FLYNN FURNEY
ENVIRONMENTAL CONSULTANTS

Natura Impact Statement

Clare Glens River Walk Enhancement Plan, Co.Tipperary

Document Details

Client:	**Tipperary County Council**
Project Title:	**Clare Glens River Walk Enhancement Plan**
Document Title:	**Natura Impact Statement**
Prepared by:	**Flynn Furney Environmental Consultants**

Rev	Status	Date	Author(s)	Approved by
01	Draft	07/04/2025	CP	DMcC
02	Final	15/05/2025	CP	CP

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1 Overview

1.1 Introduction

Flynn Furney Environmental Consultants have been commissioned by Tipperary County Council for the provision of a Natura Impact Statement (NIS) for the improvement of the Clare Glens River Walk in Newport, Co. Tipperary. An AA screening report was produced for the purpose of this project. This report concluded that the risk of a Likely Significant Effect (LSE) upon the qualifying interests of the Clare Glen SAC and the Lower River Shannon SAC could not be definitively ruled out at the screening stage. As such, a Natura Impact Statement is required.

This stage 2 Appropriate Assessment (AA) (Natura Impact Statement (NIS)) is used to determine whether the proposed development would adversely affect the integrity of these European sites. This involves the identification of potential LSE to habitats and or species which form the qualifying interests of these European sites.

This report assesses the significance of potential LSE on their conservation status. Negative impacts on the integrity of these habitats or species will require implementing avoidance or mitigation measures to avoid progression to stages 3 and 4. Appropriate Assessment process as defined by the Planning and Development Acts 2000 to 2020.

1.2 Legislative Context and Overall Assessment Methodology

Article 6 of the Habitats Directive sets out provisions, which govern the conservation, and management of Natura 2000 sites. Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for AA:

"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication 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".

Where the competent authority cannot definitively rule out adversely affecting the integrity of the conservation objectives of the site or sites concerned, a Stage 2 Appropriate Assessment and preparation of a Natura Impact Statement is then required. The processes for this are set out under Articles 6(3) and 6(4) of the Habitats Directive and are commonly referred to as 'Appropriate Assessments' (which in fact refers to Stage 2 in the sequence under the Habitats Directive Article 6). This provision was transposed into Irish law by Part XAB of the Planning and Development Acts, 2000-2015. Section 177U (4) of the said Acts provides for screening for Appropriate Assessment as follows:

"The competent authority shall determine that an appropriate assessment of a proposed development is

required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site."

Where the competent authority deems that impacts could not be definitively ruled out, a Natura Impact Statement (NIS) is then required. Section 177T(1) and (2) provide for an NIS as *"a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites" and specifies that it "shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites"*.

The European Court of Justice has made a number of relevant rulings in relation to when an Appropriate Assessment is required and its purpose: "Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects" and that the plan or project may only be authorised "where no reasonable scientific doubt remains as to the absence of such effects". A list of relevant rulings are provided below:

Table 1. Case law relevant to the AA Process for the proposed development

Case	**Ruling**
People Over Wind and Sweetman v Coillte Teoranta (C-323/17)	The ruling of the CJEU in this case requires that any conclusion of 'no Likely Significant Effect' on a European site must be made prior to any consideration of measures to avoid or reduce harm to the European site. The determination of Likely Significant Effects should not, in the opinion of the CJEU, constitute an attempt at detailed technical analyses. This should be conducted as part of the AA.
Waddenzee (C 127/02)	The ruling in this case clarified that AA must be conducted using best scientific knowledge, and that there must be no reasonable scientific doubt in the conclusions drawn. The Waddenzee ruling also provided clarity on the definition of 'significant effect', which would be any effect from a plan or project which is likely to undermine the conservation objectives of any European site.
Holohan and Others v An Bord Pleanála (C-461/17)	The conclusions of the Court in this case were that consideration must be given during AA to: • effects on qualifying habitats and/or species of a SAC or SPA,

	even when occurring outside of the boundary of a European site, if these are relevant to the site meeting its conservation objectives; and, • effects on non-qualifying habitats and/or species on which the qualifying habitats and/or species depend and which could result in adverse effects on the integrity of the European site.
T.C Briels and Others v Minister van Infrastructure en Milieu (C 521/12)	The ruling of the CJEU in this case determined that compensatory measures cannot be used to support a conclusion of no adverse effect on site integrity.

In addition, in a Judicial Review in Irish High Court in the case of Kelly v An Bord Pleanála & Anor, it was ruled that Sustainable Drainage Systems (SuDS) which form a part of the design of a development can be considered an integral part of the development and:

- are not measures that are intended to avoid or reduce the harmful effects of a particular development on a European site;
- are not intended to have that effect as they are required to comply with other relevant policies and legislation, including the Water Framework Directive and associated water quality Directives and Regulations; and,
- are not required to be incorporated by reason of the potential effect of a development on a European site.

The court concluded "as a matter of fact and law, that SuDS are not mitigation measures which a competent authority is precluded from considering at the [AA] screening stage". The European Court of Justice has also made a relevant ruling on what should be contained within an Appropriate Assessment: "[The Appropriate Assessment] cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned".

1.3 Description of Proposed Works

The project involves the improvement of the Clare Glens River Walk. Proposed works on the existing upper trail are as follows:

- The project entails the enhancement of approximately 1,165 meters of the current pathway within Clare Glens. Upgrades will consist of a 50mm blinding layer and a 60mm layer of clause 804 on the path. Path will be widened to a total of 1.8 m width.
- In areas experiencing waterlogging, additional measures will include the installation of a Terram geotextile membrane and the placement of large stones exceeding 100mm in size, with a minimum depth of 300mm to improve drainage.
- For sections of the path adjacent to the river, reclaimed logs from existing forestry will be incorporated to secure the path edge and bank, supported by timber pegs. The timber utilized will be larch or another approved species, with a diameter of 900mm centres. A gravel stabilization grid will be implemented as necessary to minimize path washout.
- Existing culverts will undergo upgrades, including new piping (with specified diameter) and the addition of a blinding layer and clause 804. Rock Armour composed of single-sized large stones will be placed around the inlet pipe to manage incoming flow, while large loose stones will be positioned around the outlet to prevent blockages.
- Signage posts and fencing along the River Walk will be upgraded, secured with gen 3 concrete or quick-setting concrete as approved, and constructed from treated timber rails and posts, fastened with 3.5mm diameter by 90mm galvanized ring shank nails.
- The existing mass concrete bridge will be dismantled, with all waste removed and recycled; new galvanized steel bridge beams, a formed steel handrail with an 8mm capping plate, and a new bridge deck made of timber with an anti-slip coating will be installed on the existing abutments, with adjustments made to the path level and gradient to align with the new bridge.
- Two viewing platforms will be installed along the path. This will involve the removal of no. 1 tree, and the installation of the viewing platform foundations, a galvanized steel frame, a deck made of treated timber with anti-slip coating, and a woven steel handrail.
- The level and gradient of the existing path will be revised to suit the viewing platform levels.

2 Ecological Assessment

2.1 Field surveys

This NIS has been informed by a range of habitat, botanical and species-specific surveys carried out over two months. Table 2 details the targeted survey type and the methodologies employed for each survey type.

Table 2. targeted survey type carried and the methodologies followed.

Target/Survey Type	Methodology
Habitat/Walkover Surveys	Fossitt, J. (2000). Guide to Habitats in Ireland. The Heritage Council Heritage Council's 'Best Practice Guidance for Habitat Survey and Mapping' (Smith et al. 2011). Martin, J.R., O'Neill, F.H. & Daly, O.H. (2018) The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats. Irish Wildlife Manuals, No. 102. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland National Roads Authority (2008). Guidelines on the Management of Noxious Weeds and Non-native Invasive Species on National Roads, NRA, Dublin NRA (TII) (2008). Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes.
River Habitat Survey	River Habitat Study in Britain and Ireland: Field Survey Guidance Manual 2003. Environment Agency, HMSO, London.
Killarney Fern Survey	Ní Dhúill, E., O'Neill, F.H. & Hodd, R.L. (2022) Monitoring and assessment of Killarney Fern (Vandenboschia speciosa (Willd.) Kunkel) in Ireland, 2015–2018. Irish Wildlife Manuals, No. 133. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

Mammal Surveys (Otters, Badgers, Red Squirrel and Pine Marten)	Bailey, M. & 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. Harris, S., Cresswell, P., and Jefferies, D. (1989). Surveying Badgers. The Mammal Society, London. National Roads Authority (2006c) Guidelines on the Treatment of Otters Prior to the Construction of National Road Schemes, NRA, Dublin.
Amphibian: Common Frog (Rana temporaria) & Smooth newt (Lissotriton vulgaris)	Direct observation during spawning season.

2.2 Features and Sensitivities of the site

This section examines the potential impacts to Annex I habitats and Annex II species for whom LSE were identified in the AA Screening Report.

2.2.1 Zones of Influence and Potential Impacts and Effects

The proposed development has the potential to result in a number of direct and indirect effects. These are set out in Table 3 which identifies the "zones of influence" for each effect (i.e. the area over which effects may occur).

Table 3. "Zones of influence" for each LSE

Potential Impact and Effect	**Description**	**Zone of Influence for possible impacts or effects**
Land-take resulting in habitat loss or degradation.	The permanent loss or degradation of the habitat present in the footprint of the works site or within the footprint of the broad works area including temporary access routes.	Land within the proposed footprint of works and access routes.
Changes in water quality and resulting in habitat loss or degradation. Or impacts to key species upon which water quality is a key indicator of	Reduction in the habitat quality, loss of habitats and direct or indirect impacts to species who rely upon good water quality as a result of surface water	Changes in surface water quality, as a result of construction works. Other indirect impacts to pray species may also leading to wider

conservation value.	pollution (e.g. sedimentation or from other polluting materials like hydrocarbons)	reaching impacts.
Noise and vibration resulting in disturbance.	Direct impacts on feature species reducing their ability to forage or breed.	Generally assessed within 500m of proposed works for birds and 150m for otter underground sites.
Human presence resulting in disturbance to highly sensitive species.	Indirect impacts on QI species due to reduced breeding success, or disruption to key resting, roosting or feeding sites within the European site	Generally assessed within 500m of the proposed development. As works are within close proximity of the Lower River Shannon SAC which is designated for Otter, and the Slievefelim to Silvermines Mountain SPA which is designated for Hen Harrier. Human presence is considered within 150m as with noise and vibration.

2.3 Qualify Interests of European Sites and Potential for Impacts

In general, all European sites aim to maintain or restore the favourable conservation status of all quality interests within European sites. The Habitats Directive (EU, 1992) describes how favourable conservation status of a species can be described as being achieved when: *"population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced nor likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis."*

Favourable conservation status of a habitat can be described as being achieved when: *'its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable''.*

The AA screening produced for the purpose of this report identified potential LSE for three Natura 2000 sites. These are Clare Glen SAC, Lower River Shannon SAC, and Slievefelim to Silvermines Mountains SPA. The works area lies within Clare Glen SAC, while the Lower River Shannon is located downstream from the proposed works site, and Slievefelim to Silvermines Mountains SPA is located south east of the proposed development.

The Conservation Objectives for the Clare Glen SAC are as follows:

- To restore Annex I habitats (Old sessile oak woods with Ilex and Blechnum in the British Isles) for which the SAC has been selected, at favourable conservation condition.
- To restore favourable conservation conditions of the Annex II species (Trichomanes speciosum (Killarney Fern)) for which the SAC has been selected.

The Conservation Objectives for the Lower River Shannon SAC are as follows:

- To maintain Annex I habitats (Sandbanks, Estuaries, Mudflats, Large Shallow Inlets and Bays, Reefs, Perennial Vegetation of Stony Banks, Vegetated Sea Cliffs of the Atlantic and Baltic Coasts, Salicornia and Other Annuals Colonising Mud and Sand, Water Courses of Plain to Montane Levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* Vegetation, Molinia Meadows on Calcareous, Peaty or Clayey-silt-laden Soils *(Molinion caeruleae*)) for which the SAC has been selected, at favourable conservation condition.
- To restore Annex I habitats (Coastal Lagoons, Atlantic Salt Meadows (*Glauco-Puccinellietalia maritimae*) Mediterranean Salt Meadows (*Juncetalia maritimi*), Alluvial Forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*)) for which the SAC has been selected, at favourable conservation condition.
- To maintain favourable conservation conditions of the Annex II species (*Lampetra planeri* (Brook Lamprey), *Lampetra fluviatilis* (River Lamprey), *Tursiops truncatus* (Common Bottlenose Dolphin)) for which the SAC has been selected.
- To restore favourable conservation conditions of the Annex II species (*Margaritifera margaritifera* (Freshwater Pearl Mussel), *Petromyzon marinus* (Sea Lamprey), *Salmo salar* (Salmon), *Lutra lutra* (Otter)) for which the SAC has been selected.

The conservation objectives for the Slievefelim to Silvermines Mountain SPA are as follows:

- To restore the favourable conservation condition of the Annex II species (*Circus cyaneus* (Hen Harrier)) for which the SPA has been selected.

2.4 Further Assessment of Relevant Designated Sites

The above initial screening has identified three SACs (Clare Glen SAC, Slievefelim to Silvermines Mountains SPA, Lower River Shannon SAC) as requiring further consideration in this assessment. The potential for impacts on the conservation interests of these sites arising from the proposed works is assessed in the following table:

Table 4. Further assessment of relevant designated sites.

Assessment of Potential for Impacts on qualifying interests of Clare Glen SAC - 000930			
Qualifying Interest/Conservation Objective	**Relevant to Proposed Works**	**Potential for Impacts**	**Rationale**
• Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	Yes	*Yes*	The conservation objective relative to this particular QI is that of "maintaining the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the British Isles in Clare Glen SAC" through consideration for the distribution and size of this habitat, its structural integrity in terms of natural regeneration, quantity of deadwood, community diversity and extent, as well as vegetation composition with regard to the occurrence of indicator species and native tree cover. This habitat occurs throughout the length of the proposed works area, hence there is spatial overlap between the two. **Therefore, impacts that could adversely influence this Qualifying Interest cannot be excluded.**
• Trichomanes speciosum (Killarney Fern) [1421]	*Yes*	*Yes*	The conservation objective relative to this particular QI is that of "maintaining the favourable conservation condition of Killarney Fern in Clare Glen SAC" through consideration for the number of populations, colonies, and its area of occupancy, as well as its habitat extent and the maintenance of the hydrological conditions that enable the species to thrive. Other relevant parameters covered in the conservation objectives are the light levels, the woodland percentage cover and the occurrence of invasive species.

			Killarney fern. While it is not envisioned that the works will impact the hydrological conditions and the humidity levels that the species relies on, two colonies of Killarney Fern are located directly within the footprint of the works. **Therefore, impacts that could adversely influence this Qualifying Interest cannot be excluded.**
Assessment of Potential for Impacts on qualifying interests of Slievefelim to Silvermines Mountains SPA - 004165			
Hen Harrier (Circus cyaneus) [A082]	*No*	*Nil*	The conservation objective relative to this particular QI is that of "restoring the favourable conservation condition of Hen Harrier in in this SPA" through consideration for the population size and productivity rate, the extent and condition of the habitats the Hen Harrier relies on. The Hen Harrier primarily utilizes habitats such as bogs, grasslands for foraging. Their nesting preference has largely switched to ground nesting to pre-thicket forest plantation and early growth second rotation forest. While conifers are featured within the woodland in Clare Glens, where the proposed works area is situated, the woodland is mature and its canopy dense, characteristics that are largely deemed unsuitable for Hen Harrier breeding. Moreover, no evidence of the Hen Harrier breeding within Clare Glens was recorded. Nonetheless, given the proximity of the designated site, disturbance to foraging activity in nearby habitats resulting from noise and vibration from the operational phase of the works cannot be excluded. **Therefore, impacts that could adversely influence this Qualifying Interest cannot be excluded.**
Assessment of Potential for Impacts on qualifying interests of Lower River Shannon SAC			

Sandbanks which are slightly covered by sea water all the time [1110]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).
Estuaries [1130]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).
Mudflats and sandflats not covered by seawater at low tide [1140]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).

Coastal lagoons [1150]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).
Large shallow inlets and bays [1160]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).
Reefs [1170]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).

Perennial vegetation of stony banks [1220]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).
Salicornia and other annuals colonising mud and sand [1310]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).

Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).
Mediterranean salt meadows (Juncetalia maritimi) [1410]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving marine environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence this Qualifying Interest (QI).
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	*No*	*Nil*	This QI is described for three high conservation elements which occur within this SAC: Triangular Club-rush (*Schoenoplectus triqueter*), Opposite-leaved Pondweed (Groenlandia densa), and Bryophyte-rich streams and rivers sub-type. The proposed project does not have potential for direct impacts on this QI as there is no spatial overlap between the habitat supporting these conservation elements and the proposed works area. Indirect impacts to water quality that might affect the distribution of the species are not predicted due to the scope, scale and duration of the project, the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving environment. Considering the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely

			influence this Qualifying Interest (QI).
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this habitat as it does not occur within area proposed for development. Indirect impacts to water quality are not predicted due to the extent of the hydrological pathway between the works area and the designated site, and the substantial dilution capacity of the receiving environment. Considering the limited scale and duration of the proposed works, the lack of connectivity, and the negligible potential for interaction with proposed works, it is determined that there will be no significant impact on this Qualifying Interest (QI).
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	*No*	*Nil*	This habitat occurs downstream of the proposed works area. While no direct impacts are predicted on this QI, as works will not encroach on this habitat, there is a risk that invasive species may spread downstream as a result of the proposed works. **Therefore, impacts that could adversely influence this Qualifying Interest cannot be excluded.**

Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this species as it does not occur within area proposed for development. Indirect impacts to water quality that could affect this species are not predicted: the distribution of *M. margaritifera* in this SAC is limited to River Cloon, in County Clare, which is located within a different catchment on the northern side of the Shannon estuary. It therefore cannot be the recipient of any significant impact on water quality that could adversely influence this Qualifying Interest (QI).
<u>Lamprey species:</u> Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099]	*No*	*Nil*	It is considered the proposed project does not have potential for direct impacts on these species. No in-stream works are proposed, no gravel beds where these species may spawn are present in proximity of the proposed works, nor silt beds which may support lamprey ammocoetes are found within the watercourse. No indirect impact to this QI is envisaged as instream works or excavation works are not proposed. Considering the above, the limited scale of proposed works and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence these Qualifying Interest (QI).
Salmo salar (Salmon) [1106]	*No*	*Nil*	It is considered the proposed project does not have potential for direct impacts on these species. No gravel beds where these species may spawn are present at the river crossing point and instream works are not proposed, hence there is no spatial overlap between the spawning habitat supporting these species and the proposed works area. No indirect impact to this QI is envisaged as instream works or excavation works are not proposed. Considering the above, the limited scale of proposed works and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence these Qualifying Interest (QI).

Tursiops truncatus (Common Bottlenose Dolphin) [1349]	*No*	*Nil*	The proposed project does not have potential for direct impacts on this species as it does not occur within area proposed for development. Indirect impacts to water quality that could impact on the critical habitat for this species are not predicted due to the extent of the hydrological pathway: the nearest distribution of critical habitat is approximately 24.5km downstream of the proposed works site. Given that no direct in-stream works are planned and considering the substantial dilution capacity of the receiving marine environment, and the limited scale and duration of the proposed works, it is determined that there will be no significant impact on water quality that could adversely influence the habitat or the food availability for this Qualifying Interest (QI).
Lutra lutra (Otter) [1355]	*No*	*Nil*	Evidence of Otter activity was noted during the field survey. Moreover, the foraging and commuting range of Otter as described in the Conservation Objective document is located directly downstream of the proposed works, therefore indirect impacts to water quality that may affect its critical habitat, and its food availability cannot be excluded, as well as direct impacts due to noise and vibration disturbance. **Therefore, impacts that could adversely influence this Qualifying Interest cannot be excluded.**

The assessment above identified potential LSE for the following QI within these designated sites. These will be the focus of this Natura Impact Statement.

- Old sessile oak woods with Ilex and Blechnum in the British Isles in Clare Glen SAC;
- *Trichomanes speciosum* (Killarney Fern) in Clare Glen SAC;
- Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*) in the Lower River Shannon SAC;
- *Lutra lutra* (Otter) in the Lower River Shannon SAC.
- *Circus cyaneus* (Hen Harrier) Slievefelim to Silvermines Mountain SPA

Risk of significant impacts to the conservation objectives of any other Annex I habitats or Annex II species of the Lower River Shannon were considered unlikely due to one or more of the following:

- Significant buffer distance between the Proposed Development and the location of the Sites Qualifying Interest
- No hydrological connectivity between the Proposed Road Development and the location of the Sites Qualifying Interest
- The nature of the site's conservation objectives relative to the possible impacts of the scheme
- The qualifying interest was not recorded within the Zone of Influence of the Proposed Road Development
- No change to chemical or physiological condition of the designated site qualifying intertest as a result of the proposed development.

Site specific conservation objectives of all relevant Annex I habitat types and Annex II species identified are detailed below. Annex II species for which suitable habitat was noted within the project ZoI are also listed below.

2.4.1 [91A0] Old sessile oak woods with Ilex and Blechnum in the British Isles

Conservation objective: To restore the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the British Isles in Clare Glen SAC. The Proposed Development lies fully within the Clare Glen SAC, and as such this habitat occurs within the footprint of the proposed works (See Appendix I).

Table 5. [91A0] Old sessile oak woods with Ilex and Blechnum in the British Isles

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The woodland in Clare Glen SAC occurs along the Clare River valley and is of mixed composition with native broadleaves and non-native conifers and beech (Fagus sylvatica). As part of the National Survey of Native Woodlands (NSNW), the sub-site Clare Glens (NSNW site code 1286) was surveyed by Perrin et al. (2008). The minimum area of old oak woodland in the SAC is estimated to be 17.93ha. Map 3 shows the surveyed woodland classified as 91A0 (17.93ha) by Perrin et al. (2008) in the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 3 for surveyed area	Distribution based on Perrin et al. (2008)
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size	The target areas for individual woodlands aim to reduce habitat fragmentation and benefit those species requiring ‘deep’ woodland conditions (Peterken, 2002). In some cases, topographical constraints may restrict expansion
Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer	Described in Perrin et al. (2008) and NPWS internal files
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	Described in Perrin et al. (2008) and NPWS internal files

Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	Sessile oak (Quercus petraea) generally regenerates poorly. In suitable sites, ash (Fraxinus excelsior) can regenerate in large numbers although few seedlings reach pole size
Woodland structures: dead wood	M3 per hectare; number per hectare	At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter	Dead wood is a valuable resource and an integral part of a healthy, functioning woodland ecosystem
Woodland structure: veteran trees	Number per hectare	No decline	Mature and veteran trees are important habitats for bryophytes, lichens, saproxylic organisms and some bird species. Their retention is important to ensure continuity of habitats/niches and propagule sources
Woodland structure: indicators of local disctinctiveness	Occurrence	No decline	Includes ancient or long-established woodlands (Perrin and Daly, 2010), archaeological and geological features as well as red-data and other rare or localised species. Clare Glens (NSNW site code 1286) has been classified as possible ancient woodland by Perrin and Daly (2010). The Near Threatened liverworts Dumortiera hirsuta and Lejeunea eckloniana (Lockhart et al., 2012) are associated with wet rocks in the river, shaded by the woodland in the SAC (NPWS internal files). The rare Myxomycete fungi Fuligo muscorum, Stemonitopsis hyperopta and Licea testudinacea are present in the woodland and the Annex II listed Killarney fern (Trichomanes speciosum) has also been recorded (NPWS internal files). See also the conservation objective for Killarney fern (1421) in this volume
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%	Species reported in Perrin et al. (2008) and NPWS internal files
Vegetation composition: typical species	Occurrence	A variety of typical native species present, depending on woodland type, including sessile oak (Quercus petraea) and birch (Betula pubescens)	Species reported in Perrin et al. (2008) and NPWS internal files. See also Young (1971) and Fahy (undated)
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	The following are the most common non-native invasive species in this woodland type: beech (Fagus sylvatica), sycamore (Acer pseudoplatanus) and rhododendron (Rhododendron ponticum). Parts of Clare Glens have been

			planted with conifers (Abies, Picea and Pinus spp.). Beech, rhododendron and cherry laurel (Prunus laurocerasus) also occur in the woodland in the SAC (Perrin et al., 2008; NPWS internal files)

2.4.2 [1421] Killarney Fern Trichomanes speciosum

Conservation objective: To maintain the favourable conservation condition of Killarney Fern in Clare Glen SAC. This species is found within the SAC, and two colonies exists in close proximity of the proposed works area (lifecycle stage: gametophyte).

Table 6. [1421] Killarney Fern Trichomanes speciosum

Attribute	Measure	Target	Notes
Distribution	Occurrence	No loss in geographical spread of populations, subject to natural processes	The population of Killarney fern (Trichomanes speciosum) is currently known from several locations in Clare Glen SAC, all within hectad R75. Exact locations are not mapped here on account of the threat posed by illegal collecting. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Number of populations	Number	No decline, subject to natural processes	One population of the species has been recorded in the SAC since 1960. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Number of colonies	Number	No decline, subject to natural processes	Eleven colonies of the species have been recorded from the population in the SAC since 1960. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Population: lifecycle stage	Type (sporophyte or gametophyte)	Maintain life-cycle stage composition of populations, subject to natural processes	Three of the eleven colonies recorded since 1960 are composed of sporophytes (frond stage), all of which have co-existing gametophytes (filamentous stage), and eight are composed of gametophytes only. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Population size: area of occupancy	Square metres	No decline, subject to natural processes	Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Population size: living sporophyte fronds	Number	No decline, subject to natural processes	Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files

Population structure: young and unfurling fronds	Occurrence	Young (not fully expanded) and/or unfurling (crozier) fronds present in populations previously observed to have these, subject to natural processes	Young and/or unfurling fronds have been recorded from Clare Glen SAC. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Population structure: fertile fronds	Occurrence	Fertile fronds present in populations previously observed to have these, subject to natural processes	Fertile fronds have been recorded from the SAC. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Population structure: juvenile sporophyte fronds emerging from gametophytes	Number	No decline, subject to natural processes	Juvenile sporophyte fronds emerging from gametophytes have been recorded from the SAC. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Habitat extent	Hectares	No loss of suitable habitat, subject to natural processes	The species grows in deeply shaded, humid situations - dripping caves, overhangs and crevices on cliffs, rocky slopes, by waterfalls, in stream ravines and gullies, on rock or soil banks in woodlands and, occasionally, under fallen trees and on the floor of damp woodlands. Whilst also occurring in these habitats, the gametophyte stage can grow in drier areas that do not suit the sporophyte. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Hydrological conditions: wet/damp microhabitats	Occurrence	Maintain hydrological conditions at the locations of known populations - visible water source, with dripping or seeping water present and/or substrate wet/damp to touch, subject to natural processes	Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Hydrological conditions: relative humidity	Percentage	Maintain relative humidity levels at known colonies at not less than 80%, subject to natural processes	Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Hydrological conditions: desiccated fronds	Number	No increase, subject to natural processes	Presence of desiccated sporophyte fronds and gametophyte mats is indicative of unsuitable conditions. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Light levels: shading	Shade index score	At least 4 for woodland sporophyte-only and mixed colonies; at least 5 for open upland sporophyteonly and mixed colonies;	Shade Index: 4. Moderate shade, e.g. light-medium deciduous canopy with sun flecks. 5. Permanently shaded from direct sunlight but otherwise open to sky. 6. Deep woodland (e.g. coniferous or in ravine) shade, no sun flecks. 7. Perpetual deep

		at least 6 for gametophyteonly colonies, subject to natural processes	shade, e.g. cave entrance, beneath boulder. The species occurs in moderate to deep shade in woodland in Clare Glen SAC. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Woodland canopy cover	Percentage	No loss of woodland canopy at, or in the vicinity of, the locations of known populations and canopy cover here maintained at more than 33%, subject to natural processes	Woodland management at or near to locations of known populations of the species must take account of its habitat requirements, particularly with regard to maintenance of sufficient canopy cover. The species occurs in woodland in Clare Glen SAC. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files
Invasive species	Occurrence	Maintain absence of invasive non-native and vigorous native plant species at the locations of known populations or, if present, maintain vegetation cover of these at less than 10%, taking into account the habitat requirements of T. speciosum	In order to avoid negative impacts on the Killarney fern (Trichomanes speciosum), its habitat requirements (site hydrology, relative humidity, canopy cover, shading levels, etc.) must be taken into account in locations that are subject to or proposed for management actions to control invasive non-native and/or vigorous native plant species. Based on Ní Dhúill et al. (2015), NPWS (2013) and NPWS internal files

*2.4.3 [91E0] *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*

Conservation objective: To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in the Lower River Shannon SAC.
This habitat area is outside the footprint of the proposed development; however, it occurs in close proximity (0.2m) and it is located downstream from the works area.

*Table 7. [91E0] *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, at least c.8.5ha for sites surveyed	Minimum area, based on 5 sites surveyed by Perrin et al. (2008) - site codes 1286, 1577, 1857, 1861, 1995. See woodland habitats supporting document for further details. NB further areas are likely to be present within the SAC

Habitat distribution	Occurrence	No decline.	Distribution based on Perrin et al. (2008). NB further areas are likely to be present within the SAC
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size	The sizes of at least some of the existing woodlands need to be increased in order to reduce habitat fragmentation and benefit those species requiring ‘deep’ woodland conditions (Peterken, 2002). Topographical and land-ownership constraints may restrict expansion
Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi- mature trees and shrubs; and well-developed herb layer	Described in Perrin et al. (2008). See woodland habitats supporting document for further details
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	Described in Perrin et al. (2008). See woodland habitats supporting document for further details
Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	Alder and oak regenerate poorly. Ash often regenerates in large numbers although few seedlings reach pole size
Hydrological regime: flooding depth/height of water table	Metres	Appropriate hydrological regime necessary for maintenance of alluvial vegetation	Periodic flooding is essential to maintain alluvial woodlands along river floodplains
Woodland structures: dead wood	m^3 per hectare; number per hectare	At least 30m^3/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder)	Dead wood is a valuable resource and an integral part of a healthy, functioning woodland ecosystem
Woodland structure: veteran trees	Number per hectare	No decline	Mature and veteran trees are important habitats for bryophytes, lichens, saproxylic organisms and some bird species. Their retention is important to ensure continuity of habitats/niches and propagule sources
Woodland structure: indicators of local disctinctiveness	Occurrence	No decline	Includes ancient or long-established woodlands, archaeological and geological features as well as red-data and other rare or localised species. Perrin and Daly (2010) list four sites as containing potential ancient/long established woodland.

Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%	Species reported in Perrin et al. (2008).
Vegetation composition: typical species	Occurrence	A variety of typical native species present, depending on woodland type, including alder (Alnus glutinosa), willows (Salix spp) and, locally, oak (Quercus robur) and ash (Fraxinus excelsior)	Species reported in Perrin et al. (2008).
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	The following are the most common invasive species in this woodland type: Himalayan balsam (Impatiens glandulifera), giant hogweed (Heracleum mantegazzianum), sycamore (Acer pseudoplatanus)

2.4.4 [1355] Otter Lutra lutra

Conservation objective: To restore the favourable conservation condition of Otter in the Lower River Shannon SAC.
The foraging range for Otter described for this SAC occurs downstream from the works area. No holts or couches were identified within the footprint of the works area or in its immediate vicinity, however Otter droppings were recorded along the Annagh River. This indicates that while the foraging range described in the conservation objective does not extend within Clare Glens Woods, the species is likely to use portions of the Annagh River adjacent to the works area either for foraging or commuting, thus by proxy, mitigation measures should be considered for this species.

Table 8. [1355] Otter Lutra lutra

Attribute	**Measure**	**Target**	**Notes**
Distribution	Percentage positive survey sites	No significant decline.	Measure based on standard otter survey technique. FCS target, based on 1980/81 survey findings, is 88% in SACs. Current range in Shannon catchment estimated at 70.5% (Bailey and Rochford 2006)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 596.8ha above high water	No field survey. Areas mapped to include 10m terrestrial buffer along shoreline (above HWM and along river banks) identified as critical for otters (NPWS, 2007)

		mark (HWM); 958.9ha along river banks/ around ponds	
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 4,461.6ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (HWM) (NPWS, 2007; Kruuk, 2006)
Extent of freshwater (river) habitat	Kilometers	No significant decline. Length mapped and calculated as 500.1km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Extent of freshwater (lake/lagoon) habitat	Hectares	No significant decline. Area mapped and calculated as 125.6ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk, 2006; Kruuk and Moorhouse, 1991)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford, 2006) and wrasse and rockling in coastal waters (Kingston et al., 1999)
Barriers to connectivity	Number	No significant decline	Otters will regularly commute across stretches of open water up to 500m. e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed

2.4.5 [A082] Hen Harrier Circus cyaneus

Conservation objectives: To restore the favourable conservation condition of hen harrier in Slievefelim to Silvermines Mountains SPA.
While there is no overlap between the foraging and breeding range of the species and the proposed works area, the extent of this designated site is found immediately adjacent to the south-east edge of the proposed development.

Table 9. [A082] Hen Harrier Circus cyaneus

Attribute	Measure	Target	Notes
Population size	Number of confirmed breeding pairs	Maintain numbers at or above 4–8 confirmed breeding pairs	The attribute 'confirmed breeding pairs' is based on standard survey methods (see Ruddock et al., 2016). The target for this SPA is informed by the first two national surveys of 1998–2001 (Norriss et al., 2002) and 2005 (Barton et al., 2006). For further information on this and all other attributes, please refer to the conservation objectives supporting document for breeding hen harrier (NPWS, 2022) for further details
Productivity rate	Number of fledged young per confirmed pair	Restore at least 1.0–1.4 fledged young per confirmed pair	At the SPA level, the productivity rate can be highly variable in any given year. Generally, the setting of a minimum level of productivity to ensure a stable and/or increasing population at a given site ought to be informed by robust estimates of: post-fledging survival; adult survival; and immigration and emigration rates. Setting a single precise and robust rate is constrained by a lack of comprehensive Irish data. In order to frame this uncertainty, a threshold of 1.0–1.4 fledged young per confirmed breeding pair is set for this attribute. If population size of the SPA is not favourable, then the upper end of this productivity rate range is to be met. In order for estimates to be sufficiently representative of the SPA, they need to be of sufficient sample size and ideally over multiple years in order to account for inter-annual variability
Spatial utilisation by breeding pairs	Percentage	Maintain at least 74-94% spatial utilisation of the SPA by breeding pairs	Optimal resilience depends on breeding pairs utilising the SPA to the maximum extent possible. The spatial distribution of breeding pairs is expressed by the proportion of the SPA being used by them. Breeding pairs predominantly use the area within 5km of their nest site or centre of territory, though they can travel further (e.g. Irwin et al., 2012; Arroyo et al., 2014). Thus, the core area used by confirmed pairs can be broadly and generically estimated by calculating the portion that lies within 5km of all recorded nest sites. Ideally, the breeding

			population should be well dispersed around the SPA. The target range for this attribute for this SPA is informed by the first two national surveys of 1998– 2001 and 2005
Extent and conditions of heath and bog and associated habitats	Hectares; condition assessment	Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation	Open heath and bog occur in mosaics and often with other semi-natural habitats (e.g. scrub). These habitats can provide important nesting and foraging resources for the breeding population providing they are in suitable condition. Based on the habitat mapping of Moran and Wilson-Parr (2015), the estimated total extent of these habitats in this SPA is 3,095ha. Qualitative aspects were not assessed by Moran and Wilson-Parr (2015), but some important aspects to consider are the habitats' structure, soil integrity and overall open habitat coherence
Extent and condition of low intensity managed grasslands and associated habitats	Hectares; condition assessment	Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation	Low intensity managed grasslands occur in mosaics and often with other semi-natural habitats (e.g. scrub). These habitats can provide important foraging resources for the breeding population providing they are in suitable condition. Based on the habitat mapping of Moran and Wilson-Parr (2015), the estimated total extent of these habitats in this SPA is 3,552ha. Qualitative aspects were not assessed by Moran and Wilson-Parr (2015), but some important aspects to consider are the habitats' structure and overall open habitat coherence
Extent and condition of hedgerows	Kilometres; condition assessment	Maintain at least the length and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation	Hedgerows can be an important foraging resource for hen harrier throughout the year by providing food and refuge for prey animals i.e. small mammals and birds. Moran and Wilson-Parr (2015) quantified the hedgerow resource in this SPA with an estimated total linear extent of 641.3km, with two structural hedgerow types namely 'intact and dense' and 'boxed and moderate' accounting for 62.9km of that total. These combined types account for 10% of the total hedgerow resource of the SPA
Age structure of forest estate	Percentage	Achieve an even and consistent distribution of age-classes across the forest estate	This attribute aims to define optimal forest age-class composition required to reduce the forest demographic bottleneck, as set out in NPWS (2015) and Wilson et al. (2006

Disturbance to breeding sites	Level of impact	Disturbance occurs at levels that does not significantly impact upon breeding hen harrier	The impact of any significant disturbance on the SPA's breeding population will ultimately be manifested in the targets which relate to population demographics (i.e. population size, productivity rate) and the spatial utilisation of the SPA by breeding pairs. Factors such as intensity, frequency, timing and duration of a potentially disturbing activity need to be taken into account to determine its significance on breeding hen harrier in the SPA

Possible Impacts and Likely Significant Effects

This section examines the Annex I habitats and Annex II species for which the SAC and SPA have been given their designation. It considers whether impacts to any of these habitats or species are likely due to the proposed works.

2.5 Description of Possible impacts

The nature of the potential impacts is discussed below.

The proposed development at Clare Glens is situated fully within the Clare Glen SAC and it is hydrologically linked to the Lower River Shannon SAC. The south-east portion of the site is also located in close proximity to the Slievefelim to Silvermines Mountains SPA. As a result, the potential impacts on the SAC and SPA resulting from both the construction and operation of this development cannot be discounted. Only those aspects of the project that could influence the integrity and conservation objectives of the designated Natura 2000 sites and protected species have been evaluated. Several factors were reviewed at this stage, with some being dismissed and others carried forward for Appropriate Assessment as relevant. The following areas were investigated concerning potential impacts from the proposed development on the identified Natura 2000 sites:

- Deterioration of water quality in designated areas due to pollution from surface water runoff during site preparation and construction;
- Spread of invasive species such as Rhododendron ponticum and Prunus laurocerasus that are present within the footprint of the proposed works;
- Noise and vibration resulting in disturbance that might affect the capacity of certain relevant species to forage, commute or breed.
- Interference with n. 2 colonies of Killarney Fern.

2.5.1 Direct Impacts

In the absence of mitigation measures, ecological vulnerabilities may arise during the construction phase of this project. Specifically, the introduction of suspended solids, organic materials, and other pollutants into surface waters could directly impact Annex II species. If waterways are not sufficiently protected, future repercussions may occur due to the high concentration of developments along the watercourse.

Both short-term and long-term impacts from pollutants such as fuels, oils, lubricants, and hydraulic fluids can lead to significant fish kills. These substances would also have toxic effects on the aquatic ecosystem, adversely affecting specific species and their food sources. Accidental spills or leaks of oils and other pollutants can greatly impact fisheries, and their persistence in aquatic environments can degrade water quality and ecological value within the river system for several years. Excavations and exposed soils can result in substantial sediment entering waterways, leading to increased siltation that may smother fish eggs, increase fish mortality, reduce food availability for fish, and hinder fish movements.

Another significant potential direct impact without mitigation is the interference with n. 2 colonies of Killarney fern, which is situated within the footprints of the works. As only 11 colonies in total are found within Clare Glens, it is pivotal to protect any specimen encounter with the appropriate measures, as to

minimize the losses for the overall population present within the woodland.

Finally, direct impact arises from noise and vibration disturbance, which may affect the capacity to breed, forage, and/or commute of species such as Hen Harrier, for which the Slievefelim and Silvermines Mountain SPA was designated, or that of Otters, for which the Lower River Shannon SAC was designated.

2.5.2 Indirect Impacts

Indirect impacts may arise from alterations to prey species resulting from changes in water quality. Variations in turbidity and water quality can adversely affect certain invertebrate species that many fish rely on for food. The eventual accumulation of silt in sand or gravel beds that serve as spawning grounds for salmon and trout can disrupt the breeding cycles of these fish, potentially leading to declines in their populations. This, in turn, may have cascading effects on mammal species, such as otters.

2.5.3 Cumulative Impacts

The potential for cumulative impacts arising from other significant existing or permitted infrastructure is assessed here. Cumulative impacts encompass the combined effects of the multiple developments or activities on a range of receptors. Potential cumulative impacts associated with the existing and permitted significant infrastructure within the same water catchments as the proposed development should be considered.

As part of the Appropriate Assessment, in addition to the proposed works, other relevant projects and plans in the region must also be considered. This step aims to identify at this stage any possible significant in-combination or cumulative effects/ impacts of the proposed works on the Natura 2000 sites with other such plans and projects.

2.5.4 Future Plans / Other Projects

A search of National Planning Application Database and the Tipperary County Council planning web portal was carried out as part of this desktop study. A number of planning applications were reviewed, the majority of which for the retention and modifications of private residences. The closest to the proposed works area is App. 20991 for the construction of an entrance, dwelling house, garage, domestic waste water treatment system with polishing filter together with all associated site works, granted in 2020. Granted in 2023, application 23257 is the most recent in the areas surrounding the proposed works site, for the construction of two storey extension to the rear of house. In terms of large-scale developments, App. 16600472 for the extension of duration of a wind farm established in 2011 was granted in 2016 to 2022. This development is located approx. 3.2 km from the proposed works area. No other application relative to this particular development exists at the time of writing. No other application was considered for the purpose of this screening exercise. No application was found likely to create cumulative or in combination effects that will impact Natura 2000 sites.

2.6 Summary of Likely Significant Effects

A review of the elements of the proposed works indicates that there is a potential for impacts to qualifying interests of Clare Glen SAC, Lower River Shannon SAC, and Slievefelim and Silvermines Mountains SPA if appropriate mitigation measures are not undertaken.

A summary of the nature of the Likely Significant Effect Identified for each of these QI is reported below in table 10.

Table 10. Summary of LSE

Qualifying Interest	**Likely Significant Effect**
Old sessile oak woods with Ilex and Blechnum in the British Isles	Permanent loss or degradation of the habitat present in the footprint of the works site; Spread of Invasive Species.
Trichomanes speciosum (Killarney Fern)	Potential reduction of the number of Killarney Fern colonies present within Clare Glen SAC.
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*)	Deterioration in water quality in the Annagh River and designated habitats downstream due to contamination of local watercourses with silt, hydrocarbon, or aggregate runoff. This in turn could affect species that depend on this habitat. Spread of Invasive Species.
Lutra lutra (Otter)	Potential water quality impacts during construction and resulting in habitat loss or degradation. Indirect impacts to pray species and their availability downstream. Noise and vibration resulting in disturbance that may locally result in this species avoiding the areas around site.
Circus cyaneus (Hen Harrier)	Potential impacts upon this species are low, however, any temporary noise and vibration resulting in disturbance may locally result in this species avoiding the areas around site.

As shown in the table above, for the QI of Clare Glen SAC, the main impacts are linked to the direct land take, as the path will be widened to reach 1.8 metres in width across the length of the existing trail, to the spread of invasive species, and to the loss of two colonies of Flora Protection Order/Annex II species Killarney Fern.

Other of potential impacts on qualifying interests are linked to water quality. Several of these impacts are common across all listed Annex II species and habitats, with all concerning a reduction in water quality or effects on availability of prey species. Similarly, noise and vibration represent a potential impact for species such as Otter and Hen Harrier.

Mitigation measures designed to ensure compliance with the Habitats Directive Article 6 requirements are given below.

3 Schedule of Mitigation

A review of the elements of the proposed works indicates that there is a potential for LSE to qualifying interests and special qualifying interests of Clare Glen SAC and other European sites including Lower River Shannon SAC and Slievefelim and Silvermines Mountain SPA. LSE may occur if appropriate mitigation measures are not undertaken. Mitigation measures are designed to ensure compliance with the Habitats Directive Article 6 requirements given in section 1.2. Mitigation measures are generally aimed at addressing possible risks to water quality from the construction phase of the proposed development. These have been prepared with regard to the following guidance documents:

- Guidelines for The Crossing of Watercourses During The Construction Of National Roads Schemes. NRA, Dublin.
- National Roads Authority (2010) The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads. NRA, Dublin.
- Inland Fisheries Ireland (2016) Guidelines on protection of fisheries during construction works in and adjacent to waters. IFI, Dublin.
- SEPA (1996) SEPA Guidelines for Water Pollution Prevention from Civil Engineering Contracts. Scottish Environmental Protection Agency, Edinburgh.
- IRIA Guidelines Control of water pollution from construction sites - Guide to Good Practice (C532); and;
- Control of water pollution from linear construction projects. Technical Guidance (C648).

Table 11. Summary of site-specific mitigations.

Potential Impact	Affected Habitat/Species	Recommended Mitigation
Potential habitat loss and deterioration due to land take	Clare Glen SAC [91A0] Old sessile oak woods with Ilex and Blechnum in the British Isles.	**Construction Phase Mitigation** • The footprint of construction activities in the area with this habitat have been minimised to the smallest allowable area (path widened to 1.8 m). The footprint of the works will be clearly marked and areas to be retained shall be cordoned off in advance of works. • No woodland areas shall be used for storage, stock piling soil or any other auxiliary site activities. • Measures to offset the loss of this habitat area, namely the planting of native species, will be implemented. Care must be taken that saplings and seedlings are of local provenance. • To offset the loss of this habitat, clearing of invasive species present will also be implemented, according to the invasive species management plan produced. • No vegetation clearance to take place during bird nesting season (March 1st – August 31st). • Materials used for the construction shall be selected to align closely with the underlying geology of the area, namely pale & red sandstone and grit & claystone.
Potential loss of n. 2 colonies of Killarney Fern	Clare Glen SAC [1421] Trichomanes speciosum (Killarney Fern)	**Construction Phase Mitigation** • Footprint of the works area will be altered to exclude the colonies. An exclusion zone of 1m shall be established around the locations where the species occurs. Exact locations are not mapped here on account of the threat posed by illegal collecting; however, their location has been communicated to the client. • For the same reason, no signage shall indicate the location of the killarney fern directly. General verbiage indicating “ecologically sensitive area” shall be used

		instead. • All site staff should be briefed regarding the environmental sensitivity of the site, including the importance of the Killarney Fern. A Toolbox talk should be held to inform site staff of best practice required in these areas. **Operational Phase Mitigation** None needed
Potential short-term moderate adverse impacts to water quality within the ZOI of the proposed development within the Annagh River as a result of water quality impacts due to clearance and the construction phase of the proposed development.	Lower River Shannon SAC [91E0] *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae). Lower River Shannon SAC [1355] Otter Lutra lutra	**Construction Phase Mitigation** • A Construction Environmental Management Plan (CEMP), shall be agreed upon with the Local Authority prior to the start of works. A Construction Environmental Management Plan Co-ordinator (CEMPC) should be appointed to oversee and implement measures detailed below. • A designated Ecological Clerk of Works (ECoW) should be appointed to oversee the clearance phase and the construction phase of the proposed development. ECoW should be on site daily during clearance works and weekly during construction works • The river should be cordoned off before the commencement of the development. Vegetation along the riparian zones should be preserved as much as feasible. • Silt fencing should be installed downstream of the works area whereas works are planned within 10m from the Annagh River. Daily inspection of silt fences will be carried out by the site management to assess the effectiveness of the measures, to carry out maintenance, and to determine if there has been any damage/breach to the control measures. The silt fences will also be inspected immediately following heavy rainfall or strong winds (equating to a yellow weather warning). Where repair is necessary, this will be carried out immediately and may require the replacement of any damaged/degraded material. • All stationary plant must be placed on drip trays to prevent leaking oils reaching the Annagh River. No storage of equipment should take place within 5 meters of the Annagh River. • If instream works are required a site meeting to discuss works method should

		be organised between IFI, Tipperary County Council and the projects designated Ecologist. • Signage should be erected that clearly states that works are occurring adjacent to an ecologically sensitive area. • All clearance works should take place during dry weather. No bare soils should be left exposed over night to ensure no silts, soils or organic material is lost to either the Annagh River. No stockpiling of excavated material should take place within the woodland area, and especially within 10m from the Annagh River. • Excavation and vegetation removal shall be minimised in all areas adjacent or close to watercourse. Any proposed excavation or vegetation removal shall be agreed with the project ecologist. Insofar as possible, where this is required, the project ecologist shall direct the construction of permanent bunds in order to divert or catch runoff. • All fuels, lubricants, and hydraulic fluids will be kept in secure bunded areas remotely from any watercourse and the woodland areas. The bunded area will accommodate 110% of the total capacity of the containers within it. Containers will be properly secured to prevent unauthorised access and misuse. • Drip trays and spill kits must be kept available on site. No washings or waste materials of any kind can be directed into the nearby drains or into the river (including concrete washout from any concrete deliveries). Machinery on site must have pollution control kits on hand in the event of an emergency. • No refuelling should occur on site. This should be carried out at least 30m from the site boundary. Any fuel to be stored on site should be stored in a safe area where the likelihood of damage to the fuel container by moving vehicles is minimised. • Fuel, if being stored, should be stored in a double-bunded, undamaged, fit-for-purpose storage unit, specifically designed for fuel storage outside the woodland area. • Portaloos and/or containerised toilets and welfare units will be used to provide facilities for site personnel. All associated waste will be removed from the site

		by a licenced waste disposal contractor on a regular basis. • All site staff should be briefed regarding the environmental sensitivity of the site, including the importance of the European designated site. A Toolbox talk should be held to inform site staff of best practice required in these areas. **Operational Phase Mitigation** None needed
Noise, Vibration and Lighting	[A082] Hen Harrier (Circus cyaneus) [1355] Otter Lutra lutra	**Construction Phase Mitigation** • As in the future Otter could potentially establish new holt or couch sites within the ZoI of the Proposed Road Development, a pre-construction survey of all suitable Otter habitat will be required within 12 months of any constructions works commencing. • A lighting plan to be drawn up if works are to take place at night. All lighting is to be focused on the site only, with no light spill on the Annagh river. • Tree cutting to be avoided during Hen Harrier breeding season (spring and summer) to minimize possible noise disturbance. • The CEMP shall include a section dedicated to Noise and Vibration Control to mitigate potential disturbances caused by the construction activities. These measures will include the installation of screens where activities are expected to produce high noise levels; selecting machinery fitted with effective exhaust silencer's and pneumatic tools fitted with mufflers or silencers; and the use of compressors fitted with acoustic enclosures. • All site staff should be briefed regarding the species that may be impacted by construction activities. A toolbox talk should be held to inform site staff of how to identify these species. Should any Otters or (less likely) Hen Harrier be discovered during operations, works shall stop immediately and the ECoW consulted before resuming works. **Operational Phase Mitigation** None needed

Potential spread of invasive species		**Construction Phase Mitigation** • An invasive species management plan shall be devised prior to the commencements of works. • All site staff should be briefed regarding this plan. A Toolbox talk should be held to inform site staff of best practice required in these areas. • Areas of invasive species that will not be immediately affected by the works shall be cordoned off and clearly marked. • Standard biosecurity measures shall be followed at all times. **Operational Phase Mitigation** Follow-up monitoring and large-scale clearance of Rhododendron and Cherry Laurel

3.1 Residual Effects

An overview of the potential Impacts and Effects and the mitigation measures proposed for possibly affected European sites are presented above. Taking account of the relative ease of implementation of these mitigation measures and the limited scale of the proposed development, there can be a high level of confidence in their efficacy and success. It is considered that there is no potential for residual adverse effects on these Annex I habitats, Annex II species or the overall habitat quality and integrity of the Clare Glen SAC, Lower River Shannon SAC, Slievefelim and Silvermines Mountain SPA, or any other connected European site as a result of the proposed development.

3.2 Implementing Best Practice

An Environmental Operating Plan (EOP) shall be devised before the commencement of any works.

To oversee the implementation of the EOP the Contractor will be required to appoint a suitably qualified person, or persons, to the role of Ecological l Clerk of Works (ECoW) to monitor the construction works. The ECoW will be required to work closely with the Contractor's Site Supervisor to monitor activities and ensure that all relevant environmental legislation is complied with and that the requirements of the EOP are implemented.

All site contractors should be briefed regarding the environmental sensitivity of the site, including the importance of the European designated site. Toolbox talks should be held to inform site staff of the best practices required in these areas.

When working near watercourses or other sensitive areas, the ECoW shall carry out daily inspections of the site of works.

4 NIS Conclusion

This Natura Impact Statement has considered the potential for significant impacts arising from the proposed improvement of the Clare Glens River Walk in Newport, Co. Tipperary. The potential to adversely affect any Natura 2000 site; about their qualifying interests and conservation objectives has been examined. The proposed development will include works within the Clare Glen SAC, and it is hydrologically connected to Lower River Shannon SAC. The site is also located adjacent to the Slievefelim and Silvermines Mountains SPA.

The potential for direct, indirect, and cumulative impacts affecting the above designations has therefore been assessed in this NIS. The appraisal undertaken in this NIS has been informed by project-specific site surveys and specialist reporting concerning the ecological communities and habitats potentially affected by the proposed development, to provide a scientific basis for evaluations.

Measures for impact reduction have been incorporated into the project proposal, including avoidance, in addition to mitigation measures proposed in the NIS for the avoidance and reduction of impacts on the qualifying interests and conservation objectives of the designated Natura 2000 site within the study area.

With the implementation of these measures, the proposed improvement of the existing path will not

result in direct, indirect, or cumulative impacts which would have the potential to adversely affect the qualifying interests/special conservation interests of the Natura 2000 sites within the study area or the range, population densities or conservation status of the habitats and species for which these sites are designated (i.e. conservation objectives).

It may therefore be concluded that the proposed project, with the implementation of the prescribed mitigation measures, will not give rise to significant impacts, either individually or in combination with other plans and projects, in a manner that adversely affects the integrity of any designated site within the Natura 2000 network.

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