsis for each SAC/SPA, the conservation objectives, the site boundaries as shown on the NPWS online map viewer, the standard European Data Form for the SAC/SPA which details conditions and threats of the sites, and published information and unpublished reports on the relevant European sites.

Relevant planning information for the surrounding area was reviewed using the planning enquiry systems of Laois County Council. Search criteria were implemented to determine whether such projects or plans would be relevant to this study and this information was used to determine potential in-combination impacts from other plans / projects with the proposed project.

[2] https://www.npws.ie/development-consultations
[3] https://www.google.ie/maps
[4] http://www.bing.com/maps/
[5] https://gis.epa.ie/EPAMaps/

3.3. Site Visit

The Stradbally River at Stradbally has been visited on a number of occasions in recent years by Atkins ecological staff. For example, the river was surveyed from Stradbally River bridge on the N80 in May 2021 (Atkins, 2021). This survey was undertaken on both riverbanks of the Stradbally River. The site was visited again on the 1st April 2022.

Ecological survey methods were in general accordance with those outlined in the following documents:

- *A Guide to Habitats in Ireland* (Fossitt, 2000);
- *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al*., 2011);
- *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA, 2009).

As detailed in Section 5.1, the zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018).

While on site, semi-natural habitats present were recorded using the Fossitt (2000) classification system and their constituent species noted. Potential sensitive ecological receptors present within the survey area were recorded, including the presence of protected species and habitats or habitats that would support protected species, in addition to noting connectivity to European sites. The presence of non-native invasive species was also recorded.

3.4. Statement of Authority

The Screening for Appropriate Assessment report was prepared by Paul O'Donoghue. Peer review was undertaken by Colin Wilson. 2021 survey work was undertaken by Niamh Sweeney.

Paul O'Donoghue has a BSc (Zoology), MSc (Behavioural Ecology) and a PhD in avian ecology and genetics. His is a chartered member of the Society for the Environment (CEnv) and a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Paul has over 20 years' experience in ecology; including extensive experience in the preparation of Habitat Directive Assessments / Natura Impact Statements (i.e. Appropriate Assessment under Article 6(3) of the EU Habitats Directive).

Niamh Sweeney (BSc, MSc (Res)) is a freshwater ecologist with over 10 years' experience in ecological consultancy, with specialisms in macroinvertebrate and diatom taxonomy. Niamh has worked on numerous Screenings for Appropriate Assessment, Natura Impact Statements and Ecological Impact Assessments for private architect firms, waste companies, numerous County Councils, the OPW and Inland Fisheries Ireland.

This report has been reviewed by **Owen O'Keefe**, Senior Ecologist at Atkins. Owen holds a BSc (Hons) in Ecology from University College Cork (2015) and is a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). He has 6.5 years' professional experience in ecological consultancy, specialising river ecosystems and Appropriate Assessment.

4. Existing Environment

4.1. Desktop review

The Stradbally River is a 4th order river that flows in a north-easterly direction until it joins the River Barrow. The Stradbally River is categorised as *'Moderate'* water quality under the Water Framework Directive. Garran's Bridge was sampled by the EPA in 2020 and was assigned a quality rating of Q4, which denotes slightly polluted conditions.

Inland Fisheries Ireland conducted a fish stock assessment throughout the River Barrow catchment in 2015 (Delanty *et al.*, 2017). Fish species encountered in the Stradbally catchment included brown trout (*Salmo trutta*), Atlantic salmon (*Salmo salar*), 3-spined stickleback (*Gasterosteus aculeatus*), stone loach (*Barbatula barbatula*), lamprey sp. (*Lampetra* sp.) and minnow (*Phoxinus phoxinus*). Brown trout were present at all 4 sites sampled within the catchment, while Atlantic salmon were limited to the Clone Bridge site in the lower reaches. Clone Bridge is located approximately 1.5km downstream of Garran's Bridge.

The National Biodiversity Centre has records for white-clawed crayfish (*Austropotamobius pallipes*) on the Stradbally River within Stradbally town and at Garran's Bridge, and further downstream at Derrybrock Bridge. Crayfish plague was recorded in the River Barrow in 2017 and again in the Barrow catchment in 2018. Although crayfish plague has had a negative impact on the crayfish population of the Barrow, their presence should still be presumed.

Otter (*Lutra lutra*) frequent the River Barrow catchment and its tributaries. Records for otter are present on the NBDC database for the Stradbally River upstream of Stradbally of town and at Garran's Bridge. NBDC otter records are also present on the main channel of the River Barrow, which is located ca. 6.5km downstream of Garran's Bridge.

4.2. Site Visit

The N80 spans the Stradbally River within Stradbally town. The bridge is a 3 span bridge with 2 wetted arches. Downstream of the bridge the channel is bound by concrete walls and buildings. The substrate was cobble/ gravel and siltation was present instream. Instream submerged vegetation included water crowfoot (*Ranunculus* sp. subgenus *Batrachion*), mosses (*Fontinalis* sp.) and filamentous algae. Filamentous algae comprised approximately 70% cover. It should be noted that water crowfoots were not identifiable to species due to the time of year, i.e. they were not in flower. Marginal vegetation was dominated by reed canary grass (*Phalaris arundinacea*) and also comprised lesser water parsnip (*Berula erecta*) and willowherb (*Epilobium* sp.). Immediately downstream of the N80 bridge were instream gravel and silt deposits in the centre and left hand side of the channel (facing downstream). These were vegetated with reed canary grass.

Upstream of the N80 bridge the river was also bounded by walls and buildings. The water depth was approximately 40cm deep. Filamentous algae accounted for approximately 90% instream cover and the instream vegetation was significantly silted.

The survey stretch of the Stradbally River did not support the habitat Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]. As detailed above, instream vegetated silt and gravel deposits/ berms and marginal vegetation were dominated by reed canary grass.

During the site visit Grey wagtail (*Motacilla cinerea*) and Pied Wagtail (*M. alba yarelli*) were noted feeding along the river. A single Dipper (*Cinclus cinclus*) flew under the bridge.

Plate 4.1 **Ca. 50m downstream of N80 bridge in Stradbally (May 2021).**

Plate 4.2 **Immediately downstream of N80 bridge in Stradbally (May 2021).**

Plate 4.3 **View of upstream side of the bridge (April 2022).**

Plate 4.4 **View of downstream side of the bridge (April 2022).**

5. Stage 1 Screening for Appropriate Assessment

The 'zone of influence' (ZoI) for a project is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018).

A distance of 15km is recommended in the case of plans, as a potential zone of influence and this distance is derived from UK guidance (Scott Wilson *et al*., 2006). However, for projects the distance could be much less, and in some cases less than 100m. National Parks and Wildlife Service and Office of the Planning Regulator guidance[6] advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects.

Thus, given the nature, scale and extent of the proposed project, the potential zone of influence (ZoI) will consider European sites with regard to the location of a European site, the QIs of the site and their potential mobility outside that European site, the Cause-Pathway-Effect model and potential environment effects of the proposed project.

Due to the nature, scale and extent of the proposed project, sources of potential effect during the proposed project include; noise, human presence, movement of machinery and equipment, and works adjacent to and within the river channel. Thus, the potential zone of influence is considered to be 150m for mobile species such as otter, and receptors with hydrological connectivity to the proposed project.

Two SACs are present within the potential ZoI of the proposed project; River Barrow and River Nore SAC (002162) and Ballyprior Grassland SAC (002256). The proposed project is located at the upper boundary of, and is hydrologically connected to, the River Barrow and River Nore SAC. There are no SPAs located within the ZoI of the proposed project.

Table 5.1 outlines the qualifying interests of the SACs and discusses whether further consideration is required in relation to the potential for likely significant effects on these SACs as a result of the proposed project.

[6] DoEHLG (2009*). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*. Department of Environment, Heritage and Local Government, Dublin, Ireland.
OPR (2021) Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. Office of the Planning Regulator. Dublin, Ireland.

Table 5.1 SACs within the potential ZoI of the proposed project.

Natura 2000 Site	Site Code	Distance	Qualifying Interests	Within Zone of Influence (ZoI)
River Barrow and River Nore SAC	0002162	Within. The N80 bridge spans the Stradbally River. The proposed works area is at the upper boundary of and within the SAC.	• Estuaries [1130] • 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]	Yes.
Ballyprior Grassland SAC	002256	Ca. 4km south west of the proposed project.	• Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]	No. There is no hydrological link or connectivity via landscape features between the proposed project and the SAC. Thus, it is not considered further in this assessment.

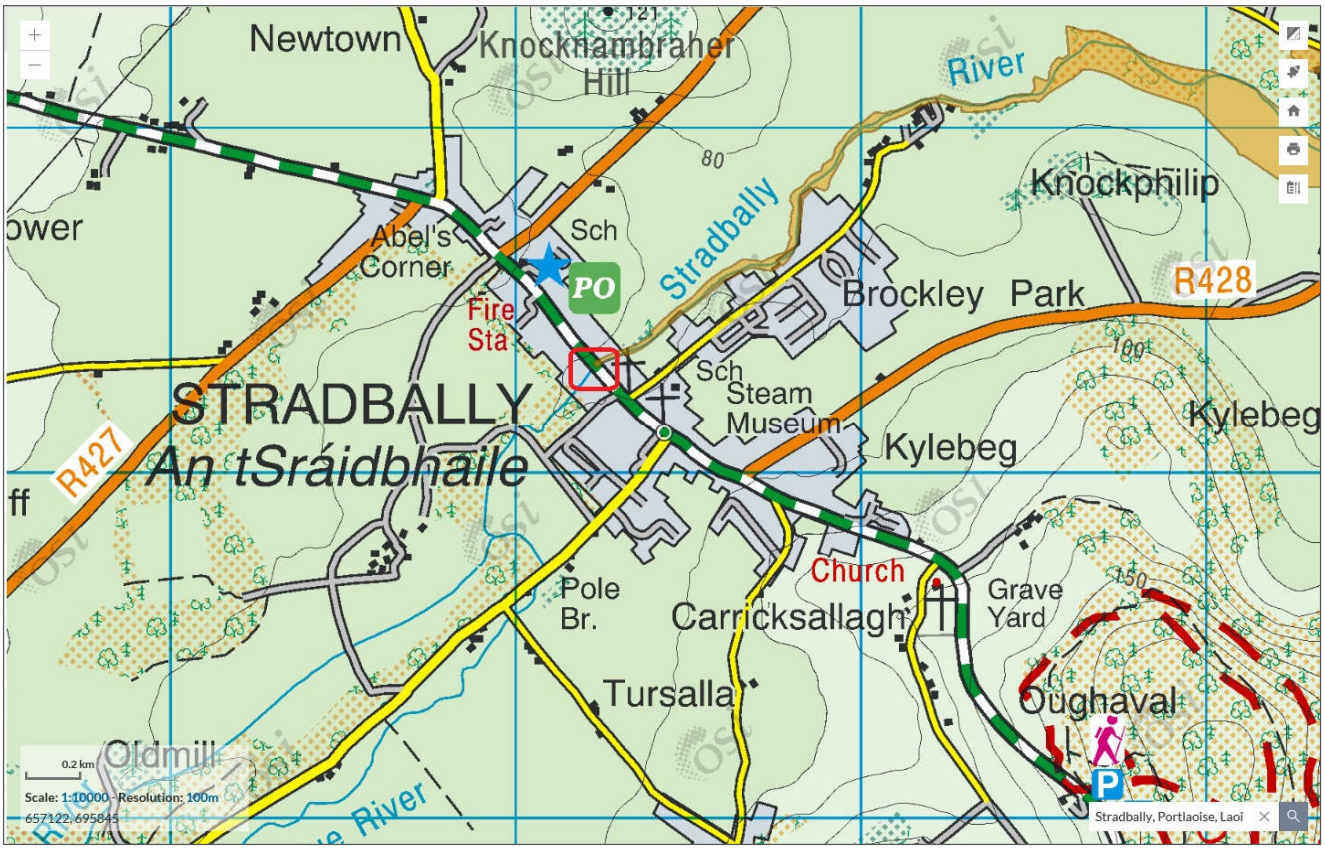


Figure 5.1 SACs within ZoI of the proposed project (red square); River Barrow and River Nore SAC shown in brown (Source: NBDC mapviewer).

5.1. Brief Description of European Sites

5.1.1. River Barrow and River Nore SAC (002162)

The River Barrow and River Nore SAC is described as follows: -

"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.

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. A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore.

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. Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. 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. Borris Demesne contains a very good example of a semi-natural broadleaved woodland in very good condition.

*Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Floating river vegetation is well represented in the Barrow and in the many tributaries of the site. 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. Dry heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. 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. 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 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. 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. Seventeen Red Data Book plant species have been recorded within the site, most in the recent past.*

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 *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 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. 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.*"

5.1.1.1. Qualifying Interests

The River Barrow and Nore SAC is designated for the following habitats and species. * indicates a priority habitat under the Habitats Directive: -

- 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* (only in fresh water)
- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1310 Salicornia and other annuals colonizing mud and sand
- 1330 Atlantic salt meadows *Glauco-Puccinellietalia maritimae*
- 1355 Otter – *Lutra lutra*
- 1410 Mediterranean salt meadows *Juncetalia maritimi*
- 1421 Killarney fern - *Trichomanes speciosum*
- 1990 Nore freshwater pearl mussel - *Margaritifera durrovensis*

- 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and *Callitricho-Batrachion* vegetation
- 4030 European dry heaths
- 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
- 7220 * Petrifying springs with tufa formation (*Cratoneurion*)
- 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles
- 91E0 * Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)

Due to the size and geographic range of the SAC, not all qualifying interests of the SAC are within the ZoI of the proposed project. Table 5.2 below outlines the qualifying interests of the SAC that are within the ZoI of the proposed project on the Stradbally River, Co. Laois.

Thus, the qualifying interests of the SAC that are within the ZoI of the proposed project are: -

- 1092 White-clawed crayfish - *Austropotamobius pallipes;*
- 1096 Brook lamprey - *Lampetra planeri;*
- 1099 River lamprey - *Lampetra fluviatilis;*
- 1106 Atlantic salmon - *Salmo salar* (only in fresh water);
- 1355 Otter – *Lutra lutra;*
- 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and *Callitricho-Batrachion* vegetation;
- 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels.

5.1.1.2. Conservation Objectives

The conservation objectives for the River Barrow and River Nore SAC and the list of specific attributes and targets defining the conservation objectives for each feature of interest can be found at the link below (last accessed on 30/06/2021):

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002162.pdf.

The overall aim is to maintain or restore the favourable conservation status of the habitats and species of community interest, i.e. the habitats and species for which the SAC is designated.

The site-specific conservation objectives of the qualifying interests of the SAC within the ZoI of the proposed project are as follows: -

- To maintain the favourable conservation condition of White-clawed crayfish in the River Barrow and River Nore SAC;
- To restore the favourable conservation condition of Brook lamprey in the River Barrow and River Nore SAC;
- To restore the favourable conservation condition of River lamprey in the River Barrow and River Nore SAC;
- To restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC;

- To restore the favourable conservation condition of Otter in the River Barrow and River Nore SAC;
- To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in the River Barrow and River Nore SAC;
- 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.

5.1.1.3. Threats and Pressures

The potential threats, as identified by NPWS, for the River Barrow and River Nore SAC are given in Table 5.3 below. This information was obtained from the NPWS website (30/06/2021). The site synopsis for the River Barrow and River Nore SAC describes the land use and management within the site as follows: -

"*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"*.

Table 5.2 SAC QIs within the ZoI of the proposed project.

Habitat/ Species	Comment	Within ZoI
Estuaries [1130] 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]	These estuarine and coastal habitats are not located in the vicinity of the proposed project. They are located along the estuarine stretches of the SAC, which is a significant distance from the Stradbally River. Therefore, these habitats are located outside the ZoI of the proposed project.	No
European dry heaths [4030]	Dry heath habitat is confined to steep valley sides of the River Barrow and its tributaries, and the foothills of the Blackstairs Mountains (NPWS, 2011). This habitat is not present in the vicinity of the proposed project. Therefore, this habitat is not within the ZoI of the proposed project.	No
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]	This habitat is not present in the vicinity of the proposed project. This habitat is associated with riverside woodlands, unmanaged river islands and in narrow bands along the floodplain of slow-flowing stretches of the river (NPWS, 2011). The ecological survey confirmed that is habitat is not present along the Stradbally River between Stradbally town and Garran's Bridge, however it may be present along the Stradbally River downstream of Garran's Bridge.	No
Petrifying springs with tufa formation (*Cratoneurion*) [7220]	This habitat type is known to occur in woodlands at Dysart between Thomastown and Inistioge on the River Nore (NPWS, 2011). This habitat is not in the vicinity of the proposed project. Therefore, this habitat is not within the ZoI of the proposed project.	No
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	This habitat is not present in the vicinity of Garran's Bridge, as determined by the site visit. Old oak woodlands are not present in the vicinity of the Stradbally River (NPWS, 2011). Therefore, this habitat is not within the ZoI of the proposed project.	No
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]	This habitat is not present in the vicinity of the proposed project, as determined by the site visit. Alluvial woodlands are present upstream of Athy and upstream and downstream of Carlow town in the vicinity of Newacre and Mildford bridge respectively (NPWS, 2011). Therefore, this habitat is not within the ZoI of the proposed project.	No
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	The reaches of the Stradbally River within the survey stretch have the potential to support this habitat. Water crowfoots and other aquatic macrophytes were recorded immediately upstream of the N80 Stradbally Bridge (see Plate 4.3), in particular in the mid of the survey stretch and downstream of the N80 bridge. This habitat is dependent on water quality	Yes

Habitat/ Species	Comment	Within ZoI
	parameters such as suspended solids and nutrients in the water column being sufficiently low to prevent changes in vegetation composition. Therefore, this habitat is considered to be within the ZoI of the proposed project.	
Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]	*V. moulinsiana*'s optimal habitat includes a good distribution of tall sedge *Carex* species, interspersed with black bog rush *Schoenus nigricans* and common reed *Phragmites australis*. The moisture content of the habitat is for water to rise and surround a surveyor's boot under light pressure. Therefore, sub-optimal conditions are either open water (too wet) or damp conditions (too dry) (Moorkens and Killeen, 2011). As determined by the site visit, the habitats in the vicinity of the proposed project are unsuitable for whorl snails due to the combination of vegetation and hydrological influence being outside the snail's range of tolerance. Therefore, this species is not within the ZoI of the proposed project.	No
Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] *Margaritifera durrovensis* (Nore Pearl Mussel) [1990]	The Nore pearl mussel is not found in the River Barrow. The Conservation Document (NPWS, 2011) states that 'the status of the freshwater pearl mussel as a qualifying Annex II species for the River Barrow and River Nore SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species'. However, this species still remains a qualifying interest of the SAC. Freshwater pearl mussel have not been recorded in the Stradbally River. On the main channel of the River Barrow, freshwater pearl mussel are present a significant distance downstream of the proposed project at Goresbridge, Co. Kilkenny. Given the nature and extent of the proposed project, this species is not within the ZoI of the proposed project.	No
Austropotamobius pallipes (White-clawed Crayfish) [1092]	There are records of white-clawed crayfish on the Stradbally River at numerous EPA sampling sites on the NBDC database and by NPWS (2011). Crayfish were recorded at Stradbally River Bridge on the N80 in 1993 by the EPA (S572963; Source - River Biologists' Database (EPA); NBDC mapviewer). This species is dependent on water quality and substrate heterogeneity within the river channel. Although crayfish plague has had a negative impact on the crayfish population of the Barrow, in the absence of data from a crayfish survey, their presence should still be presumed. Therefore, this species is considered to be within the ZoI of the proposed project.	Yes
Petromyzon marinus (Sea Lamprey) [1095]; *Lampetra planeri* (Brook Lamprey) [1096]; *Lampetra fluviatilis* (River Lamprey) [1099]	Sea Lamprey have been recorded in the vicinity of Carlow Town, but not in the upper reaches of the River Barrow or the Stradbally River (King, 2006). Therefore, their presence is unlikely in the vicinity of the proposed project. IFI have recorded lamprey species (River/ Brook lamprey) in the Stradbally River, as well as the main channel of the River Barrow (Delanty *et al.*, 2017). Therefore, river and brook lamprey are considered to be within the ZoI of the proposed project.	Yes

Habitat/ Species	Comment	Within ZoI
Alosa fallax (Twaite Shad) [1103]	Twaite Shad is an anadromous species, with adult fish migrating from saltwater to spawn in freshwater rivers. The main spawning ground on the River Barrow is immediately upstream of St. Mullins. Young fish then drop down to the estuary of the River Nore / Barrow to grow on (NPWS, 2011). Due to the location of the spawning ground in the lower reaches of the Barrow, this species is not considered to be within the ZoI of the proposed project.	No
Salmo salar (Salmon) [1106]	The Stradbally River contains suitable salmon spawning and nursery habitat (King, 2006). IFI have recorded salmon in the Stradbally River (Delanty *et al*., 2017) and salmonids were observed during the ecological site walkover. Therefore, this species is considered to be within the ZoI of the proposed project.	Yes
Lutra lutra (Otter) [1355]	Otter are widely distributed across freshwater habitats and are well documented along the River Barrow and its tributaries (Bailey & Rochford, 2006; Reid *et al.*, 2013). The Stradbally River provides potential foraging, commuting and holting habitat for otter. Otter activity signs were recorded during the ecological walkover of the Stradbally River. Therefore, this species is considered to be within the ZoI of the proposed project.	Yes
Trichomanes speciosum (Killarney fern) [1421]	Killarney fern is located in the environs of Graiguenamanagh and south of Inistioge within the SAC. There are no records of it in the vicinity of the proposed project. Therefore, this species is not within the ZoI of the proposed project.	No

Table 5.2 NPWS identified threats for the SAC.

Rank[7]	Threats and pressures [code]	Threats and pressures [type][8]	inside/outside/both [i/o/b]
H	K01.01	Erosion	i
M	B07	Forestry activities not referred to above	b
M	C01.03	Peat extraction	o
L	D03.01	Port areas	i
H	H01	Pollution to surface waters (limnic, terrestrial, marine & brackish	b
H	J02.12.02	Dykes and flooding defence in inland water systems	i
M	J03.02.01	Reduction in migration/ migration barriers	i
L	A10.01	Removal of hedges and copses or scrub	i
M	J02.02.01	Dredging/ removal of limnic sediments	i
L	C01.01.01	Sand and gravel quarries	b
M	J02	Human induced changes in hydraulic conditions	b
H	A02.01	Agricultural intensification	b
M	B02	Forest and Plantation management & use	b
M	I01	Invasive non-native species	i
L	F01.01	Intensive fish farming, intensification	i
M	J02.06	Water abstractions from surface waters	i
L	E02	Industrial or commercial areas	o
M	A04.01.01	Intensive cattle grazing	i
L	F02.01.02	Netting	i
L	F02.03	Leisure fishing	i
M	F02	Fishing and harvesting aquatic resources	o
M	M01	Changes in abiotic conditions	i
H	J02.05.02	Modifying structures of inland water courses	i
M	B05	Use of fertilizers (forestry)	b

[7] Rank: H = high, M = medium, L = low
[8] Given at http://bd.eionet.europa.eu/activities/Natura_2000/Folder_Reference_Portal/Ref_threats_pressures_FINAL_20110330.xls

5.2. Likelihood of Significant Effects on European sites

The available information on European sites was reviewed to establish whether or not the proposed development is likely to have a significant effect on the conservation objectives of the designated sites. The likelihood of impacts on the qualifying interests of the European sites identified in this report is based on information collated from the desk study, site plans and other available existing information.

The likelihood of impacts occurring are established in light of the type and scale of the proposed works, the location of the proposed works with respect to European sites and the features of interest and conservation objectives of the European sites.

This report is prepared following the Cause – Pathway – Effect model. The potential impacts are summarised into the following categories for screening purposes.

- Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development or agricultural purposes. Direct impacts can be as a result of a change in land use or management, such as the removal of agricultural practices that prevent scrub encroachment. There are no direct impacts associated with the proposed investigative works.

- Indirect and secondary impacts do not have a straight-line route between cause and effect. It is potentially more challenging to ensure that all the possible indirect impacts of the project – in combination with other plans and projects - have been established. These can arise, for example, when a development alters the hydrology of a catchment area, which in turn affects the movement of groundwater to a site and the qualifying interests that rely on the maintenance of water levels. Deterioration in water quality can occur as an indirect consequence of development, which in turn changes the aquatic environment and reduces its capacity to support certain plants and animals. The introduction of invasive species can also be defined as an indirect impact. Disturbance to fauna can arise directly through the loss of habitat (e.g. displacement of qualifying interest species) or indirectly through noise, vibration and increased activity associated with construction and operation.

The proposed works area lies within the River Barrow and River Nore SAC. The proposed project is not directly connected with or necessary to the management of the SAC.

Adopting a precautionary approach, in the absence of any mitigation measures, best practice/construction measures or any other measures which have no relation to avoiding impacts on European sites, a potential hydrological pathway for indirect effect was identified in relation to QIs associated with River Barrow and River Nore SAC.

5.3. Concluding Statement

It cannot be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the proposed development would be likely to have a significant effect on the River Barrow and River Nore SAC.

As a result, a Stage Two Appropriate Assessment is required, and this Natura Impact Statement has been prepared on behalf of Laois County Council.

6. Appropriate Assessment

6.1.1. Identification of Potential Impacts

As described in Chapter 1.0, the proposed project involves the removal of vegetated gravel and silt deposits immediately downstream of the N80 bridge in Stradbally town (as shown in Figure 1.1).

The exposed deposited gravel and silts will be removed using an excavator to the top of the riverbed. The proposed works will be carried out during July 1st and September 30th inclusive and will be carried out during a period of low water levels.

Table 6.1 Summary of qualifying interests of River Barrow and River Nore SAC that may be impacted by proposed works.

Habitat/ Species	Comment	Within ZoI
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	The reaches of the Stradbally River within the survey stretch have the potential to support this habitat. Water crowfoots and other aquatic macrophytes were recorded instream, in particular in the mid of the survey stretch and downstream of the N80 bridge as well as upstream of the bridge. Small areas of floating river vegetation can be seen on Plate 4.2 adjoining proposed works. This habitat is dependent on water quality parameters such as suspended solids and nutrients in the water column being sufficiently low to prevent changes in vegetation composition. Therefore, this habitat is considered to be within the ZoI of the proposed project.	Yes
Austropotamobius pallipes (White-clawed Crayfish) [1092]	There are records of white-clawed crayfish on the Stradbally River at numerous EPA sampling sites on the NBDC database and by NPWS (2011). Crayfish were recorded at Stradbally River Bridge on the N80 in 1993 by the EPA (S572963; Source - River Biologists' Database (EPA); NBDC mapviewer). This species is dependent on water quality and substrate heterogeneity within the river channel. Although crayfish plague has had a negative impact on the crayfish population of the Barrow, in the absence of data from a crayfish survey, their presence should still be presumed. Therefore, this species is considered to be within the ZoI of the proposed project.	Yes
Petromyzon marinus (Sea Lamprey) [1095]; *Lampetra planeri* (Brook Lamprey) [1096]; *Lampetra fluviatilis* (River Lamprey) [1099]	Sea Lamprey have been recorded in the vicinity of Carlow town, but not in the upper reaches of the River Barrow of the Stradbally River (King, 2006). Therefore, their presence is unlikely in the vicinity of the proposed project. IFI have recorded lamprey species (River/ Brook lamprey) in the Stradbally River, as well as the main channel of the River Barrow (Delanty *et al.*, 2017). Therefore, river and brook lamprey are considered to be within the ZoI of the proposed project.	Yes
Salmo salar (Salmon) [1106]	The Stradbally River contains suitable salmon spawning and nursery habitat (King, 2006). IFI have recorded salmon in the Stradbally River (Delanty *et al*., 2017) and salmonids were observed during the ecological site walkover. Therefore, this species is considered to be within the ZoI of the proposed project.	Yes
Lutra lutra (Otter) [1355]	Otter are widely distributed across freshwater habitats and are well documented along the River Barrow and its tributaries (Bailey & Rochford, 2006; Reid *et al.*, 2013). The Stradbally River provides potential foraging, commuting and holting habitat for otter. Otter activity signs were recorded during the ecological walkover of the Stradbally River. Therefore, this species is considered to be within the ZoI of the proposed project.	Yes

6.1.1.1. Potential impacts during construction

Direct Impacts

Due to the nature and extent of the proposed project, direct impacts to qualifying interests of the SAC are not anticipated. No otter resting places were recorded during the site visit and there will be no disturbance to riverbanks or the substrate of the channel. Therefore, qualifying interests such as otter, salmon, lamprey, crayfish and floating river vegetation will not be directly impacted by the proposed project.

Indirect Impacts

Given the nature and scale of the proposed project; i.e. the removal of a small area of vegetated gravel and silt deposits over a maximum of 3 days, the potential for the generation of silt laden runoff is limited. However, it cannot be completely discounted. Therefore, while the risk of negative impacts to water quality are low mitigation measures to prevent the escape of silt laden waters downstream are considered necessary.

There is the potential for the accidental release of polluting matter, e.g. hydrocarbons and oils, from equipment and machinery. However, only the 1t excavator will work within the footprint of the river. All other machinery and equipment will be located on the riverbank and therefore and potential accidental release of pollutants is limited. However, to remove any risk to the river appropriate mitigation measures are set out below.

The works area is urban in character (see Plates 4.1-4.4) and built up along both river banks close to the bridge. It is because of flood concerns for property and housing immediately adjoining the bridge that the proposed works are to be undertaken. There are no otter holts in the immediate environs of Stradballly River Bridge. The Stradbally River does, however, provide suitable holting, commuting and foraging habitat for otter along its length and so it is considered likely that Otter to use the river. There is potential for indirect disturbance to otter that may forage or commute along the Stradbally River due to the presence of personnel and machinery along the river stretch. However, given the scale of the works (i.e. only 3 days) and their localised nature, this potential impact is anticipated to be temporary and minor in nature and likely significant effects on Otter are not anticipated.

The areas to be removed do not support suitable spawning habitat for salmonids or lamprey. In fact, removal of vegetated banks of silt and gravel will increase the available area for floating river vegetation habitat, as well as the river area suitable for use by fish and aquatic invertebrates. The latter will also benefit Grey wagtail (*Motacilla cinerea*) and Dipper (*Cinclus cinclus*), both of which were recorded in the environs of the bridge.

The stone wall bounding the river upstream of the bridge included crevices between the stonework, which may provide suitable refuges for White-clawed crayfish; however, as noted no works are to be undertaken in this area upstream of the bridge, while habitats to be removed downstream are areas of silt/gravel banks vegetated with reed canary grass. These are very unlikely to support crayfish refuges, while walls immediately downstream of the bridge (i.e. adjoining the works area) are concrete or do not include suitable gaps that crayfish might use as refuges.

6.1.1.2. Potential impacts during operation

No impacts are anticipated during the operational phase of the proposed project as this will not affect the hydrological regime of Stradbally River. No increased emissions to the Stradbally River will be generated as a result of this project. The proposed project does not pose a barrier to Otter or fish passage and connectivity.

6.2. Mitigation Measures

The proposed works shall be carried out during the Fisheries Open season; i.e. during the period 1st July to 30th September, inclusive. Consultation has already been undertaken with Inland Fisheries Ireland (IFI). They have indicated that they have no objection to the proposed works. Both NPWS and IFI will be informed in advance of works commencing.

An Ecological Clerk of Works will be appointed by Laois County Council to supervise proposed works. All site staff will be informed of work methods to be employed on site, as well as the sensitivity of the River Barrow and River Nore SAC via the dissemination of a tool-box talk. This shall include the requirement for protection of aquatic and riverside habitats.

The works shall not take place during high river flows or prior to forecasts of heavy rainfall. The objective would be to time works to a period of low flow within the river. To this end Laois County Council Site Supervisor shall monitor the 10-day forecast.

Prior to the commencement of works, sedimats will be placed immediately downstream of the works area in order to protect water quality locally. A second and third set of sedimats will be placed a further 50m downstream of the works area. There placement on site will be supervised by the Project Ecologist.

The excavator and vacuum excavator will be come to site fully fuelled up and serviced and there will not be any need for filling of oils or lubricants on site or for storage of fuels or oils on site.

Works will be carried out during day-time hours only and as noted will take 1 day to complete. It will not therefore be necessary to store vehicles on site overnight.

The only vehicle permitted within the river is the 1t mini excavator. The mini excavator will be unloaded and lowered down onto a pile of silt from low-loader parked on the N80 bridge. The Vacuum Excavator will park on the N80 footpath and partially on the Carlow bound land.

The objective is that, where possible, machinery shall not enter the water as part of the works. The excavator will track along the top of the silt deposits on the left hand side of the river to maximum 50m from the river bridge. Operatives will set up 225mm plastic pipes laying them on top of the silt deposits. This plastic pipe is used to feed the material back to the suction hose from the vacuum excavator parked on the bridge.

The vegetated silt and gravel deposits within the channel will be reduced to riverbed level at the time the proposed works are carried out. There shall be no excavation within the riverbed. The material will be scraped down to riverbed level using the 1t excavator and placed at the end of the 225mm pipe from where it will be sucked back to the truck. This work will be supervised by the Project Ecologist. The Project Ecologist will also ensure that no areas of river habitat outside the silt / gravel banks are to be negatively impacted.

As noted, works will take place when flows are low within the river. This will allow for the riverbed / river level to be clearly identifiable relative to the silt / gravel deposits. Works will be undertaken as follows: -

a) Prior to commencement of works the works area will be checked again for any signs of White-clawed crayfish. If encountered NPWS will be informed and these will be relocated a short distance downstream for the duration of works.

b) Prior to the removal of silts, vegetation on the silt deposit will be cut back and removed.

c) The silt removal will start at the furthest point from the truck and work back towards the river bridge. Operator will disassemble the 225mm pipe as they progress back towards the start. As stated in measure no. 2, this will be done during dry weather conditions where no heavy rainfall is anticipated on the 10-day forecast.

d) No material will be stored on the river bank.

e) Emergency spill kits will be available on site and staff will be trained in their use.

f) Operators and the LCC supervisor will check the 1t excavator and the vacuum excavator immediately after they arrive on site and before starting work to confirm the absence of leakages. Any leakages should be reported immediately and addressed. Excavator will not be permitted to enter the river or work if any leaks are identified.

g) Any items of plant machinery found to be defective will be removed from site immediately.

6.2.1.1. Biosecurity protocols

The following biosecurity protocols shall be implemented during the proposed project to prevent the introduction of invasive species. Biosecurity protocols implemented on site will follow the 'Clean-Check-Dry' principle.

It should be noted that the biosecurity risk with respect to the proposed project is the potential introduction of non-native species and diseases, such as crayfish plague, to the site via machinery and equipment and the spread of crayfish plague to other aquatic environments post-completion of the works. The ecology survey for the proposed project did not record any non-native invasive plant species listed on the 3rd Schedule of the EC (Birds and Natural Habitats) Regulations 2011, as amended.

1. The excavator intended to be used at the site shall be dry, clean and free from debris prior to being brought to site. The excavator will have been dried for a minimum of 48 hours prior to being brought to site. This will be inspected by the LCC supervisor on site on arrival.

2. On completion of the works, the excavator will be brought to the Laois Roads Depot in Stradbally. The only part of the machine that will have interface with the water of the Stradbally River, is the bucket and the extended dipper arm. These will be washed down using a power washer roads depot by LCC operatives. Under no circumstances shall power washing of the excavator be carried out adjacent to the river channel.

3. The excavator will be returned to the LCC yard where it will be left to dry for 48 hours. The excavator shall not be used until 48 hours have elapsed.

Operatives who have entered the Stradbally River to secure the sedimats will disinfect their boots and waders using a disinfectant. The disinfectant that will be used is Milton, Virkon Aquatic (3mg/l), or Proxitane (30mg/l). Disinfection of PPE will be carried out a minimum of 20m from the riverbank. The disinfectant will be allowed to soak to ground. Under no circumstances shall disinfection of PPE be carried out adjacent to the river channel.

6.3. Overall Assessment of Residual Effects

In view of best scientific knowledge, and on the basis of objective information, in circumstances where the measures which have been identified will be implemented to avoid potential water pollution events, the proposed works at Stradbally River Bridge will not adversely affect any of the qualifying interests of the River Barrow and River Nore SAC, or on any European Site.

6.4. In-Combination Impacts

Cumulative impacts with the following plans and projects were considered during the preparation of this report. The search of Laois County Council was based on a map-based search (MyPLan.ie).

Laois County Development Plan 2017 – 2023[9] sets out strategies and objectives to provide sustainable development within Co. Laois. In the case of Stradbally, it is noted that encroachment of the SAC will be avoided, a buffer area shall be implemented and that there shall be no loss of bankside vegetation. Road developments that involve crossing Natura 2000 sites will ensure that alternative routes have been considered to minimise the impact on the Natura 2000 site. The Plan also identifies the need for flood defence works or river channel maintenance to be assessed according to Article 6 of the Habitats Directive, i.e. Appropriate Assessment.

The Plan contains a number of Biodiversity objectives, which includes the maintenance and protection of the River Barrow and River Nore SAC and to preserve ecological linkages or stepping stone habitats and landscape features. A Natura Impact Report was prepared for the Plan, which assessed the Plan regarding its potential to adversely affect the integrity of European sites. The findings of the AA were integrated into the Plan, ensuring that potential adverse effects have been and will be avoided, reduced or offset (CAAS, 2017). Thus, an AA determination was made by Laois County Council that the Plan is not foreseen to have any likely significant effects on the ecological integrity of any European Site (CAAS, 2017). As outlined in the Plan, this AA Screening report is being prepared to ensure that the proposed works will not have likely significant effects on European sites. Given the elements outlined above, the Laois County Development Plan 2017 – 2023 is not anticipated to act in-combination with the proposed project.

Farmers and landowners may also undertake general agricultural operations in areas adjacent to the proposed works and along the river, which could potentially give rise to impacts of a similar nature to those arising from the proposed works. This could potentially result in additional an increased risk to water quality. Many agricultural operations are periodic, not continuous in nature, and qualify as Activities Requiring Consent (ARCs) that requires consultation with National Parks and Wildlife Service in advance of the works e.g. reclamation, infilling or land drainage within 30m of the river, removal of trees or any aquatic vegetation within 30m of the river, and harvesting or burning of reed or willow (NPWS, 2021). Agricultural operations must also comply with the EC (Environmental Impact Assessment) (Agriculture) Regulations 2011 and amendment 2017 S.I. No. 456/2011 and 407/2017 in relation to activities covered by the regulations;

- restructuring of rural land holdings,
- commencing use of uncultivated land or semi-natural areas for intensive,
- land drainage works on lands used for agriculture.

A Natura Impact Statement (NIS) is required under Regulation 9 if it is likely to have a significant effect on a European designated site. The drainage or reclamation of wetlands is controlled under the Planning and Development (Amendment) (No. 2) Regulations 2011 and the European Communities (Amendment to Planning and Development) Regulations 2011. Therefore, the in-combination effects of agricultural operations and the proposed project are not likely to be significant.

Near the proposed works there was an application for permission to construct a cricket ground (planning ref. no. – 20/100) to the northeast of the site (at The Abbey , Main Street , Stradbally); however, this application is listed as incomplete. Application 20/510 seeks to "*to construct an extension to existing workshop and associated site works*" on Main Street to the north of the bridge. Application 19652 seeks to "*retain change of use of ground floor*

[9] Laois County Development Plan 2017 – 2023: https://laois.ie/departments/planning/development-plans/draft-laois-county-development-plan-2017-2023/

of St. Mary's Old School (RPS 238) to a pre-school Montessori", while application 22/46 seeks to "*renovate and extend existing house to include a two storey extension to the rear of the dwelling, and all associated and necessary site works*" (decision pending).

These developments have conditions attached to their planning permission relating to sustainable development, such as siting of septic tanks, foul surface water and effluent drainage facilities, and clean surface water run-off drainage facilities. Therefore, it is not anticipated that the developments that have been granted permission will act in-combination with the proposed project.

6.4.1. Conclusion of Cumulative Assessment

Following the detailed assessment provided in the preceding sections, it is concluded that, the proposed works at Stradbally River Bridge on the N80 will not result in any adverse effects on the integrity of any European site. There is, therefore, no potential for the proposed development to contribute to any potential cumulative adverse effects on any European site when considered in-combination with other plans and projects.

In the review of the projects and plans that was undertaken, no connection that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the proposed development.

Taking into consideration the reported residual impacts from other plans and projects in the area and the predicted impacts with the current proposal, there are no residual cumulative impacts with regard to any European Site.

7. Conclusions

This NIS has provided an assessment of all potential direct or indirect adverse effects which have the potential to cause likely significant impacts on European sites.

Where the potential for any likely significant effects on any European Site has been identified then, as is apposite when conducting a Stage Two Appropriate Assessment, consideration has been given to the mitigation measures which have been identified and which will be implemented in order to avoid potential water pollution events, in particular. The measures ensure that the construction and operation phases of the proposed development will not adversely affect the integrity of any European sites. In conclusion, in circumstances where the mitigation measures identified in this NIS are implemented, there is no reasonable scientific doubt remaining as to the absence of adverse effects on the constitutive characteristics of the River Barrow and River Nore SAC.

Therefore, it can be objectively concluded that the proposed works at Stradbally River Bridge on the N80, whether individually or in combination with other plans or projects, will not adversely affect the integrity of any European site.

References

Atkins (2021). *Laois River Works. Stradbally River - Garran's Bridge to Stradbally. Field Survey Notes, May 2021 [Our ref. 5191360GG046]*. Prepared for Laois County Council.

Bailey, M. and Rochford J. (2006). Otter Survey of Ireland 2004/2005. *Irish Wildlife Manuals*, No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

CAAS (2017). Appropriate Assessment Conclusion Statement. In Support of the Appropriate Assessment of the Laois County Development Plan 2017-2023 in accordance with the requirements of Article 6(3) of the EU Habitats Directive. Report for Laois County Council.

CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

Delanty, K., Kelly, F.L., McLoone, P., Matson, R., O' Briain, R., Gordon, P., Cierpal, D., Connor, L., Corcoran, W., Coyne, J., Feeney, R., Morrissey, E. (2017). *Fish Stock Assessment of the River Barrow Catchment 2015*. Inland Fisheries Ireland, 3044 Lake Drive, Citywest Business Campus, Dublin 24, Ireland.

Department of the Environment, Heritage and Local Government (2009). *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*.

EPA (2009). *Code of Practice; Wastewater Treatment Systems and Disposal Systems serving Single Houses (p.e. ≤10)*. Environmental Protection Agency, Co. Wexford, Ireland.

EPA (2018). *Code of Practice, Domestic Waste Water Treatment Systems (Population Equivalent ≤10) Draft 26 November 2018*. Environmental Protection Agency, Ireland.

European Commission (2000). *Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.*

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

European Commission (2007). *Guidance document on Article 6(4) of the 'Habitats Directive' 92/49/EEC; clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.*

Fossitt, J. (2000). *A Guide to Habitats in Ireland*. The Heritage Council.

King, J.J. (2006). The status and distribution of lamprey in the River Barrow SAC. *Irish Wildlife Manuals* No. 21. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Moorkens, E.A. & Killeen, I.J. (2011). Monitoring and Condition Assessment of Populations of *Vertigo geyeri*, *Vertigo angustior* and *Vertigo moulinsiana* in Ireland. *Irish Wildlife Manuals*, No. 55. National Parks and Wildlife Service, Dublin, Ireland.

NPWS (2011). *Conservation Objectives: River Barrow and River Nore SAC 002162. Version 1.0.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2015). Site Synopsis. Slieve Bloom Mountains SPA 004160. Version 20.01.2015. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2016). *River Barrow and River Nore SAC 002162. Site Synopsis.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NRA (2009). National Roads Authority Guidelines for Assessment of Ecological Impacts of National Road Schemes. Transport Infrastructure Ireland, available at:

http://www.tii.ie/technicalservices/environment/planning/Guidelines-for-Assessment-of-Ecological-Impacts-ofNationalRoad-Schemes.pdf.

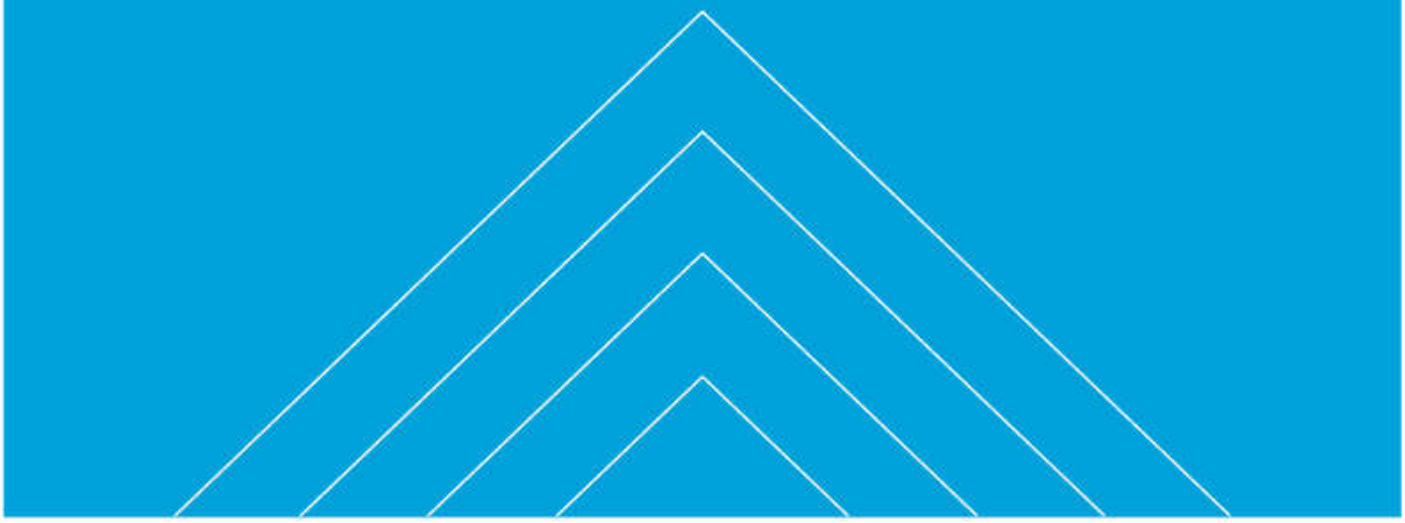
OPR (2021). *Appropriate Assessment Screening for Development Management*. OPR Practice Note PN01. Office of the Planning Regulator. Dublin, Ireland.

Reid, N., Hayden, B., Lundy, M.G., Pietravalle, S., McDonald, R.A. & Montgomery, W.I. (2013). National Otter Survey of Ireland 2010/12. *Irish Wildlife Manuals* No. 76. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Scott Wilson and Levett-Therivel, (2006). *Appropriate Assessment of Plans*. Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants.

NPWS (2021) Activities Requiring Consent. Available at: https://www.npws.ie/farmers-and-landowners/activities-requiring-consent. Last accessed on 30/06/2021.

Appendices



Appendix A. Site Synopses

SITE SYNOPSIS

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*)
[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 re-generation 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.

Appendix B. Method Statements

<table>
<tr><td>Area
Portarlington/Graiguecullen MD ARea</td><td>Name:
Donnacha Reynolds</td><td colspan="2">Address:
Market House,
Portarlington,
Co Laois</td><td>Tel: 0861083761
E-mail:
dreynolds@laoiscoco.ie</td></tr>
<tr><td>Project Name</td><td colspan="4"><u>Removal of Gravel/Silt Deposit from River Stradbally at Stradbally N80 River Bridge</u></td></tr>
<tr><td>Description of the Task/Activity</td><td colspan="4">Removal of gravel/silt using a vacuum excavator from the channel of the River Stradbally directly downstream of N80 River Bridge in Stradbally Town</td></tr>
<tr><td>Site Address/Location</td><td colspan="2" rowspan="2">Stradbally N80 Bridge, Co Laois</td><td>Start Date/Time:</td><td>July 2022</td></tr>
<tr><td>Finish Date/Time</td><td>3 days</td></tr>
<tr><td rowspan="11">Personnel Involved</td><td colspan="2">Name</td><td colspan="2">Role/Trade</td></tr>
<tr><td colspan="2">Donnacha Reynolds</td><td colspan="2">Executive Engineer</td></tr>
<tr><td colspan="2">John Griffin</td><td colspan="2">GSS</td></tr>
<tr><td colspan="2"></td><td colspan="2">Vacuum Excavator Operator</td></tr>
<tr><td colspan="2"></td><td colspan="2">Mini digger Operator</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td>Site Supervisor:</td><td>John Griffin</td><td>Tel:</td><td colspan="2">086 8308928</td></tr>
<tr><td>Safety Officer</td><td>Jim Bolger</td><td>Tel:</td><td colspan="2">087 1247363</td></tr>
<tr><td>Key Plant & Tools (Attach Certification)</td><td colspan="4">Vacuum Excavator, 1t mini digger</td></tr>
<tr><td>Key Materials</td><td colspan="4">n/a</td></tr>
<tr><td>Other Essential Equipment</td><td colspan="4">First Aid Box / Eyewash, Spill Kit, Disinfectant, Bowser with Power washer</td></tr>
<tr><td>Specific Identified Residual Hazards:
(or refer to the task specific risk assessment(s))</td><td colspan="4">Use of vacuum excavator truck to remove silt and gravel deposits in river environment in close proximity to working personnel. Overhead powerlines need to be identified.</td></tr>
<tr><td>Specific Staff Training</td><td colspan="4">Understanding of Chapter 8 – Dept. of Environment COP
Risk Assessments.</td></tr>
</table>

<table>
<tr><td>Sequence of Operations:
(include sketches
if required)</td><td colspan="7">1. Refer to the Detailed method statement</td></tr>
<tr><td>Temporary Supports and Props needed to facilitate the works</td><td colspan="7">(if none, state none)

n/a</td></tr>
<tr><td>Method of Access and Egress to the work area:</td><td colspan="7">(i.e. Ladders/MEWPS/Scaffold/Trestles/Step Ladder, etc.)

Access will be from the N80 Portlaoise-Carlow Road. Vacuum excavator will sit on the N80 Bridge in Stradbally town</td></tr>
<tr><td>Fall Protection Measures
(Where work at height cannot be eliminated – consider both Personnel & Materials)</td><td colspan="7">(i.e. Guard Rails/Toe Boards/Brick Guard/Safety Harnesses/Exclusion Zones, etc.)

Life Buoy to be in place on site</td></tr>
<tr><td rowspan="2">Hazardous Substances:
(Attach MSDS if required)

Applicable:</td><td> 
Very Toxic</td><td> 
Harmful/ Irritant</td><td> 
Corrosive</td><td> 
Dangerous For the environment</td><td> 
Oxidising</td><td> 
Highly flammable</td><td> 
Explosives</td></tr>
<tr><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td></tr>
<tr><td>Storage Arrangements</td><td colspan="7">Disinfectant to be used for washing down excavator & operatives wellington boots.</td></tr>
<tr><td>Details of Permits to Work</td><td colspan="7">Briefing to take place with all operatives on the method statement prior to works commencing.</td></tr>
<tr><td>SWL’s</td><td colspan="7">(Detail any limits on the loadings applicable to temporary plant/equipment or fixed elements of the structure where the work is taking place)

None</td></tr>
</table>

<table>
<tr><td>Required Personnel Protective Equipment:</td><td> 
Safety Boots
✓</td><td> 
Hard Hats
✓</td><td> 
Safety Gloves
✓</td><td> 
Hearing Protection
✓</td><td> 
Eye Protection
✓</td><td> 
Respiratory Protection</td><td>Other:
1. Hi-Viz
2. Coveralls
3. Hi -Viz Trousers</td></tr>
<tr><td>Emergency Procedures:</td><td colspan="3">Chemical Spill procedure in place.</td><td colspan="4">Chemical Spill procedure in place.</td></tr>
<tr><td rowspan="3"> 

First Aid Facilities:</td><td colspan="2">Name of On-Site First Aider:</td><td colspan="4"></td></tr>
<tr><td colspan="2">First Aid Box Location:</td><td colspan="4">Works Truck</td></tr>
<tr><td colspan="2">Location of Nearest Hospital:</td><td colspan="4">Portlaoise General</td></tr>
<tr><td>Welfare Requirements</td><td colspan="6">Stradbally Roads Depot</td></tr>
<tr><td>Services to be supplied by Others</td><td colspan="6"></td></tr>
<tr><td>Other information & Comments</td><td colspan="6"></td></tr>
</table>

All work will be undertaken by qualified competent persons with experience of the type of work described above, and in all cases in full accordance with safety procedures specified in the company's health and safety policy.		
Prepared by:	Donnacha Reynolds	
Position:	Executive Engineer	Date: 12-04-22
Reviewed by:		
Position:		Date: //

Items Attached:	Yes	No
Sketches	☐	☐
Certification of Plant etc.	☐	☐
Programme of Work	☐	☐

Method Statement Briefing Record

Briefing delivered by: Donnacha Reynolds

Position: Executive Engineer

Date: XX/07/2022

We (the undersigned) have read and understood the attached method statement and will comply with the specified requirements and control measures. If the work activity changes or deviates from that originally envisaged, we will seek further advice and request an amended method statement.

Name (Print)	Signature	Date

Stradbally River Bridge-Removal of Silt/Gravel Deposits using Vacuum Excavator
Method Statement

Donnacha Reynolds
Laois County Council
Aras an Chontae
Portlaoise
Co. Laois
January 2022

Job No. Stradbally N80 River Bridge, Stradbally, Co Laois

Table of contents

Laois County Council River (Water) Work Method Statement

INTRODUCTION

Figure 1 *– Silt Deposits in Stradbally River downstream of N80 Bridge*

Project Description

The proposed works area is situated immediately downstream of the N80 Bridge. The instream vegetated deposits are present in the centre and on the banks of the channel and vegetated predominately by reed canary grass. The composition of the deposits is gravel and silt, upon which the rooted vegetation is growing. The riverbed either side of the vegetated deposits consist of gravel and cobble with silt present along the fringes of the channel.

SCOPE OF WORK

In order to ensure that works are undertaken in a proper fashion Laois County Council will appoint a Works Supervisor, and an Engineer to the proposed project. Details of roles are summarised below.

Supervision of the works will be undertaken by: -

- Engineer: - Donnacha Reynolds (BE C Eng MIEI) - Executive Engineer-Portarlington/Graiguecullen MD Area
- Works Supervisor: -John Griffin (GSS Portarlington/Graiguecullen MD Area)

The works location is shown in Figure 2, below: -

Laois County Council River (Water) Work Method Statement

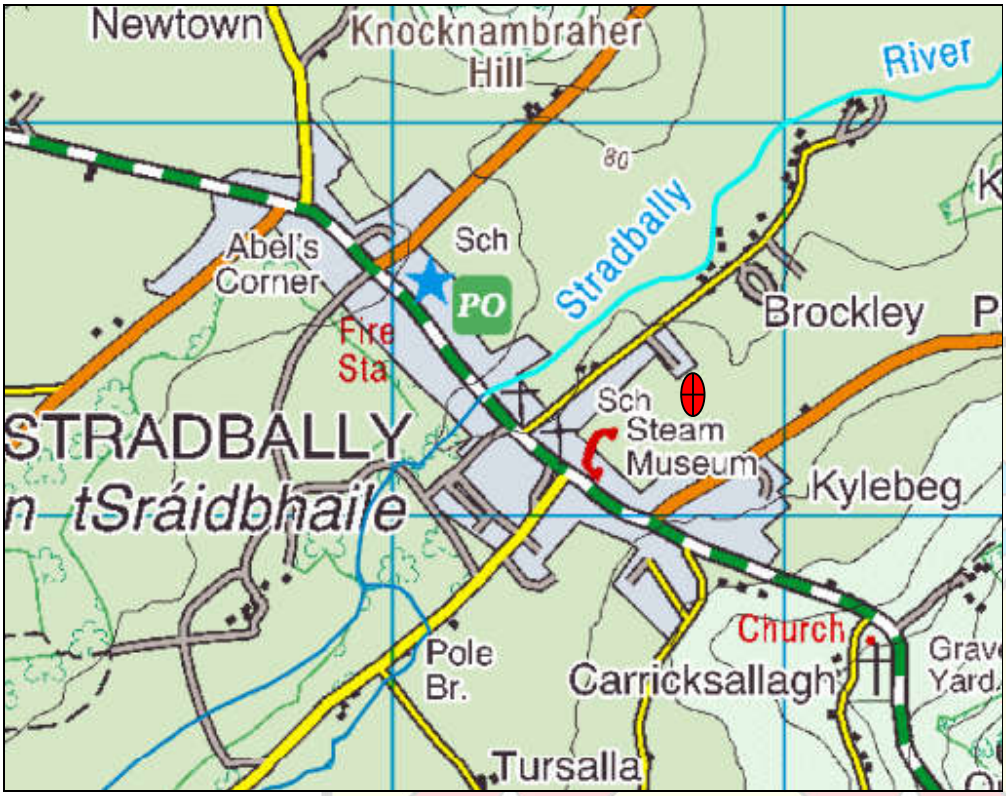


Figure 2 *- Location of N80 River Bridge in Stradbally.*

The following summaries the proposed scope of works to be undertaken at Stradbally Bridge by Laois County Council: - Works will be undertaken by subcontractor

Plant

- Vacuum Excavator Truck
- 1t mini-digger
- Hiab -Low-loader

Labour

- Supervisor
- Vacuum Excavator Operator
- Excavator Operator

Materials

- Sedimats 1.2m x 3m long sections immediately and @ 50m

Please refer to Figure 3 for the Site Layout drawing.

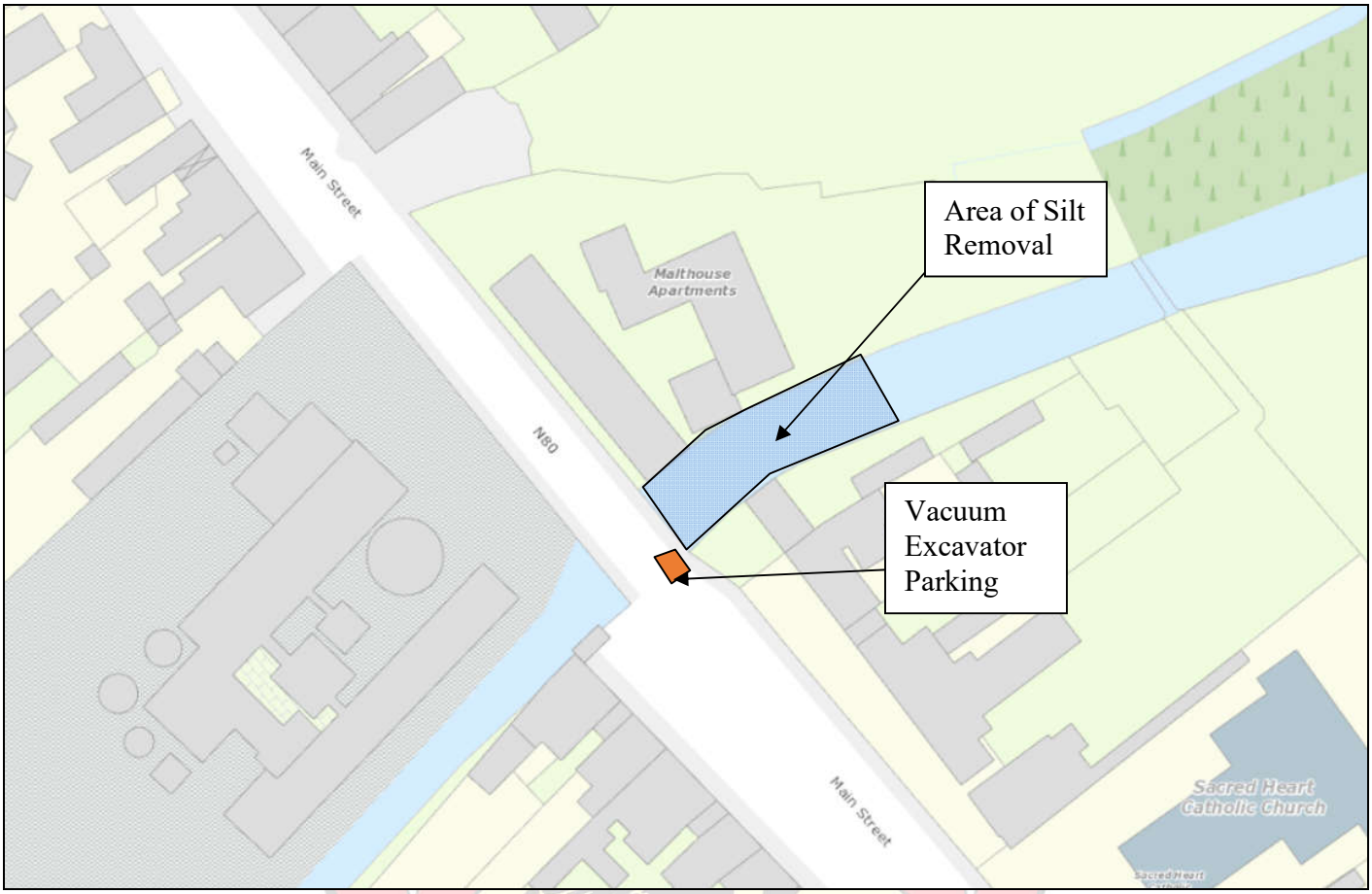


Figure 3 *- Location of N80 River Bridge in Stradbally.*

The works crew will be briefed on the NIS and the Works Method Statement by the Project Engineer prior to works commencing on site.

Figure 3 illustrates the parking area where the vacuum excavator truck will park.

Figure 4 *- Location for parking the vacuum excavator truck.*

Figure 5 *– Sedimats.*

Figure 6 *– Vacuum Excavator.*

Figure 7 *– Similar Area of silt reduced to water level.*

Figure 8 - *1t excavator feeding silt material to suction line.*

Laois County Council River (Water) Work Method Statement

Summary of Proposed Works

1. The proposed works shall be carried out during the period 1st July to 30th September, inclusive.

2. NPWS and IFI will be informed in advance of works commencing.

3. The excavator and vacuum excavator will be come to site fully fuelled up and serviced and there will not be any need for filling of oils or lubricants on site or for storage of fuels or oils on site.

4. The Laois County Council Supervisor shall monitor the 10-day forecast. The works shall not take place during high river flows or prior to forecasts of heavy rainfall. The objective would be to time works to a period of low flow within the river.

5. All site staff will be informed of work methods to be employed on site, as well as the sensitivity of the River Barrow and River Nore SAC via the dissemination of a tool-box talk. This shall include the requirement for protection of aquatic and riverside habitats.

6. Prior to the commencement of works, sedimats will be placed immediately downstream of the works area. A second and third set of sedimats will be placed a further 50m downstream of the works area. There placement on site will be supervised by the Project Ecologist.

7. Traffic Management will be in place.

8. Works will be carried out during day-time hours only. The mini excavator will be unloaded and lowered down onto a pile of silt from low-loader parked on the N80 bridge. The Vacuum Excavator will park on the N80 footpath and partially on the Carlow bound land.

9. Machinery shall not enter the water as part of the works. The excavator will track along the top of the silt deposits on the left hand side of the river to maximum 50m from the river bridge. Operative will set up 225mm plastic pipes laying them on top of the silt deposits. This plastic pipe is used to feed the material back to the suction hose from the vacuum excavator parked on the bridge

10. The vegetated silt and gravel deposits within the channel will be reduced to riverbed level at the time the proposed works are carried out. There shall be no removal of material below the riverbed level and there will be no excavation of the riverbed. The material will be scraped down using the 1t excavator and placed at the end of the 225mm pipe from where it will be sucked back to the truck.

11. As noted, works will take place when flows are low within the river. This will allow for the river bed / river level to be clearly identifiable relative to the silt / gravel deposits. Works will be undertaken as follows: -

    a. Prior to the removal of silts, vegetation on the silt deposit will be cut back and removed.

    b. The silt removal will start at the furthest point from the truck and work back towards the river bridge. Operator will disassemble the 225mm pipe as they progress back towards the start. As stated in measure no. 2, this will be done during dry weather conditions where no heavy rainfall is anticipated on the 10-day forecast.

    c. No material will be stored on the river bank.

d. Emergency spill kits will be available on site and staff will be trained in their use.

e. Operators and the LCC supervisor will check the 1t excavator and the vacuum excavator immediately after they arrive on site and before starting work to confirm the absence of leakages. Any leakages should be reported immediately and addressed. Excavator will not be permitted to work if any leaks are identified.

f. Daily checks will be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective will be removed from site immediately.

g. As an added precaution, prior to the commencement of works, sedimats will be placed immediately downstream of the works area in order to protect water quality locally. There placement on site will be supervised by the Project Ecologist.

Biosecurity protocols

The following biosecurity protocols shall be implemented during the proposed project to prevent the introduction of invasive species. Biosecurity protocols implemented on site will follow the 'Clean-Check-Dry' principle.

It should be noted that the biosecurity risk with respect to the proposed project is the potential introduction of non-native species and diseases, such as crayfish plague, to the site via machinery and equipment and the spread of crayfish plague to other aquatic environments post-completion of the works. The ecology survey for the proposed project did not record any non-native invasive plant species listed on the 3rd Schedule of the EC (Birds and Natural Habitats) Regulations 2011, as amended.

1. The excavator intended to be used at the site shall be dry, clean and free from debris prior to being brought to site. The excavator will have been dried for a minimum of 48 hours prior to being brought to site. This will be inspected by the LCC supervisor on site on arrival.

2. On completion of the works, the excavator will be brought to the Laois Roads Depot in Stradbally. The only part of the machine that will have interface with the water of the Stradbally River, is the bucket and the extended dipper arm. These will be washed down using a power washer roads depot by LCC operatives. Under no circumstances shall power washing of the excavator be carried out adjacent to the river channel.

3. The excavator will be returned to the LCC yard where it will be left to dry for 48 hours. The excavator shall not be used until 48 hours have elapsed.

Operatives who have entered the Stradbally River to secure the sedimats will disinfect their boots and waders using a disinfectant. The disinfectant that will be used is Milton, Virkon Aquatic (3mg/l), or Proxitane (30mg/l). The operatives will disinfect their boots and waders in the rank grassland area of the southern riverbank, set back from the riverbank. Disinfection of PPE will be carried out a minimum of 20m from the riverbank. The disinfectant will be allowed to soak to ground. Under no circumstances shall disinfection of PPE be carried out adjacent to the river channel.

Laois County Council River (Water) Work Method Statement

RISK ASESSMENT

1. Consider risks and hazards in proposed work area to self and others. GSS to bring his method statement and completed SSWP to the attention of the entire crew.

2. Notify landowners of works in area.

3. Inspect works area before commencing, i.e. check for and remove debris etc.

4. Locate and identify all services particularly overhead cables, and mark with warning signs.

5. Ensure animals are excluded and well away from the area where you are working.

6. Ensure appropriate PPE and life jackets are worn at all times. A life buoy shall be placed downstream of the works area and moved / checked daily as the works progress.

7. All operatives to have safe pass and excavator operator to hold valid CSCS ticket.

8. Employ best practice manual handling techniques, excavator to complete lifting where possible.

9. All chains and lifting equipment to hold valid GA1 cert and have GA2 inspection completed weekly

10. Traffic Management required for any works on the road including unloading of the excavator from low loader.

ADDITIONAL PRECAUTIONS

1. All operatives on site shall be advised of the environmental sensitivity of the site and should be fully appraised of this assessment prior to the commencement of works. All personnel will be required to attend a tool box talk prior to works commencing and a record of content and attendance will be kept.

2. All works will be supervised by Laois County Council Engineering (LCC) staff that will visit site daily during the works.

3. Prior to commencing works on site all overhead & underground services shall be identified and clearly marked on site.

4. No refuelling or servicing of plant / machinery shall take place within 20m of any watercourse.

5. Plant will be removed from the river bank at the end of each working day and securely parked within farmyard compound 200m from the river.

6. Working hours shall be restricted to daylight hours only and there shall be no overnight artificial lighting of the site.

7. Instream works will be undertaken during 1st July and 30th September 2022 inclusive, unless otherwise agreed with the NPWS and IFI. Works will be subject to suitable weather and river water levels.

8. In the event of a high rainfall period in the proposed works window all operations will cease and will not recommence until river water levels have dropped to a suitable and safe working level.

9. Riverbank vegetation trampling and damage will be kept to the minimum possible.

10. All stock proof fencing removed or damaged during the works will be repaired or replaced on a like with like basis.

All in-river works shall be completed before 30th September 2022 unless otherwise agreed.

Paul O'Donoghue
WS Atkins Ireland Limited
Unit 2B
2200 Cork Airport Business Park
Cork
T12 R279

<contact info>