



# Foynes to Limerick Road (including Adare Bypass)

## Appropriate Assessment Screening Report

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## 1.0 INTRODUCTION

### 1.1 Overview

This AA Screening Report was prepared by EirEco Environmental Consultants in conjunction with Roughan & O'Donovan (ROD) and AECOM on behalf of Limerick City & County Council (LCCC) in relation to the proposed Foynes to Limerick Road (including Adare Bypass) ("the proposed road development"). The proposed road development comprises a new road development between the towns of Foynes, Askeaton, Rathkeale and Adare to link to Limerick City via the existing M20 motorway. The proposed road development is located mostly in a rural area in West Limerick and in proximity to a number of European Sites.

This document was prepared in accordance with the requirements of Council Directive 92/43/EEC of 21 August 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") and the Planning and Development Act, 2000 (as amended) ("the Planning and Development Act"). The purpose of this AA Screening Report is to inform and assist the Competent Authority in carrying out its AA Screening by determining whether or not the proposed road development, either individually or in combination with other plans and projects, has the potential to significantly affect one or more European Sites, in view of best scientific knowledge and the Conservation Objectives of the sites concerned.

### 1.2 Legislative Context

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

In order to ensure the protection of European Sites in the context of land use planning and development, Article 6(3) of the Habitats Directive requires that:

*"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."*

The Court of Justice of the European Union (CJEU) has interpreted this requirement as follows<sup>1</sup>:

*"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."*

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

In accordance with the Precautionary Principle, the CJEU interpreted the word “likely” as meaning that as long as it cannot be conclusively demonstrated that a given effect will not occur, that effect is considered “likely” to occur. A likely effect is considered to be “significant” only if it interrupts or causes delays in progress towards achieving the Conservation Objectives<sup>2</sup> of the relevant European Site(s).

In Ireland, this requirement is transposed into national law by Part 5 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) (“the Habitats Regulations”) and Part XAB of the Planning and Development Acts, and the process is termed “Appropriate Assessment” (AA). Stage 1 of the process, i.e. determining whether or not a plan or project meets the above criteria for requiring AA, is referred to as “AA Screening”.

In its judgment in *People over Wind*<sup>3</sup>, the CJEU concluded that AA Screening must be undertaken without consideration of “*measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned*”. This judgment informed the High Court’s conclusion in *Kelly v. An Bord Pleanála*<sup>4</sup> that certain measures which formed part of a proposed development were not required to be excluded from consideration at the screening stage because the policy requiring their inclusion as part of the proposed development was “*not in any way directed to the protection of any European site which might potentially be affected by a particular development*” and also “*having regard to the fact that [such measures] are now standard in virtually all projects regardless of proximity to European sites and are integral to project design*”.

Article 6(3) of the Habitats Directive specifies that AA must be undertaken by the “competent national authorities”. In Ireland, the “competent authority” is the relevant planning authority for each plan or project, e.g. the local authority or An Bord Pleanála. Consequently, the responsibility for carrying out AA Screening lies solely with the competent authority. In that respect, the AA Screening Report is not in itself an AA Screening, but provides the competent authority with the information it needs in order to carry out its AA Screening.

### 1.3 Screening Methodology

At this stage of the process, the AA Screening Report assesses the potential impacts from the plan or project on the European Sites within the likely zone of impact and evaluates them in view of the sites’ Conservation Objectives.

Best practice in undertaking AA Screening involves five steps as follows:

1. The first step involves gathering the information and data necessary to carry out a screening assessment. These include, but are not limited to, the details of all phases of the plan or project, environmental data pertaining to the area in which the plan or project is located, e.g. rare or protected habitats and species present or likely to be present, and the details of the European Sites within the likely zone of impact.

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

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

<sup>4</sup> *Eoin Kelly v. An Bord Pleanála* [2019] IEHC 84.

2. The second step involves examining the information gathered in the first step and a scientific analysis of the potential impacts of the plan or project on the receiving environment, particularly European Sites in the likely zone of impact.
3. The third step evaluates the impacts analysed in the second step against the Conservation Objectives of the relevant European Sites, thereby determining whether or not those impacts constitute “likely significant effects”, within the meaning of Article 6(3) of the Habitats Directive.
4. The fourth step involves considering the potential for likely significant effects to arise from the combination of the impacts from the plan or project with those of other plans or projects. If it is determined that Stage 2 (AA) is required, the consideration of in-combination impacts may be deferred to that stage.
5. The last step involves the issuing of a statement of the determination of the AA Screening. Notwithstanding the recommendation made in the AA Screening Report, the responsibility for completing this step lies solely with the competent authority.

The following guidance documents informed the assessment methodology:

- EC (2001) *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. Environment Directorate-General of the European Commission.
- NPWS (2010) *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular Letter NPWS 1/10 and PSSP 2/10. Department of the Environment, Heritage and Local Government, Dublin.
- DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.
- NPWS (2012) *Marine Natura Impact Statements in Irish Special Areas of Conservation – a working document*. April 2012. National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.
- EC (2018) *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC*. Environment Directorate-General of the European Commission.

## 2.0 DESCRIPTION OF THE PROPOSED ROAD DEVELOPMENT

The proposed road development comprises a new road development between the towns of Foynes, Askeaton, Rathkeale and Adare to link to Limerick City via the existing M20 motorway. The proposed road development is not directly connected with or necessary to the management of any European Site. Plate 2.1 illustrates the proposed Foynes to Limerick Road (Including Adare Bypass) and identifies all lands necessary to construct the proposed road development. The proposed road development is also subject to Environmental Impact Assessment (EIA) as part of the statutory planning process.

Shannon-Foynes Port is a Tier 1 port and Ireland's second largest port operation. It is currently accessed by the existing N69 National Secondary Route, which is a single carriageway road that extends from Limerick City to Tralee. The route of 32 km between Foynes and Dock Road Junction on the N18 Limerick Southern Ring Road, bypasses the town of Askeaton and Mungret Village while it passes through the three villages of Kilcornan, Kildimo and Clarina. The existing N69 between Foynes and Limerick is a low-quality road that poorly serves its purpose for access by heavy goods vehicles (HGVs) to Shannon-Foynes Port. Existing traffic impacts negatively upon the local population along the route, both the villages it passes through and the extensive rural housing in between. The N69 also serves as the main access road for a wide rural hinterland extending for about 5 km on either side, towards the Shannon Estuary to the north and mid-way towards the N21 corridor to the south.

The proposed Foynes to Limerick Road will be a high-quality road in accordance with TEN-T Requirements. Due to the substantial capital investment envisaged, full consideration of the existing road network in the area was undertaken in terms of infrastructural deficits in order to achieve optimal value for money. Existing congested conditions at Adare, taken in combination with future planning requirements for the road corridors to Cork and Tralee, were also considered in this regard.

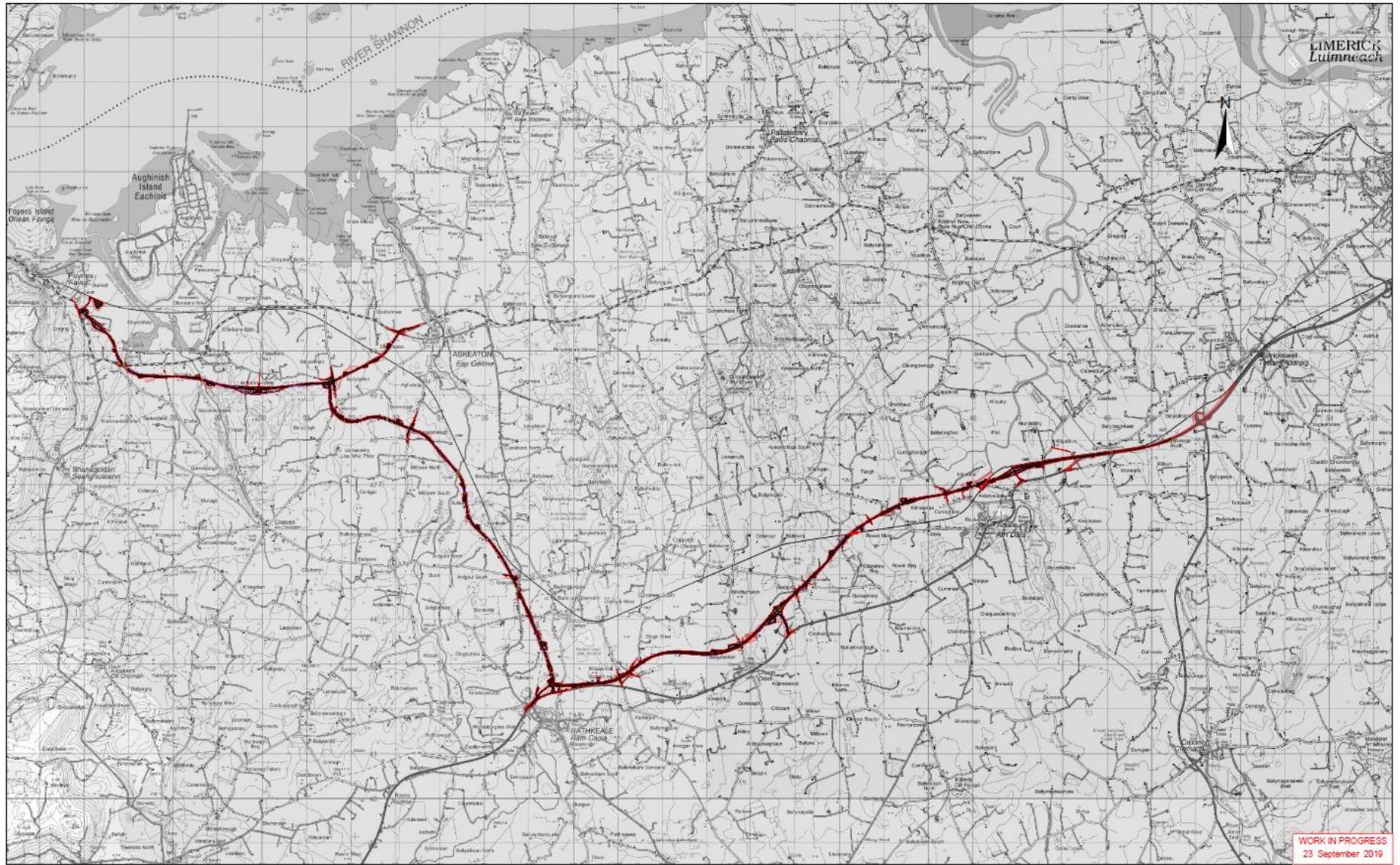


Plate 2.1 Proposed Road Development with Lands required for construction marked in red.

## 3.0 EUROPEAN SITES LIKELY TO BE AFFECTED

### 3.1 Establishing the Likely Zone of Impact

Section 3.2.3 of DEHLG (2010) outlines the procedure for selecting the European Sites to be considered in AA. It states that European Sites potentially affected should be identified and listed, bearing in mind the potential for direct, indirect and cumulative effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project. However, it advises that the following sites should generally be included:

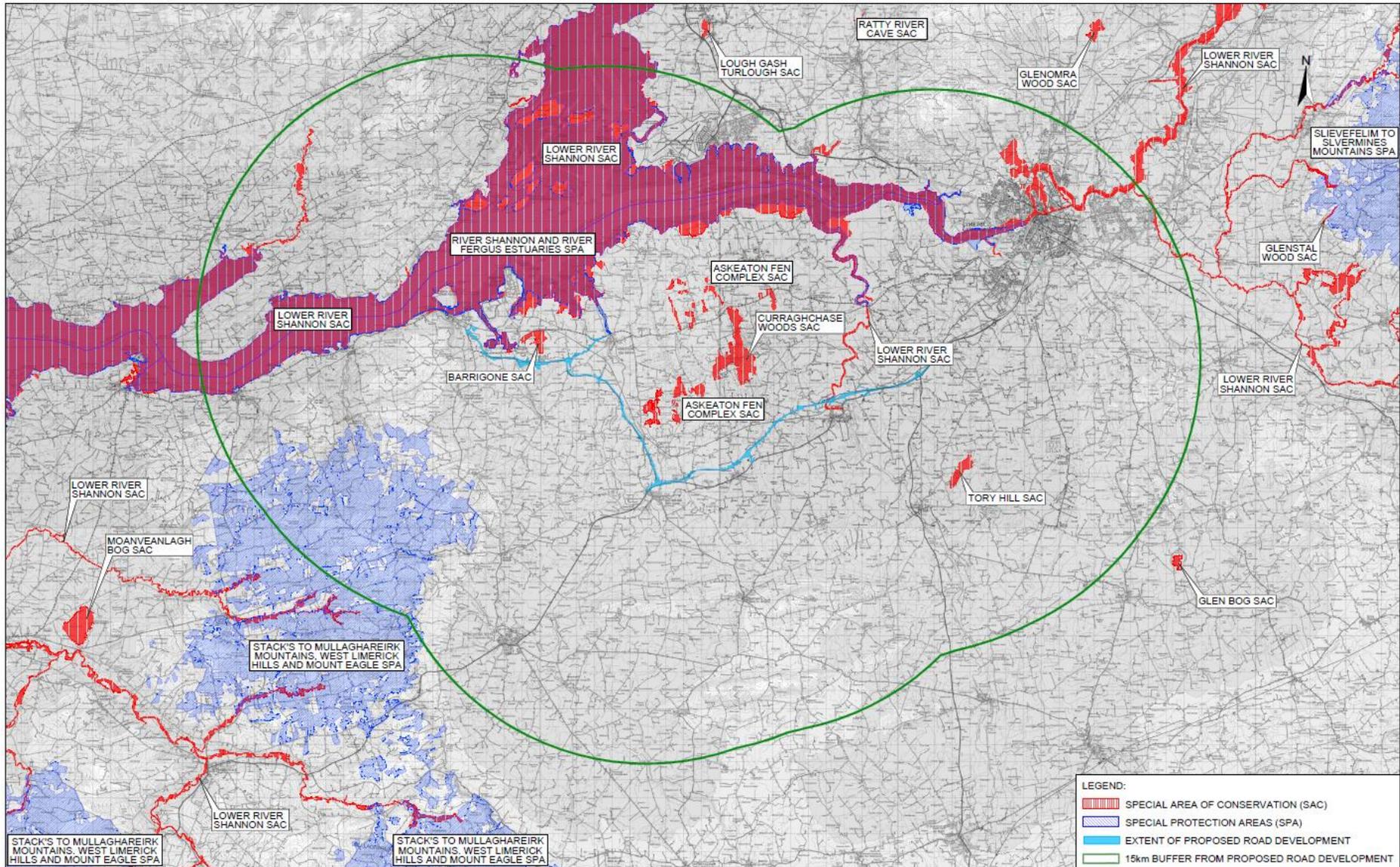
- All European Sites within or immediately adjacent to the plan or project area;
- All European Sites within the likely zone of impact of the plan or project; and,
- In accordance with the Precautionary Principle, all European Sites for which there is doubt as to whether or not they might be significantly affected.

The “likely zone of impact” of a project is the geographic extent over which significant ecological effects are likely to occur. In the case of plans, this zone should extend to a distance of 15 km in all directions from the boundary of the plan area. In the case of projects, however, the guidance recognises that the likely zone of impact must be established on a case-by-case basis, with reference to the following key variables:

- The nature, size and location of the project;
- The sensitivities of the ecological receptors; and,
- The potential for cumulative effects.

For example, in the case of a project that could affect a watercourse, it may be necessary to include the entire upstream and/or downstream catchment in order to capture all European Sites with water-dependent features of interest. However, within terrestrial habitats, the likely zone of impact may be confined to the study area. Particular attention was given to identifying any “stepping stone” sites which could potentially provide important links between European Sites or support a Qualifying Interest habitat or species from an adjacent European Site.

A geographical representation of the likely zone of impact was produced in ArcGIS 10.5 using the proposed road development boundary and publicly available Ordnance Survey Ireland maps. This was used in combination with National Parks & Wildlife Service (NPWS) shapefiles to identify the boundaries of European Sites in relation to the likely zone of impact (Plate 3.1), with an indicative 15 km buffer zone shown to illustrate the relative distances to each site from the proposed road development. Consideration was also given to the potential to affect other European Sites beyond this 15 km zone through hydrological connectivity or the occurrence of critical ex-situ habitat. It was determined that seven European Sites occur within or adjacent to the likely zone of impact (Table 3.1).



**Plate 3.1** The boundaries of European Sites relative to the location of the proposed road development.

**Table 3.1 Initial Assessment of Potential Pathways to European Sites located within the likely zone of impact.**

European Site	Distance from the proposed road development	Site summary	Are there potential pathways for impacts from the proposed road development to this site? Explain.
<p><b>Lower River Shannon SAC [002165]</b> Site area: 68,329.57 ha</p>	<p>The proposed road development intersects this European Site.</p>	<p>This very large site stretches along the Shannon valley from Killaloe in Co. Clare to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the Habitats Directive, including the priority habitats Coastal Lagoon and Alluvial Woodland, the only known resident population of Bottlenose Dolphin in Ireland and all three Irish Lamprey species. A number of Red Data Book species are also present, notably thriving populations of Triangular Club-rush. A number of species listed on Annex I of the Birds Directive are also present, either wintering or breeding.</p>	<p><b>Yes.</b> The proposed road development intersects this European Site (at the River Maigue) and all watercourses crossed by the proposed road development flow into the SAC. There is, therefore, considered to be potential for direct impacts on the estuarine environment (both its habitats and species) of this European Site during both construction and operation.</p>
<p><b>River Shannon &amp; River Fergus SPA [004077]</b> Site area: 32,252.06 ha</p>	<p>400 m</p>	<p>The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry. Also included are several areas in the outer Shannon estuary, as well as the intertidal areas on the south shore of the Shannon between Tarbert and Beal Point. It is an internationally important site that supports an assemblage of over 20,000 wintering waterbirds and notable populations of Light-bellied Brent Goose, Dunlin, Black-tailed Godwit and Redshank. The site has vast expanses of intertidal flats which contain a diverse macroinvertebrate community which provides a rich food resource for the wintering birds while fringe salt marsh vegetation provides important high tide roost areas.</p>	<p><b>Yes.</b> The proposed road development runs within close proximity (400 m) to the Churchtown Estuary which is part of this European Site. There are also numerous pathways for impacts from the proposed road development during both construction and operation to the sensitivities of this European Site via various waterbodies crossed by the proposed route.</p>
<p><b>Curraghchase Woods SAC [000174]</b> Site area:</p>	<p>3 km</p>	<p>This site is situated c. 7 km east of Askeaton in Co. Limerick. The site consists largely of mixed woodland and a series of wetlands and contains two Annex I-listed woodland types; Yew woodlands, which is of very limited occurrence in Ireland, and Alluvial Forests. The site is of international importance for Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>).</p>	<p><b>Yes.</b> The Lesser Horseshoe Bat population (a Qualifying Interest of this site) is mobile and there are potential impacts from the proposed road development on the movement of bats across the landscape.</p>

European Site	Distance from the proposed road development	Site summary	Are there potential pathways for impacts from the proposed road development to this site? Explain.
<b>Askeaton Fen Complex SAC [002279]</b> Site area: 284.77 ha	0.5 km	Askeaton Fen Complex consists of a number of small and diverse fen areas to the east and southeast of Askeaton in Co. Limerick. One of the more important fen types, <i>Cladium</i> fen, occurs in various forms and is the most common fen type within the SAC. Also important are Alkaline fens which are found at the edge of almost all the sites. Both fens types exhibit many sub-types making this area ecological diverse and providing a valuable refuge for numerous faunal species.	<b>Yes.</b> The proposed route has been selected specifically to avoid direct impacts on this European Site, but due to the underlying karst geology, there remains nonetheless a potential for indirect impacts on the wetland sites during both construction and operation. Therefore, there are considered to be pathways for impacts from the proposed road development to the sensitivities of this European Site.
<b>Barrigone SAC [000432]</b> Site area: 66.36 ha	0.5 km	Barrigone is situated c. 5 km west of Askeaton, Co. Limerick. The site comprises an area of dry, species-rich, calcareous grassland and patches of scrub. The presence of Annex I-listed Juniper Scrub and priority habitats of Orchid-rich Calcareous Grasslands and Limestone Pavement highlight the site's conservation value. The site also holds a large population of the Marsh Fritillary butterfly also listed under Annex II of the Habitats Directive.	<b>No.</b> Despite the proximity of this site to the proposed project, there are no potential pathways linking the site to the proposed road development. The Qualifying Interests of this site are not water-dependant and there is considered to be no potential for direct or indirect impacts on this European Site.
<b>Tory Hill SAC [000439]</b> Site area: 76.9 ha	6 km	Tory Hill is an isolated, wooded limestone hill situated c. 2 km northeast of Croom, Co. Limerick. It represents an important feature of the surrounding countryside and is a prime example of a limestone hill set amongst a region of volcanic intrusions of differing shape and geology.	<b>No.</b> There are no pathways linking the site to the proposed road development. The Qualifying Interests of this site are not water-dependant and there is considered to be no potential for direct or indirect impacts on this European Site.
<b>Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161]</b> Site area: 56,673.39 ha	9.5 km	The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is a very large site centred on the borders between the counties of Cork, Kerry and Limerick. The site consists of a variety of upland habitats, though almost half is afforested. The coniferous forests include first and second rotation plantations, with both pre-thicket and post-thicket stands present. Substantial areas of clear-fell are also present at any one time. This SPA is a stronghold for Hen Harrier and supports the largest concentration of the species in the country and provides excellent nesting and foraging habitat for breeding harriers. It is also an important site for Merlin and Short-eared Owl.	<b>No.</b> There are no pathways linking the site to the proposed project. The Qualifying Interests of this site are not water-dependant and there is considered to be no potential for direct or indirect impacts on this European Site.

## 3.2 Natura 2000 Site Descriptions

### 3.2.1 Lower River Shannon SAC

This very large site stretches along the River Shannon from Killaloe to Loop Head/Kerry Head, a distance of c. 120 km. It encompasses the Shannon, Feale, Mulkear and Fergus estuaries, the freshwater lower reaches of the Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland. They form a unit stretching from the upper tidal limits of the Shannon and Fergus Rivers to the mouth of the Shannon Estuary. To the west of Foynes, a number of small estuaries form indentations in the predominantly hard coastline, namely Poulnasherry Bay, Ballylongford Bay, Clonderalaw Bay and the Feale or Cashen River estuary.

This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the Habitats Directive, including the priority habitats Coastal Lagoon and Alluvial Woodland, and it also contains vast expanses of intertidal mudflats, often fringed with saltmarsh vegetation. The smaller estuaries also feature mudflats but have their own unique characteristics with stony habitats and are unusually rich in species and biotopes.

Saltmarsh vegetation frequently fringes the mudflats. Over twenty areas of estuarine saltmarsh have been identified within the site, the most important of which are around the Fergus estuary and at Ringmoylan Quay. Areas of Mediterranean salt meadows characterised by clumps of Sea Rush (*Juncus maritimus*) occur occasionally. Two scarce species are found on saltmarshes in the vicinity of the Fergus estuary: a type of robust saltmarsh-grass (*Puccinellia foucaudii*), sometimes placed within the species Common Saltmarsh-grass (*P. maritima*) and Hard-grass (*Parapholis strigosa*). Saltmarsh vegetation also occurs around a number of lagoons within the site, two of which have been surveyed as part of a National Inventory of Lagoons; Cloonconeen Pool is a natural sedimentary lagoon impounded by a low cobble barrier. Seawater enters by percolation through the barrier and by overwash. This lagoon represents a type which may be unique to Ireland since the substrate is composed almost entirely of peat, and Shannon Airport Lagoon (2 ha) is an artificial saline lake with an artificial barrier and sluiced outlet. However, it supports two Red Data Book species of stonewort (*Chara canescens* and *Chara cf. connivens*).

The sea cliffs in the outer part of the site are sparsely vegetated with lichens, Red Fescue, Sea Beet (*Beta vulgaris subsp. maritima*), Sea Campion (*Silene vulgaris subsp. maritima*), Thrift and plantains (*Plantago* spp.). A rare endemic type of sealavender (*Limonium recurvum subsp. Pseudotranswallianum*), occurs on sea cliffs

One grassland type of particular conservation significance, *Molinia* meadows, occurs in semi-natural wet grassland, wet woodland and marsh that are found along the freshwater rivers in the site. Also present are distinct areas of floating river vegetation characterised by species of water-crowfoot (*Ranunculus* spp.), pondweeds (*Potamogeton* spp.) and the moss *Fontinalis antipyretica*.

Alluvial woodland occurs on the banks of the Shannon and on islands near Limerick City, where the most prominent woodland type is gallery woodland has dominant White Willow (*Salix alba*) and a tree layer with occasional Alder (*Alnus glutinosa*).

A number of plant species that are listed in the Irish Red Data Book occur within the site, and several of these are protected under the Flora (Protection) Order, 1999. These include Triangular Club-rush (*Scirpus triquetrus*), a species which is only found in Ireland only in the Shannon Estuary, where it borders creeks in the inner estuary. Opposite-leaved Pondweed (*Groenlandia densa*) is found in the Shannon where it passes through Limerick City, while Meadow Barley (*Hordeum secalinum*) is abundant in saltmarshes at Ringmoylan and Mantlehill. Hairy Violet (*Viola hirta*) occurs in the Askeaton/Foynes area. Golden Dock (*Rumex maritimus*) is noted as occurring in the River Fergus estuary.

This site is the most important coastal site in Ireland for a number of the waders including Lapwing, Dunlin, Snipe and Redshank. It also provides an important staging ground for species such as Black-tailed Godwit and Greenshank and other over-wintering wader and wildfowl include Greylag Goose, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Tufted Duck, Scaup, Ringed Plover, Grey Plover, Lapwing, Knot, Dunlin, Snipe, Black-tailed Godwit, Curlew, Redshank, Greenshank and Turnstone. A number of species listed on Annex I of the E.U. Birds Directive breed within the site including Peregrine Falcon, Sandwich Tern, Common Tern, Chough and Kingfisher.

This SAC has the only known resident population of Bottlenose Dolphin in Ireland and all three Irish Lamprey species. Two additional fish species of note, listed in the Irish Red Data Book, also occur, namely Smelt (*Osmerus eperlanus*) and Pollan (*Coregonus autumnalis pollan*). The Fergus is important in its lower reaches for spring salmon but while present Twaite Shad is not thought to spawn within the site.

Other Annex II-listed species include the Otter, which is commonly found throughout the SAC and the Freshwater Pearl Mussel (*Margaritifera margaritifera*) which occurs abundantly in parts of the Cloon River.

The site is an SAC selected for the following:

- [1110] Sandbanks which are slightly covered by sea water all the time
- [1130] Estuaries
- [1140] Mudflats and sandflats not covered by seawater at low tide
- [1150] \*Coastal lagoons
- [1160] Large shallow inlets and bays
- [1170] Reefs
- [1220] Perennial vegetation of stony banks
- [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts
- [1310] *Salicornia* and other annuals colonising mud and sand
- [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritima*)
- [1410] Mediterranean salt meadows (*Juncetalia maritimi*)
- [3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation
- [6410] *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)
- [91E0] \*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)
- [1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*)
- [1095] Sea Lamprey (*Petromyzon marinus*)

- [1096] Brook Lamprey (*Lampetra planeri*)
- [1099] River Lamprey (*Lampetra fluviatilis*)
- [1106] Atlantic Salmon (*Salmo salar*)
- [1349] Bottle-nosed Dolphin (*Tursiops truncatus*)
- [1355] European Otter (*Lutra lutra*)

### 3.2.2 River Shannon & River Fergus SPA

This site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry. The site has vast expanses of intertidal flats which contain a diverse macroinvertebrate community, e.g. *Macoma-Scrobicularia-Nereis*, which provides a rich food resource for the wintering birds. Saltmarsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Elsewhere in the site, the shoreline comprises stony or shingle beaches.

The site is of special conservation interest for the following:

- [A017] Cormorant (*Phalacrocorax carbo*)
- [A038] Whooper Swan (*Cygnus cygnus*)
- [A046] Light-bellied Brent Goose (*Branta bernicla hrota*)
- [A048] Shelduck (*Tadorna tadorna*)
- [A050] Wigeon (*Anas penelope*)
- [A052] Teal (*Anas crecca*)
- [A054] Pintail (*Anas acuta*)
- [A056] Shoveler (*Anas clypeata*)
- [A062] Scaup (*Aythya marila*)
- [A137] Ringed Plover (*Charadrius hiaticula*)
- [A140] Golden Plover (*Pluvialis apricaria*)
- [A141] Grey Plover (*Pluvialis squatarola*)
- [A142] Lapwing (*Vanellus vanellus*)
- [A143] Knot (*Calidris canutus*)
- [A149] Dunlin (*Calidris alpina*)
- [A156] Black-tailed Godwit (*Limosa limosa*)
- [A157] Bar-tailed Godwit (*Limosa lapponica*)
- [A160] Curlew (*Numenius arquata*)
- [A162] Redshank (*Tringa totanus*)
- [A164] Greenshank (*Tringa nebularia*)
- [A179] Black-headed Gull (*Chroicocephalus ridibundus*)
- [A999] Wetlands and Waterbirds

It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The site is the most important coastal wetland in the country and regularly supports in excess of 50,000 wintering waterfowl (a five-year mean of 57,133 for the period 1995/96 to 1999/2000), a concentration easily of international importance. The site has internationally important populations of Light-bellied Brent Goose (494), Dunlin (15,131), Black-tailed Godwit (2,035) and Redshank (2,645). A further 17 species have populations of national importance, i.e. Cormorant (245),

Whooper Swan (118), Shelduck (1,025), Wigeon (3,761), Teal (2,260), Pintail (62), Shoveler (107), Scaup (102), Ringed Plover (223), Golden Plover (5,664), Grey Plover (558), Lapwing (15,126), Knot (2,015), Bar-tailed Godwit (460), Curlew (2,396), Greenshank (61) and Black-headed Gull (2,681). These figures are five-year mean peak counts for the period 1995/96 to 1999/2000. Of particular note is that three of the species that occur regularly, i.e. Whooper Swan, Golden Plover and Bar-tailed Godwit, are listed on Annex I of the Birds Directive.

The site is among the most important in the country for several of these species, notably Dunlin (13 % of national total), Lapwing (6% of national total) and Redshank (9% of national total) and also supports a nationally important breeding population of Cormorant (93 pairs in 2010). Other species that occur include Mute Swan (103), Mallard (441), Red-breasted Merganser (20), Great Crested Grebe (50), Grey Heron (38), Oystercatcher (551), Turnstone (124) and Common Gull (445). These figures are also five-year mean peak counts for the period 1995/96 to 1999/2000. Apart from the wintering birds, large numbers of some species also pass through the site whilst on migration in spring and/or autumn. Parts of the River Shannon and River Fergus Estuaries SPA are Wildfowl Sanctuaries.

### 3.2.3 Curraghchase Woods SAC

This site is situated c. 7 km east of Askeaton in Co. Limerick. The area is characterised by glacial drift deposits over Carboniferous limestone. The site consists largely of mixed woodland and a series of wetlands.

The site is an SAC selected for the following:

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

[91J0] \**Taxus baccata* woods of the British Isles

[1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*)

One of the main interests at the site is the presence of a hibernation site of the Lesser Horseshoe Bat. The bats hibernate in the cellars of the former mansion Curraghchase House. The entrance to the cellar is now gridded and all other access points blocked to prevent disturbance. In recent years bats have remained within the cellar throughout the year.

In the winter of 1995/96 more than 60 bats were recorded in the hibernation site, rating the site of international importance. It is considered that the number of bats will increase now that the site is protected from disturbance. This is the largest known site for this species in Co. Limerick.

The woodland consists of both deciduous species and stands of commercial conifers. Beech (*Fagus sylvatica*) is the most frequent deciduous species, but Pedunculate Oak (*Quercus robur*), Ash (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*) and Hornbeam (*Carpinus betulus*) are also present. Spruce (*Picea sp.*) and Scots Pine (*Pinus sylvestris*) are the commonest conifers. Hazel (*Corylus avellana*) scrub and areas of wet woodland (*Salix spp.*) also occur.

The alluvial forest occurs in the southern part of the site and occupies low ground in a stream valley and some areas adjacent to a small lake. The dominant canopy species include Rusty Willow (*Salix cinerea subsp. oleifolia*), Alder (*Alnus glutinosa*), Downy Birch (*Betula pubescens*) and Ash. A rich herb layer is found where the conifers are less dense, characterised by such species as Bugle (*Ajuga reptans*), Hemlock Water-

dropwort (*Oenanthe crocata*), Yellow Iris (*Iris pseudacorus*), Meadowsweet (*Filipendula ulmaria*), Water-cress (*Nasturtium officinale*), Common Nettle (*Urtica dioica*) and Wood Sanicle (*Sanicula europaea*).

The Yew wood occurs as a stand on a limestone ridge above a stream valley. It is associated with an Oak-Ash wood, but also has a range of commercial planted species. Nevertheless, Yew is well represented and is readily regenerating. Other species present include Holly (*Ilex aquifolium*), Ash, Pedunculate Oak, Hazel and Hawthorn (*Crataegus monogyna*).

A series of small lakes and fens runs the length of the site. Some of these lakes are overgrown with vegetation. Black Bog-rush (*Schoenus nigricans*), Great Fen-sedge (*Cladium mariscus*), Greater Tussock-sedge (*Carex paniculata*), Carnation Sedge (*Carex panicea*) and Blunt-flowered Rush (*Juncus subnodulosus*) are some of the wetland species recorded. These wetlands, along with some wet grassland, add habitat diversity to the site.

The semi-natural habitats within the site provide ideal foraging habitat for the Lesser Horseshoe Bat. Further planting of conifer tree species at the expense of deciduous species should be avoided and attempts should be made to increase the area of deciduous woodland.

### 3.2.4 Askeaton Fen Complex SAC

The Askeaton fen complex consists of a number of small fen areas to the east and southeast of Askeaton in Co. Limerick. This area has a number of undulating hills, some of which are quite steep, and is underlain by Lower Carboniferous Limestone. At the base of the hills a series of fens/reedbeds/loughs can be found, often in association with marl or peat deposits. At the south-east of Askeaton, both Cappagh and Ballymorrisheen fens are surrounded by large cliff-like rocky limestone outcrops.

The site is an SAC selected for the following:

[7210] \*Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

[7230] Alkaline fens

One of the more important fen types, *Cladium* fen, which contains Great Fen-sedge (*Cladium mariscus*), occurs in various forms and is the most common fen type within the SAC. It is associated with wet conditions generally not more than 25 cm deep and can be found in mono-dominant stands growing on a marl base, such as at Feereagh and Mornane Loughs, and in the fen in the townland of Mornane. It can also be co-dominant with Common Reed in slightly drier conditions, such as in Deegerty, Blind Lough and Dromlohan. It is also found in association with alkaline fen species such as Black Bog-rush (*Schoenus nigricans*) where it grows on a peaty substrate. *Cladium* fen is indicative of extremely base rich conditions. Typical species seen growing with the Great Fen-sedge include pondweeds (*Potamogeton* spp.), Marsh Horsetail (*Equisetum palustre*), Water Horsetail (*E. fluviatile*), Lesser Water-parsnip (*Berula erecta*), Lesser Marshwort (*Apium inundatum*), Bottle Sedge (*Carex rostrata*), particularly where marl is present, and Water Mint (*Mentha aquatica*). One such area of fen within the site is the only known location in Ireland for the water beetle *Hygrotus decoratus* and is also known to contain *Hydroporus scalesianus*, a rare water beetle indicative of undisturbed fens. At the edge of some of the Great Fen-sedge fens, particularly where improved grassland is not present, there is typically found a gradation to wet marsh, which in turn grades into wet grassland. These transition habitats add to the ecological diversity of the site.

Alkaline fen is characterised by the presence of Black Bog-rush in association with brown mosses and a small sedge community. The soil is permanently waterlogged but generally not flooded unless for a short period. Examples of this fen type are found at the edge of almost all the sites, but its extent is much less than the Great Fen-sedge fen type. The fen in the townlands of Moig West and Graigues is a good example of alkaline fen. Species seen growing with Black Bog-rush include Purple Moor-grass, Long-stalked Yellow-sedge (*Carex lepidocarpa*), Carnation Sedge (*C. panicea*), rushes (*Juncus* spp.) and an abundance of brown mosses, including *Campylium stellatum*, *Ctenidium molluscum*, *Calliergon cuspidatum* and *Bryum pseudotriquetrum*. This fen type also grades into marsh and wet grassland. Scrub and woodland is present on high ground in some areas, such as Ballymorisheen, Blind Lough, Ballyvogue, Dromlohan and Lough Feereagh. Species include Hawthorn, Blackthorn (*Prunus spinosa*), Gorse, Ash, Willow, Downy Birch and Hazel. This is a useful faunal habitat particularly as it is adjacent to reedbeds and fens.

A small area of limestone species-rich grassland is found to the north of Balinvirick Fen. Species found which are typically associated with the habitat include the Early Purple Orchid (*Orchis mascula*), Carlina Thistle (*Carlina vulgaris*) and Mountain Everlasting (*Antennaria dioica*). Snipe use the tall marsh vegetation at the edge of the fens. Birds of prey such as Sparrowhawk feed over the reedbeds and scrubland areas of the site. Land-use in the area is quite intensive, with improved grassland extending down relatively steep slopes to the edge of the fens/loughs. New drainage or the deepening of existing drains poses a threat to the aquatic habitats at the site. In some instances, the fens appear to be drying out.

This site is of conservation value as it supports two fen types, each of which exhibit many sub-types. *Cladium* fen is listed as an Annex I priority habitat. These wetland habitats of fen, reedbeds, open water, marsh and wet grassland are also valuable in that they supply a refuge for fauna in an otherwise intensively managed countryside.

### 3.2.5 Barrigone SAC

Barrigone is situated approximately 5 km west of Askeaton, Co. Limerick. The site comprises an area of dry, species-rich, calcareous grassland and patches of scrub on a gentle, north-east-facing slope. The underlying limestone outcrops occasionally, and the proximity of the site to the Shannon Estuary adds a maritime influence.

The site is an SAC selected for the following:

- [5130] *Juniperus communis* formations on heaths or calcareous grasslands
- [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (\* important orchid sites)
- [8240] Limestone pavements
- [1065] Marsh Fritillary (*Euphydryas aurinia*)

The open calcareous grassland supports an impressive range of plant species. Cowslip (*Primula veris*), Mountain Everlasting (*Antennaria dioica*), Carlina Thistle (*Carlina vulgaris*), Wild Thyme (*Thymus praecox*), Wood Sage (*Teucrium scorodonia*) and Violets (*Viola* spp.) are present, while Burnet Rose (*Rosa pimpinellifolia*) is abundant and scattered throughout the grassland. The maritime influence is evident through the presence in the sward of Sea Plantain (*Plantago maritima*). The orchid flora is particularly well-developed and diverse, with eight species recorded on recent visits. These include Fragrant Orchid (*Gymnadenia conopsea*), Frog Orchid

(*Coeloglossum viride*), Butterfly Orchid (*Platanthera bifolia*), Pyramidal Orchid (*Anacamptis pyramidalis*) and the scarce Irish Orchid (*Neotinea maculata*).

A range of scrub types are present, including a dense stand of Hazel (*Corylus avellana*) towards the south, and a small area dominated by Juniper (*Juniperus communis*) in the north. Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*) and Gorse (*Ulex europaeus*) also form scrub patches, and these tend to be less species rich.

Hairy Violet (*Viola hirta*), a species protected under the Flora (Protection) Order (2015), occurs at Barrigone. The site also holds a large population of the Marsh Fritillary butterfly (*Euphydryas aurinia*), a species listed under Annex II of the E.U. Habitats Directive.

The primary threat to this site is quarrying. Grazing is also an important factor; overgrazing would cause damage to the vegetation, while under-grazing would allow scrub encroachment at the expense of grassland species which require more open conditions. A balance between scrub and grassland is also important for invertebrate species.

A number of factors, including substrate, bedrock, microclimate and maritime influence, contribute to the floristic richness at Barrigone and hence to the ecological interest of this site. The presence of rare species of plant and invertebrate highlight the site's conservation value.

### 3.2.6 Tory Hill SAC

Tory Hill is an isolated, wooded limestone hill situated about 2 km north-east of Croom, Co. Limerick. It is important in that it is a prime example of a limestone hill set amongst a region of volcanic intrusions. It supports areas of scrub and woodland, with Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) comprising the main woody species found. The larger stands have a typical woodland flora. A well-developed limestone heath-scrub complex occurs on its western edge, which is very similar to the terrain found in the Burren region. This area is remarkable for its stand of Yew (*Taxus baccata*), a feature now rare in Ireland, and for its species-rich flora, which includes such calcium-loving plants as Fairy Flax (*Linum catharticum*), Quaking-grass (*Briza media*), Yellow Oat-grass (*Trisetum flavescens*) and Shining Crane's-bill (*Geranium lucidum*).

Areas of orchid-rich calcareous grassland are found on the eastern side of the hill and on its summit. A disused quarry also contains excellent examples of this grassland type. Four orchid species have been recorded here - Bee Orchid (*Ophrys apifera*), Pyramidal Orchid (*Anacamptis pyramidalis*), Early-purple Orchid (*Orchis mascula*) and Common Spotted-orchid (*Dactylorhiza fuchsii*). Other plant species of calcareous grassland present in this habitat include Carline Thistle (*Carlina vulgaris*), Yellowwort (*Blackstonia perfoliata*), Wild Thyme (*Thymus praecox*), Crested Hair-grass (*Koeleria macrantha*), Downy Oat-grass (*Avenula pubescens*), Glaucous Sedge (*Carex flacca*), Hairy Rock-cress (*Arabis hirsuta*), Cowslip (*Primula veris*), Wild Carrot (*Daucus carota*), Red Fescue (*Festuca rubra*), Fairy Flax, Quaking-grass and Yellow Oat-grass, amongst others. The presence of the scarce Bee Orchid is of particular note.

Lough Nagirra has a thick fringe of Common Reed (*Phragmites australis*) and areas of alkaline fen and calcareous fen vegetation referable to the *Caricion davallianae* alliance with Great Fen-sedge (*Cladium mariscus*). Both of these fen types are listed on Annex I of the E.U. Habitats Directive, the latter with priority status.

A dense fringe of tall vegetation occurs around Lough Nagirra. Here, Great Fensedge (*Cladium mariscus*) is well-represented, along with Common Reed (*Phragmites*

*australis*) and Reed Canary-grass (*Phalaris arundinacea*). The alkaline fen is relatively species-rich, with typical species including Black Bog-rush (*Schoenus nigricans*), Blunt-flowered Rush (*Juncus subnodulosus*), Brown Sedge (*Carex disticha*), Longstalked Yellow-sedge (*C. lepidocarpa*), Common Sedge (*C. nigra*), Hairy Sedge (*C. hirta*), Glaucous Sedge (*C. flacca*), Carnation Sedge (*C. panicea*), Devil's-bit Scabious (*Succisa pratensis*), Early Marsh-orchid (*Dactylorhiza incarnata*) and Common Spotted orchid (*D. fuchsii*), amongst others.

The site is an SAC selected for the following:

[6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (\* important orchid sites)

[7210] Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

[7230] Alkaline fens

### 3.2.7 Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA

The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is a very large site centred on the borders between the counties of Cork, Kerry and Limerick. Many rivers rise within the site, notably the Blackwater, Owentaraglin, Owenkeal, Glenlara, Feale, Clydagh, Allaghaun, Allow, Oolagh, Galey and Smerlagh.

The site consists of a variety of afforested upland habitats with the principal tree species being Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (*Pinus contorta*). A substantial part (28%) of the site is unplanted blanket bog and heath, with both wet and dry heath present. The vegetation of these habitats is characterised by such species as Ling Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*), Common Cottongrass (*Eriophorum angustifolium*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Deergrass (*Scirpus caespitosus*) and Purple Moor-grass (*Molinia caerulea*). The remainder of the site is mostly rough grassland that is used for hill farming.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier and supports the largest concentration of the species in the country. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the E.U. Birds Directive.

The early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, and foraging takes place up to c. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank where small birds and small mammals appear to be the most frequently taken prey.

Short-eared Owl, a very rare species in Ireland, has been known to breed within the site which is favoured due to the presence of Bank Voles, a preferred prey item. Merlin also breed within the site and Red Grouse, a Red-listed species, is found on some of the unplanted areas of bog and heathland.

## 4.0 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

### 4.1 Risk to Qualifying Interests

In Ecological and Environmental Impact Assessment, for an impact to occur there must be a risk enabled by having a “source”, e.g. construction works at a proposed development site, a “receptor”, e.g. an SAC or other ecologically sensitive feature, and a pathway between the source and the receptor, e.g. a watercourse connecting the proposed development site to the SAC. The risk of the impact does not automatically mean that it will occur or that it will be significant. However, identification of the risk does mean that there is a possibility of ecological or environmental damage occurring, with the level and significance of the impact depending upon the nature and exposure to the risk and the characteristics of the receptor.

In the case of the proposed road development, sources of risk may include the loss and/or fragmentation of habitats, noise, vibration, lighting, pollution and mobilisation of sediment. Pathways that may convey these risks to ecological receptors include physical proximity, air, water and ecological interactions. The ecological receptors relevant to the AA Screening are the Qualifying Interests of the Lower River Shannon SAC, the River Shannon and River Fergus SPA, the Curraghchase Woods SAC and the Askeaton Fen Complex SAC.

### 4.2 Effects on Conservation Objectives

As explained in Section 1.3, each Qualifying Interest in each European Site is assigned a Conservation Objective of either restoration or maintenance of its “favourable conservation condition”, as defined by a set of Attributes with corresponding Targets. The restoration and maintenance of the favourable conservation condition of habitats and species within European Sites contributes to the overall conservation status of those habitats and species at a national level. Favourable conservation condition is described in more generic terms below.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing;
- the specific structures and functions 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.

Favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- the natural range of the species is neither being reduced nor is 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.

The potential for likely significant effects on the Qualifying Interests of these European Sites is assessed in view of the relevant Conservation Objectives in the Screening Matrices in Tables 4.1 to 4.4 below. Where potential impacts exist as a result of the proposed road development, the likely significant effects on the relevant Conservation Objectives are assessed on the basis of their specific Attributes and Targets.

**Table 4.1 Screening Matrix for the Lower River Shannon SAC. Source: NPWS (2013a), unless otherwise referenced. \* = a “priority habitat” in danger of disappearing from the EU.**

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>Sandbanks which are slightly covered by sea water all the time [1110]</b>	> 40 km	Sandbanks in Irish waters comprise distinct banks (i.e. elongated, rounded or irregular mound shapes) that may arise from horizontal or sloping plains of sediment that ranges from gravel to fine sand. They are primarily composed of sandy sediments permanently covered by water, at depths of less than 20 m below chart datum (though the banks may extend to water depths greater than 20 m). The diversity and types of community associated with this habitat are determined particularly by sediment type together with a variety of other physical, chemical and hydrographical factors. Sandbank habitat is typically composed of superficial mobile sediment that forms into sand-waves or “stippled bank crest facies”. There are currently 19 identified Sandbank features in Ireland. Sandbank habitats in Irish waters were predominantly composed of a fine sand to sand community typified by the presence of the polychaete worm <i>Nephtys cirrosa</i> . The species found tend to be ones adapted to mobile substrates but all of the noted species recorded in Irish waters are frequently found in similar shallow coastal sediment habitats. There is some indication that mobile predators such as birds and marine mammals aggregate around Sandbanks but it is not known if this is a function of the features themselves or the accessibility of shallow water. 4 SAC are designated for Sandbanks in the Member State. It is estimated that a total of 24,700 ha of 1110 occurs within the Natura 2000 network. This habitat forms c. 1% (683.3 ha) of the Lower River Shannon SAC, equivalent to c. 3.8% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Favourable, but with some pressure/threat from offshore development, e.g. wind farms, and harvesting of aquatic resources.	Water pollution and fishing/aquaculture-related activities. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Sandbanks which are slightly covered by sea water all the time in the Lower River Shannon SAC	Habitat distribution	The distribution of sandbanks is stable, subject to natural processes.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
					Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	
					Community Distribution	Conserve the following community type in a natural condition: Subtidal sand to mixed sediment with <i>Nephtys</i> spp. Community complex.	
<b>Estuaries [1130]</b>	Within 200 m	The estuary is the downstream part of a river valley, subject to the tide and extending from the limit of brackish waters. River estuaries are coastal inlets where there is generally a significant freshwater influence. Muddy to sandy substrates are the most common estuarine substrates in an Irish context and this reflected in the biological communities occurring. 19 SAC are designated for Estuaries in the Member State. It is estimated that a total of 67,400 ha of 1130 occurs within the Natura 2000 network. This habitat forms c. 35% (23,915.35 ha) of the Lower River Shannon SAC, equivalent to c. 35.4% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Inadequate and “improving”. The major pressures on Irish estuaries include pollution to surface waters, fishing and harvesting of aquatic resources and bottom culture.	Water pollution and fishing/aquaculture-related activities. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Estuaries in the Lower River Shannon SAC	Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
					Community Distribution	Conserve the following community types in a natural condition: Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Estuarine subtidal muddy sand to mixed sediment with gammarids community complex; Subtidal sand to mixed sediment with <i>Nucula nucleus</i> community complex; Subtidal sand to mixed sediment with <i>Nephtys</i> spp. community complex; Fucoid-dominated intertidal reef community complex; Faunal turf-dominated subtidal reef community; and Anemone-dominated subtidal reef community.	
<b>Mudflats and sandflats not covered by</b>	>5km	This habitat is found exclusively between the low water and mean high water marks. It is often part of the Annex I habitats Large shallow and bay and Estuaries but can occur independently. The fine	Water pollution and fishing/aquaculture-related activities.	To maintain the favourable conservation condition of Mudflats and sandflats not	Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>seawater at low tide</b> [1140]		sediment of intertidal mudflats is most often associated with rivers. Biological communities found in this habitat are very similar to those found in estuaries. 42 SAC are designated for Tidal mudflats in the Member State. It is estimated that a total of 53,700 ha of the habitat type occurs within the Natura 2000 network. This habitat forms c. 13% (8,882.84 ha) of the Lower River Shannon SAC, equivalent to c. 16.5% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Inadequate but "improving". The major pressures on this habitat include pollution to surface waters, fishing and harvesting of aquatic resources and bottom culture.	None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	covered by seawater at low tide in the Lower River Shannon SAC	Community Distribution	Conserve the following community types in a natural condition: Intertidal sand with <i>Scolecopsis squamata</i> and <i>Pontocrates</i> spp. community; and Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex.	proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
<b>Coastal lagoons</b> [1150] *	c. 15 km	Irish lagoons are defined on biological communities rather than morphology. Any permanent water body, natural or artificial, with salinity > 1 psu and a very restricted tidal prism is considered a lagoon. The great majority have <i>Ruppia</i> sp. present. Water bodies separated from the sea by barrier islands are classified as lagoons in some countries but are not in Ireland due to large tidal range and marine biota. Five main morphological types of lagoon are recognised in Ireland: sedimentary lagoons; artificial lagoons; rock/peat lagoons on the west coast, similar to lagoons in Scotland, but otherwise rare in Europe; karst lagoons found in parts of Clare and Galway and, within Europe, possibly unique to Ireland; and, saltmarsh lagoons. 25 SAC are designated for Lagoons in the Member State, with an estimated total of 2,166 ha within the Natura 2000 network. This habitat forms c. 1% (683.3 ha) of the Lower River Shannon SAC, equivalent to c. 31.5% of the national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Bad but "stable". The major pressures on this habitat include pollution (eutrophication) of surface waters, erosion, land reclamation and modification of hydrographic functioning.	Water pollution and fishing/aquaculture-related activities. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To restore the favourable conservation condition of Coastal lagoons in the Lower River Shannon SAC	Habitat area	Area stable or increasing, subject to natural processes.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
					Habitat distribution	No decline, subject to natural processes.	
					Salinity regime	Median annual salinity and temporal variation within natural ranges	
					Hydrological Regime	Annual water level fluctuations and minima within natural ranges	
					Barrier: connectivity between lagoon and sea	Appropriate hydrological connections between lagoons and sea, including where necessary, appropriate management.	
					Water quality: chlorophyll a	Annual median chlorophyll a within natural ranges and less than 5µg/L	
					Water quality: Molybdate Reactive Phosphorus (MRP)	Annual median MRP within natural ranges and less than 0.1mg/L	
					Water quality: Dissolved Inorganic Nitrogen (DIN)	Annual median DIN within natural ranges and less than 0.15mg/L	
					Depth of macrophyte colonisation	Macrophyte colonisation to maximum depth of lagoons	
					Typical plant species	Maintain number and extent of listed lagoonal specialists, subject to natural variation	
Typical animal species	Maintain listed lagoon specialists, subject to natural variation						
Negative indicator Species	Negative indicator species absent or under control						
<b>Large shallow inlets and bays</b> [1160]	> 30 km	Large Shallow Inlets and Bays are described as indentations of the coast where there is limited freshwater influence. These habitats are typically shallower and more sheltered than open coasts and can	Water pollution and fishing/aquaculture-related activities.	To maintain the favourable conservation condition of Large shallow inlets and	Habitat area	The permanent habitat area is stable or increasing, subject to natural processes	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
		show a variety of habitat forms, being composed of fine sediments to bedrock, intertidally and subtidally. The shallow and sheltered nature of these habitats results in highly productive and frequently diverse areas in terms of both species and communities. Large Shallow Inlets and Bays habitats frequently incorporate a number of constituent Annex I habitats including Sandbank at the mouth of the Lower River Shannon where <i>Nephtys cirrosa</i> and <i>Bathyporeia elegans</i> characterise the habitat. Large Shallow Inlets and Bays also form an important resource for various bird and mammal species (notably Annex II marine mammals) for feeding, breeding and resting. 22 SAC are designated for this habitat type in the Member State, with an estimated total of 158,500 ha within the Natura 2000 network. It forms c. 39% (26,648.53 ha) of the Lower River Shannon SAC, equivalent to c. 16.8% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Inadequate but "improving". The major pressures on this habitat include fishing and harvesting of aquatic resources, bottom culture, suspension culture and outdoor sports and leisure activities.	None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	bays in the Lower River Shannon SAC	Community distribution	Conserve the following community types in a natural condition: Intertidal sand with <i>Scolecopsis squamata</i> and <i>Pontocrates</i> spp. community; Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Subtidal sand to mixed sediment with <i>Nucula nucleus</i> community complex; Subtidal sand to mixed sediment with <i>Nephtys</i> spp. community complex; <i>Furoid</i> -dominated intertidal reef community complex; Mixed subtidal reef community complex; Faunal Turf-dominated subtidal reef community; Anemone dominated subtidal reef community; and <i>Laminaria</i> dominated community complex.	proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
Reefs [1170]	c. 10 km	Reefs are marine features with immobile hard substrate available for colonisation by epifauna. Reefs in Irish waters ranges from the intertidal to 4.5 km depth and > 400 km from the coast. Intertidal reefs are widespread and characterised by hard rock washed by the tide. Tidal immersion, influence of freshwater, variation in temperature, desiccation, exposure to waves and stability of substrate influence this habitat type. With distance from the intertidal these parameters become less active in influencing the habitat. Intertidal and subtidal reefs are often dominated by algae. Subtidal reef is most often found in exposed areas with little freshwater influence. In depths below 30 m (shallower in some coastal areas) insufficient light penetrates to allow photosynthesis of algae and the habitat usually becomes dominated by fauna. 45 SAC are designated for this habitat type in the Member State, with an estimated total of 321,100 ha within the Natura 2000 network. This habitat forms c. 2% (1,366.59 ha) of the Lower River Shannon SAC, equivalent to c. 0.4% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Bad and "declining". The major pressures on this habitat include fishing and harvesting of aquatic resources, bottom culture, suspension culture and pollution to surface waters.	Water pollution and fishing/aquaculture-related activities. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Reefs in the Lower River Shannon SAC	Habitat distribution	The distribution of Reefs is stable, subject to natural processes.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
					Habitat area	The permanent habitat area is stable, subject to natural processes.	
					Community distribution	Conserve the following community types in a natural condition: <i>Furoid</i> -dominated intertidal reef community complex; Mixed subtidal reef community complex; Faunal turf-dominated subtidal reef community; Anemone dominated subtidal reef community; and <i>Laminaria</i> dominated community complex.	
Perennial vegetation of stony banks [1220]	>40 km	This habitat occurs along the coast where shingle (cobbles and pebbles) and gravel have accumulated to form elevated ridges or banks above the high tide mark. Most of the rocky material should be less than 25 cm in diameter to be considered in this category. The vegetation tends to be dominated by perennial species, typically including <i>Honckenya peploides</i> , <i>Rumex crispus</i> , <i>Beta vulgaris</i> ssp. <i>maritima</i> , <i>Crithmum maritimum</i> and <i>Tripleurospermum maritimum</i> . The rare plants <i>Crambe maritima</i> and <i>Mertensia maritima</i> are also associated with this community (Fossitt, 2000). Species diversity is determined by the degree of exposure and by substrate stability, coarseness and size. The presence of lichens indicates long term stability. 36 SAC are designated for this habitat type in the Member State. This habitat type is estimated to account for c. 1% (683.3 ha) of the Lower River Shannon SAC, but accurate information about the national coverage of within the Natura 2000 network is not currently available. The overall conservation status of this habitat is considered to be Inadequate but "stable". Major pressures on this habitat include	Water pollution and fishing/aquaculture-related activities. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Perennial vegetation of stony banks in the Lower River Shannon SAC	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat or its attributes and targets.
					Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	
					Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	
					Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
		fishing and harvesting of aquatic resources, bottom and suspension culture and pollution to surface waters.			Vegetation composition: typical species and sub-communities	Maintain the typical vegetated shingle flora including the range of sub-communities within the different zones	
					Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover	
<b>Vegetated sea cliffs of the Atlantic and Baltic Coasts [1230]</b>	>40 km	Barron et al. (2011) defined a sea cliff is a steep or vertical slope located on the coast, the base of which is in either the intertidal or subtidal zone. The cliff may be composed of hard rock or of softer substrate such as shale or boulder clay. Hard cliffs are at least 5 m high, while soft cliffs are at least 3 m high. The cliff top is generally defined by a change to an obvious less steep gradient. In some cases the cliff may grade into the slopes of a hillside located close to the coast. In these cases the cliff is defined as that part of the slope which was formed by processes of coastal erosion, while the cliff top is where there is the distinct break in slope. Both the cliff and the cliff top may be subject to maritime influence in the form of salt spray and exposure to coastal winds. A cliff can ascend in steps with ledges, and the top of the cliff is taken to occur where erosion from wave action is no longer considered to have been a factor in the development of the landform. The cliff base may be marked by a change in gradient at the bottom of the cliff. Where the base is exposed it can be characterised by scree, boulders, a wave-cut platform or sand, among other substrates. Sea cliffs may support a range of plant communities such as grassland, heath, scrub and bare rock communities, among others. 28 SAC are designated for this habitat type in the Member State, with an estimated total of 990-1,067 ha within the Natura 2000 network. This habitat accounts for c. 1% (683.3 ha) of the Lower River Shannon SAC, equivalent to c. 64-69% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Inadequate but "stable". The major pressures on this habitat include invasive alien species, sand/gravel extraction and construction of coastal defences and paths.	Invasive alien species, sand/gravel extraction and construction of coastal defences and paths. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Vegetated sea cliffs in the Lower River Shannon SAC	Habitat length	Area stable or increasing, subject to natural processes, including erosion.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat or its attributes and targets.
					Habitat distribution	No decline, subject to natural processes	
					Physical structure: functionality and hydrological regime	No alteration to natural functioning of geomorphological and hydrological processes due to artificial structures	
					Vegetation structure: zonation	Maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession	
					Vegetation structure: vegetation height	Maintain structural variation within sward	
					Vegetation composition: typical species and sub-communities	Maintain range of sub-communities with typical species listed in the Irish Sea cliff survey (Barron et al.,2011)	
					Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover	
					Vegetation composition: bracken and woody species	Cover of bracken ( <i>Pteridium aquilinum</i> ) on grassland and/or heath to be less than 10%. Cover of woody species on grassland and/or heath to be less than 20%	
<b>Salicornia and other annuals colonizing mud and sand [1310]</b>	c. 4.5 km	<i>Salicornia</i> mud is a pioneer saltmarsh community that may occur on muddy sediment seaward of established saltmarsh, or form patches within other saltmarsh communities where the elevation is suitable and there is regular tidal inundation. In Ireland, three sub-types are recognised: <i>Salicornia</i> type, <i>Suaeda</i> type and the much rarer <i>Sagina</i> type. Mono-specific swards of <i>Salicornia</i> spp. growing on muddy sediments are the most common plant community belonging to this Annex I habitat type found in Ireland. As this habitat is dominated by annuals it can be ephemeral or transient in nature and is highly susceptible to erosion. Its distribution can vary considerably from year to year and it can move in response to changing conditions, e.g. in estuaries with shifting river channels. 23 SAC are designated for	Invasive species, intensive grazing, pollution and changes in abiotic conditions. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of <i>Salicornia</i> and other annuals colonizing mud and sand in the Lower River Shannon SAC	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
					Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	
					Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
		<i>Salicornia</i> mud in the Member State. This habitat type is estimated to account for c. 1% (683.3 ha) of the Lower River Shannon SAC, but accurate information about the national coverage of within the Natura 200 network is not currently available. The overall conservation status of this habitat is considered to be Inadequate and “declining”, owing to pressures and threats such as invasive species, intensive grazing, pollution and changes in abiotic conditions.			Physical structure: creeks and pans	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession	
					Physical structure: flooding regime	Maintain natural tidal regime	
					Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
					Vegetation structure: vegetation height	Maintain structural variation within sward	
					Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
					Vegetation composition: typical species and sub-communities	Maintain the presence of species-poor communities with typical species listed in Saltmarsh Monitoring proposed road development (McCorry and Ryle, 2009)	
					Vegetation composition: negative indicator species – <i>Spartina anglica</i>	No significant expansion of common cordgrass ( <i>Spartina anglica</i> ), with an annual spread of less than 1%	
<b>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]</b>	c. 200m	Atlantic Salt Meadows generally occupy the widest part of the saltmarsh gradient. They exhibit a distinctive topography with an intricate network of creeks and salt pans occurring on the larger marshes. This habitat contains several distinctive zones that are related to elevation and frequency of submergence. The lowest part along the tidal zone is generally dominated by common saltmarsh-grass ( <i>Puccinellia maritima</i> ). This habitat is also important for other wildlife including wintering waders and wildfowl. Atlantic salt meadows are distributed around most of the coastline of Ireland. 38 SAC are designated for Atlantic salt meadows in the Member State. It is estimated that a total of 1,479-2,590 ha of this habitat occurs within the Natura 2000 network. This habitat forms c. 1% (683.3 ha) of the Lower River Shannon SAC, equivalent to c. 26.4-46.2% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Inadequate but “stable”, owing to pressures and threats such as intensive grazing and paths/tracks and cycling tracks.	Intensive grazing and paths/tracks and cycling tracks. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To restore the favourable conservation condition of Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) in the Lower River Shannon SAC	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat .
					Habitat distribution	No decline or change in habitat distribution, subject to natural processes.	
					Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	
					Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
					Physical structure: flooding regime	Maintain natural tidal regime	
					Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
					Vegetation structure: vegetation height	Maintain structural variation within sward	
					Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
					Vegetation composition: typical species and sub-communities	Maintain the presence of species-poor communities with typical species listed in Saltmarsh Monitoring proposed road development (McCorry and Ryle, 2009)	
					Vegetation composition: negative indicator species – <i>Spartina anglica</i>	No significant expansion of common cordgrass ( <i>Spartina anglica</i> ), with an annual spread of less than 1%	
<b>Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</b>	>1 km	Mediterranean Salt Meadows occupy the upper zone of saltmarshes and usually occur adjacent to the boundary with terrestrial habitats. They are widespread on the Irish coastline but are not as extensive as Atlantic salt meadows. The habitat is distinguished from Atlantic salt meadows by the presence of rushes such as sea rush ( <i>Juncus maritimus</i> ) and/or sharp rush ( <i>J. acutus</i> ), along with a range of species typically found in Atlantic salt meadows, including sea aster ( <i>Aster tripolium</i> ), sea purslane ( <i>Atriplex portulacoides</i> ), sea-milkwort ( <i>Glaux maritima</i> ), saltmarsh rush ( <i>J. gerardii</i> ), parsley water-dropwort ( <i>Oenanthe lachenalii</i> ), sea plantain ( <i>Plantago maritima</i> ) and common saltmarsh-grass ( <i>Puccinellia maritima</i> ). 33 SAC are designated for this habitat type in the Member State. It is estimated that a total of 577-591 ha of Mediterranean salt meadows occurs within the Natura 2000 network. This habitat type is estimated to account for c. 1% (683.3 ha) of the Lower River Shannon SAC, but accurate information about the national coverage of within the Natura 200 network is not currently available. The overall conservation status of this habitat is considered to be Inadequate but "stable", owing to pressures and threats such as intensive cattle grazing and walking/cycling tracks.	Intensive cattle grazing and walking/cycling tracks. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To restore the favourable conservation condition of Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) in the Lower River Shannon SAC	Habitat area	Area increasing, subject to natural processes, including erosion and succession.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
					Habitat distribution	No decline or change in habitat distribution, subject to natural processes.	
					Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	
					Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
					Physical structure: flooding regime	Maintain natural tidal regime	
					Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
					Vegetation structure: vegetation height	Maintain structural variation within sward	
					Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
					Vegetation composition: typical species and sub-communities	Maintain the presence of species-poor communities with typical species listed in Saltmarsh Monitoring proposed road development (McCorry and Ryle, 2009)	
					Vegetation composition: negative indicator species – <i>Spartina anglica</i>	No significant expansion of common cordgrass ( <i>Spartina anglica</i> ), with an annual spread of less than 1%	
<b>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]</b>	c. 10m	The description of this habitat type is broad, covering rivers from upland bryophyte and macroalgal-dominated stretches, to lowland depositing rivers with pondweeds and starworts. Selection of SAC for this habitat in Ireland has used this broad interpretation. 21 SAC are designated for Floating river vegetation in the Member State. It is estimated that a total of 3,246 ha of Floating river vegetation occurs within the Natura 2000 network. This habitat forms c. 1% (683.3 ha) of the Lower River Shannon SAC, equivalent to c. 21% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be	Pollution from agricultural, forestry and industrial sources, as well as modification of hydrological regimes. <b>Yes – Given the nature of the proposed road development, potential pathways of risk are considered to exist.</b>	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	Habitat area	Area stable or increasing, subject to natural processes	<b>Yes – Owing to the close proximity and hydrological connectivity of this habitat type with regard to the proposed road development and the crossing of the River Maigue, potentially significant impacts on this Qualifying Interest cannot be ruled out at this stage.</b>
					Habitat distribution	No decline, subject to natural processes.	
					Hydrological regime: river flow	Maintain appropriate hydrological regimes	
					Hydrological regime: tidal influence	Maintain natural tidal regime	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
		Inadequate and "declining" due to numerous pressures, including pollution from agricultural, forestry and industrial sources, as well as modification of hydrological regimes.			Hydrological regime: freshwater seepages	Maintain appropriate freshwater seepage regimes	
					Substratum composition: particle size range	The substratum should be dominated by the particle size ranges, appropriate to the habitat sub-type (frequently sands, gravels and cobbles)	
					Water quality: nutrients	The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition	
					Vegetation composition: typical species	Typical species of the relevant habitat sub-type should be present and in good condition	
					Floodplain connectivity	The area of active floodplain at and upstream of the habitat should be maintained	
					Riparian habitat	The area of riparian woodland at and upstream of the bryophyte-rich sub-type should be maintained	
<b>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]</b>	<10km	<i>Molinia</i> Meadows are represented in Ireland by fen and grassland communities on nutrient poor soils. The 6410 habitat is either managed as traditional hay meadows (cut only once a year in late summer or autumn with the hay crop removed) or more usually by extensive pasture. Within Ireland, <i>Molinia</i> Meadows occur in lowland plains on neutral to calcareous gleys, sometimes with a Marl layer beneath the surface, or on peaty soils both in lowland and upland situations. <i>Molinia</i> Meadows generally have a central to north-western distribution in Ireland that follows the distribution of <i>Cirsium dissectum</i> , one of the key indicator species for the habitat. The Annex I habitat is very rare in the east of the country with only one site recorded within the five eastern counties on the Irish Sea. The 6410 habitat is comprised of a few distinct communities belonging to the <i>Junco-Molinion</i> . These communities can be classified within the <i>Cirsium dissectum-Potentilla erecta</i> (O'Neill et al., in prep.), the <i>Carex panicea-Festuca rubra</i> community (Heery, 1991) and M24: <i>Molinia caerulea-Cirsium dissectum</i> fen meadow (Rodwell, 1991). 14 SAC are designated for this habitat type in the Member State. This habitat type is estimated to account for c. 1% (683.3 ha) of the Lower River Shannon SAC, but accurate information about the national coverage of within the Natura 2000 network is not currently available. The overall conservation status of this habitat is considered to be Bad and "declining", owing to pressures and threats such as abandonment or lack of mowing, pastoral systems and grazing, water abstraction from groundwater and changes in species composition.	Abandonment or lack of mowing, pastoral systems and grazing, water abstraction from groundwater and changes in species composition. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of <i>Molinia</i> meadows on calcareous, peaty or clayey-silt laden soils ( <i>Molinion caeruleae</i> ) in the Lower River Shannon SAC	Habitat area	Area stable or increasing, subject to natural processes	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
					Habitat distribution	No decline, subject to natural processes	
					Vegetation structure: broadleaf herb: grass ratio	Broadleaf herb component of vegetation between 40 and 90%	
					Vegetation structure: sward height	30-70% of sward between 10 and 80cm high	
					Vegetation composition: typical species	At least 7 positive indicator species present, including 1 "high quality" species	
					Vegetation composition: notable species	No decline, subject to natural processes	
					Vegetation composition: negative indicator species	Negative indicator species collectively not more than 20% cover, with cover by an individual species less than 10%. Non-native invasive species, absent or under control	
					Vegetation composition: negative indicator moss species	Bog mosses ( <i>Sphagnum</i> spp.) not more than 10% cover; hair mosses ( <i>Polytrichum</i> spp.) not more than 25% cover	
					Vegetation Structure: woody species and bracken ( <i>Pteridium aquilinum</i> )	Cover of woody species and bracken not more than 5% cover	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
					Physical structure: bare ground	Not more than 10% bare ground	
<p><b>*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</b></p>	c.100m	<p>Residual Alluvial Forests occur on heavy soils that are periodically inundated by the annual rise of river levels, but which are otherwise well drained and aerated during low water. In addition, there are gallery forests of tall willows (<i>Salicion albae</i>) alongside river channels and occasionally on river islands, where the tree roots are almost continuously submerged. 25 SAC are designated for this habitat type in the Member State. It is estimated that a total of 1,046 ha of 91E0 occurs within the Natura 2000 network. This habitat forms c. 1% (683.3 ha) of the SAC, equivalent to c. 65% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Bad but "improving".</p>	<p>Inappropriate grazing, invasive species, clearance; changes to hydrological regime. <b>Yes – Given the nature of the proposed road development, potential pathways of risk are considered to exist.</b></p>	<p>To restore the favourable conservation condition of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) in the Lower River Shannon SAC</p>	Habitat area	Area stable or increasing, subject to natural processes, at least c.8.5ha for sites surveyed.	<p><b>Yes – Owing to the close proximity and hydrological connectivity of this habitat type with regard to the proposed road development and the crossing point on the River Maigue, potentially significant impacts on this Qualifying Interest cannot be ruled out at this stage.</b></p>
					Habitat distribution	No decline.	
					Woodland size	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	
					Woodland structure: cover and height	Diverse structure with a relatively closed canopy containing mature trees; sub-canopy layer with semi- mature trees and shrubs; and well-developed herb layer	
					Woodland structure: community diversity & extent	Maintain diversity and extent of community types	
					Woodland structure: natural regeneration	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	
					Hydrological regime: flooding depth/height of water table	Appropriate hydrological regime necessary for maintenance of alluvial vegetation	
					Woodland structure: dead wood	At least 30m <sup>3</sup> /ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems > 40cm diameter (> than 20cm diameter in the case of alder)	
					Woodland structure: veteran trees	No decline	
					Woodland structure: indicators of local distinctiveness	No decline	
					Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%	
					Vegetation composition: typical species	A variety of typical native species present, depending on woodland type, including alder ( <i>Alnus glutinosa</i> ), willows ( <i>Salix spp</i> ) and, locally, oak ( <i>Quercus robur</i> ) & ash ( <i>Fraxinus excelsior</i> )	
					Vegetation composition: negative indicator species	Negative indicator species, particularly non-native invasive species, absent or under control	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>Freshwater Pearl Mussel</b> <i>(Margaritifera margaritifera)</i> [1029]	c. 11 km NW in the Cloon River	Freshwater pearl mussel grows to 140 mm in length, and burrows into sandy substrates, often between boulders and pebbles, in fast-flowing rivers and streams. It requires cool, well-oxygenated soft water free of pollution or turbidity. The mussel spends its larval, or glochidial, stage attached to the gills of Salmonid fishes. This species does not reach reproductive maturity until at least 12 years old and may live for over 120 years, therefore population age-structure is vitally important when assessing viability. This species has undergone severe population decline and, in many cases, unable to reproduce because of poor water quality. An estimated 9.7 million adult mussels occur in the 19 SAC designated for the protection of the species. This represents 89% of the national population. The overall conservation status of this species is considered to be Bad and Unfavourable.	Nutrient enrichment, organic pollution, siltation, afforestation, inappropriate development, channel modification, loss of vector species (salmonids).  None – Given that there is no suitable habitat for this species downstream of the proposed road development, potential pathways of risk are not considered to exist.	To restore the favourable conservation condition of Freshwater Pearl Mussel in the Lower River Shannon SAC	Distribution	Applies to the Cloon River, Co. Clare only where there is the desire to maintain distribution at 7km.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat.
					Population size	Restore to 10,000 adult mussels	
					Population structure: recruitment	Restore to least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length	
					Population structure: adult mortality	No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution	
					Habitat extent	Restore suitable habitat in more than 3.3km and any additional stretches necessary for salmonid spawning	
					Water quality: macroinvertebrate and phytobenthos (diatoms)	Restore water quality-macroinvertebrates: EQR greater than 0.90; phytobenthos: EQR greater than 0.93	
					Substratum quality: filamentous algae (macroalgae), macrophytes (rooted higher plants)	Restore substratum quality-filamentous algae: absent or trace (<5%)	
					Substratum quality: sediment	Restore substratum quality-stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine sediment	
					Substratum quality: oxygen availability	Restore to no more than 20% decline from water column to 5cm depth in substrate	
Hydrological regime: flow variability	Restore appropriate hydrological regimes						
Host fish	Maintain sufficient juvenile salmonids to host glochidial larvae						
<b>Sea Lamprey</b> <i>(Petromyzon marinus)</i> [1095]	Indeterminate but not recorded from the watercourses crossed by the proposed road development.	Sea Lamprey is an anadromous fish species. Adults live at sea as external parasites on host fish. Migration to freshwater occurs in spring and spawning in June/July. Hatching of ammocoetes takes place within days and the immature lamprey swims or drifts downstream until it encounters an area of fine sediment into which it can burrow. Transformation to the adult stage occurs in late summer and young adults migrate downriver in late autumn/winter. Barriers to migration are seen as major negative impacts on this species. 12 SAC are designated for this species in the Member State. Population size within the Lower River Shannon SAC is not determined, but it is considered to be < 2% of the national population. Nevertheless, this SAC is considered to be of "good" conservation value for this species. The overall conservation status of the species is considered Bad but "stable", with major pressures/threats including canalisation and barriers to migration.	Drainage maintenance works, barriers to migration, and pollution. None – Given the distance from the preferred habitat of this Qualifying Interest and the nature of the proposed road development, potential pathways of risk are not considered to exist.	To restore the favourable conservation condition of Sea Lamprey in the Lower River Shannon SAC	Distribution: extent of anadromy	Greater than 75% of main stem length of rivers accessible from estuary	No Likely Significant Effect: There are no published records or evidence of Sea Lamprey from the River Maigue or tributaries (Harrington, 2017). In the event that sea lamprey would occur, there would be no interference with their movement within the River Maigue. Spawning by Sea lamprey occurs in freshwater habitats only.
					Population structure of juveniles	At least three age/size groups present	
					Juvenile density in fine sediment	Juvenile density at least 1/m <sup>2</sup>	
					Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	
					Availability of juvenile habitat	More than 50% of sample sites positive	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>Brook Lamprey (<i>Lampetra planeri</i>) [1096]</b>	Indeterminate but not recorded from the watercourses crossed by the proposed road development.	Brook Lamprey is the smallest of the three lampreys recorded in Ireland. It is non-parasitic and non-migratory as an adult, living its entire life in freshwater. Adults spawn in spring and, after hatching, the ammocoetes drift or swim downstream before encountering areas of river bed with a fine silt composition. They burrow into this bed material and live as filter feeders over a period of years before transforming into young adult fish. The young adults overwinter before migrating short distances upstream to gravelled areas where they spawn and die. 10 SAC are designated for this species in the Member State. Population size within the Lower River Shannon SAC is considered to be < 2% of the national population. The overall conservation status of the species is considered Favourable, with main pressures/threats including dredging and removal of sediments.	Drainage maintenance works, barriers to migration, and pollution.  None – Given the estuarine nature of the River Maigue in the vicinity of the proposed bridge location, potential pathways of risk are considered not to exist.	To maintain the favourable conservation condition of Brook Lamprey in the Lower River Shannon SAC	Distribution	Access to all water courses down to first order streams	No Likely Significant Effect: As this species is confined to freshwater habitats, it will not occur in the vicinity of the River Maigue bridge and there is considered to be no potential for significant impacts on this Qualifying Interest.
					Population structure of juveniles	At least three age/size groups of brook lamprey present	
					Juvenile density in fine sediment	Mean catchment juvenile density of brook lamprey at least 2/m <sup>2</sup>	
					Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	
					Availability of juvenile habitat	More than 50% of sample sites positive	
<b>River Lamprey (<i>Lampetra fluviatilis</i>) [1099]</b>	Movement of fish within the footprint of the proposed road development.	River and Brook Lamprey are indistinguishable as larvae, living as filter feeders in sediment. The mature adult forms are clearly distinguishable on the basis of body size. 10 SAC are designated for this species in the Member State. Population size within the Lower River Shannon SAC is considered to be < 2% of the national population. Major pressures/threats to River Lamprey include both diffuse and point-source pollution, invasive species, dredging and barriers to migration. The overall conservation status of the species is considered to be Favourable.	Drainage maintenance works, barriers to migration, and pollution. <b>Yes – Given the nature of the proposed road development, potential pathways of risk are considered to exist.</b>	To maintain the favourable conservation condition of River Lamprey in the Lower River Shannon SAC	Distribution	Access to all water courses down to first order streams	<b>Yes – Owing to the use of this habitat by this species in the vicinity of the proposed road development and the crossing point on the River Maigue, potentially significant impacts on this Qualifying Interest cannot be ruled out at this stage. While there are no records of this species near the proposed crossing point of the River Maigue, the species is likely to occur in the area.</b>
					Population structure of juveniles	At least three age/size groups of river lamprey present	
					Juvenile density in fine sediment	Mean catchment juvenile density of river lamprey at least 2/m <sup>2</sup>	
					Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	
					Availability of juvenile habitat	More than 50% of sample sites positive	
<b>Atlantic Salmon (<i>Salmo salar</i>) [1106]</b>	Movement of fish within the footprint of the proposed road development.	Atlantic Salmon is an anadromous species indigenous to the North Atlantic. Salmon use rivers to reproduce and as nursery areas during their juvenile phase. Adults spend 1 to 3 years at sea where growth rates are much greater. The Irish population generally comprises fish that spend 2 winters in freshwater before going to sea in April-June. The majority of Irish fish spend 1 winter at sea before returning to their natal rivers, mainly during the summer. Smaller numbers spend 2 winters at sea, returning mainly in spring. A small proportion of the adult population returns to sea post-spawning and can spawn again. 26 SAC are designated for this species in the Member State, containing between 97,643 and 146,464 individuals of the national population of c. 244,107. Population size within the Lower River Shannon SAC is considered to be < 2% of the national population. The overall conservation status of the species is considered Inadequate but “stable”, with major pressures/threats including agricultural intensification, disposal of household/recreational facility waste, poaching and pollution due to agriculture, forestry, household sewage and waste waters.	Agricultural intensification; waste disposal; poaching; afforestation and pollution. <b>Yes – Given the nature of the proposed road development, potential pathways of risk are considered to exist.</b>	To restore the favourable conservation condition of Salmon in the Lower River Shannon SAC	Distribution: extent of anadromy	100% of river channels down to second order accessible from estuary	<b>Yes – Owing to the use of this habitat by salmon in the vicinity of the proposed road development and the crossing point on the River Maigue, potential impacts on this Qualifying Interest cannot be ruled out at this stage.</b>
					Adult spawning fish	Conservation Limit (CL) for each system consistently exceeded	
					Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling	
					Out-migrating smolt abundance	No significant decline	
					Number and distribution of redds	No decline in number and distribution of spawning redds due to anthropogenic causes	
					Water quality	At least Q4 at all sites sampled by EPA	
<b>Bottlenose Dolphin (<i>Tursiops truncatus</i>) [1349]</b>	c.15km	Bottlenose Dolphin is one of the most familiar cetaceans occurring in Irish waters. It is classified as Least Concern since its widespread global distribution and abundance indicate that it is well above the thresholds for a threatened category. Bottlenose dolphins are regularly recorded in Irish coastal and offshore waters (Ó Cadhla et al., 2004; Berrow et al., 2010) and show a level of residency in certain coastal areas (DEHLG, 2009). The population in the Shannon Estuary has been shown to be genetically distinct from other populations (Mirimin et al., 2011). 2 SAC are designated for this Qualifying Interest in the Member State, containing between 10,539 and 27,982 individuals. Population size within the Lower River Shannon SAC is not determined but is considered to account for < 2% of the national population. Nevertheless, this SAC is considered to be of “excellent” conservation value for this species. The overall conservation status of this species is Favourable. The pressures/threats identified for Bottlenose Dolphin include fishing and harvesting of aquatic resources, wildlife watching and seismic exploration/explosions.	By-catch in fishing gear, pollution, acoustic disturbance; habitat degradation, increasing disturbance from dolphin watching boat trips. None – given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Bottlenose Dolphin in the Lower River Shannon SAC	Access to suitable habitat	Species range within the site should not be restricted by artificial barriers to site use.	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Habitat use: critical areas	Critical areas, representing habitat used preferentially by bottlenose dolphin, should be maintained in a natural condition.	
					Disturbance	Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>European Otter (<i>Lutra lutra</i>) [1355]</b>	Present throughout the River Shannon catchment and on most watercourses crossed by the proposed road development.	European Otter is a large carnivore with a long, slim body, short legs with webbed feet and a tapered tail. Adult males can reach 1 m in length and 10 kg in weight. Dramatic declines occurred in many European populations during the latter half of the 20 <sup>th</sup> Century. As a result, otters became extinct in several countries. However, Ireland has remained a strong-hold for the species. 45 SAC are designated for this species in the Member State, containing 468–660 of the country's c. 7,218–10,186 breeding females. Population size within the Lower River Shannon SAC is not determined but is considered to account for < 2% of the national population. Nevertheless, this SAC is considered to be of "excellent" conservation value for this species. The overall conservation status of the species is considered Favourable, with road mortalities constituting the major pressure at present.	Pollution, riparian vegetation removal, over-fishing, hunting, poisoning, coastal protection works, watercourse modifications. <b>Yes – Given the nature of the proposed road development, potential risks to this species are considered to exist. The crossing of the River Maigue may impact habitat for this Qualifying Interest during construction. Ex-situ occurrence of otters on other watercourses is also likely to affect the habitat and movement of this species.</b>	To restore the favourable conservation condition of Otter in the Lower River Shannon SAC	Distribution	No significant decline	<b>Yes – Owing to the use of this habitat by otters in the vicinity of the proposed road development and the crossing point on the River Maigue, potentially significant impacts on this Qualifying Interest cannot be ruled out at this stage. Construction of the bridge over the River Maigue may impact otters' use of the riparian habitat.</b>
					Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 596.8ha above high water mark (HWM); 958.9ha along river banks/ around ponds	
					Extent of marine habitat	No significant decline. Area mapped and calculated as 4,461.6ha	
					Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 500.1km	
					Extent of freshwater (lake/lagoon) habitat	No significant decline. Area mapped and calculated as 125.6ha	
					Couching sites and holts	No significant decline	
					Fish biomass available	No significant decline	
					Barriers to connectivity	No significant increase.	

**Table 4.2 Screening Matrix for the River Shannon and River Fergus Estuaries SPA. Source: NPWS (2013a), unless otherwise referenced. \* = a “priority habitat” in danger of disappearing from the EU.**

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>Cormorant (<i>Phalacrocorax carbo</i>) [A017]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Cormorant is a large, mainly all dark seabird, often stands with wings outstretched drying. Long body and neck, long strong hooked bill and dark webbed feet. Adult breeding bird is black with a green, bronze and blue gloss to its plumage, yellow and white bare flesh at the base of its lower mandible and a white thigh patch. Outside the breeding season (August to February), some Cormorants remain in the vicinity of their colonies, while others move to sheltered, coastal or inland locations – mostly south and east of their breeding sites. Ringing analyses (Wernham et al., in press) show that Cormorants from Ireland move to continental Europe. There is significant movement of coastal breeding birds inland in winter. Overall, its European population is classed as secure with a long-term increasing trend in Ireland. Current national population estimates are 5,211 individuals. 22 SPAs are designated for this species in the Republic of Ireland. The number of breeding pairs in the River Shannon and River Fergus Estuaries SPA is 93. The main pressures acting on this species are fishing and harvesting aquatic resources.	Fishing and harvesting aquatic resources. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Cormorant in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Breeding population abundance: apparently occupied nests (AONs)	No significant decline	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Productivity rate	No significant decline	
					Distribution: breeding colonies	No significant decline	
					Prey biomass available	No significant decline	
					Barriers to connectivity	No significant increase	
					Disturbance at the breeding site	Human activities should occur at levels that do not adversely affect the breeding cormorant population	
					Population trend	Long term population trend stable or increasing	
Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by cormorant other than that occurring from natural patterns of variation						
<b>Whooper Swan (<i>Cygnus cygnus</i>) [A038]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Whooper Swan is a large white water bird. The yellow patch on its beak is wedge-shaped and reaches its nostrils, helping to distinguish it from the slightly smaller Bewick’s Swan. Its tail is short and rounded, not like the wedge-shaped tail of the Mute Swan. The population occurring in Ireland breeds in Iceland, wintering on lakes, marshes, lagoons and sheltered inlets, birds are also increasingly found in agricultural fields. There has been a 6% increase in non-breeding population in Ireland between 2005 and 2010. 22 SPAs are designated for this species in the Republic of Ireland. The current national population is 15,158 and the baseline population size in the River Shannon and River Fergus Estuaries SPA is 118 individuals.	Change in agricultural practices. <b>Yes – Given the nature of the proposed road development, potential pathways of risk are considered to exist.</b>	To maintain the favourable conservation condition of Whooper Swan in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	<b>Yes – Owing to the use of ex-situ habitat outside of the SPA by Whooper Swans for foraging, potentially significant impacts on this Qualifying Interest cannot be ruled out at this stage.</b>
					Distribution	No significant decrease in the range, timing or intensity of use of areas by Whooper Swan, other than that occurring from natural patterns of variation	
<b>Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	The Light-bellied Brent Goose is a small dark goose, with a black head, neck and breast, and dark-brown upperparts and pale underparts. It has almost whitish flanks, and small white crescent on the upperparts of the neck visible at close range. Current national wintering population estimates are 25,100 wintering individuals. 24 SPAs are designated for this species in the Member State. The SPA network is considered to support 22,951 wintering individuals. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 494 individuals. The main pressures acting on this species are outdoor sports and leisure activities, recreational activities, utility service lines and modification of cultivation practices.	Loss of habitat for foraging and roosting, and outdoor sports and leisure activities, recreational activities, hunting, utility service lines and modification of cultivation practices. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Light-bellied Brent Goose in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Distribution	No significant decrease in the range, timing or intensity of use of areas by Light-bellied Brent Goose, other than that occurring from natural patterns of variation	
	Within 400 m of the	The Shelduck is a large-sized goose-like duck, mostly white with dark-green head with a red bill, a chestnut belt across the breast and black	Loss of habitat for foraging and roosting, and outdoor	To maintain the favourable conservation condition of	Population trend	Long term population trend stable or increasing	No Likely Significant Effect:

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>Shelduck (<i>Tadorna tadorna</i>) [A048]</b>	boundary of the SPA containing this Qualifying Interest	scapulars. Adult males have a prominent knob at the base of the bill. It is a resident and winter migrant. Ireland receives additional birds during the winter (October to March) from Scandinavia and the Baltic. It is amber-listed in Ireland, as the majority of the wintering population occurs at less than ten sites. Current national wintering population estimates are 11,760 individuals. 17 SPAs are designated for this species in the Member State. The SPA network is considered to support 6,903 individuals. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 1,025 individuals. The main pressures acting on this species are outdoor sports and leisure activities, recreational activities, marine and freshwater aquaculture and changes in abiotic conditions.	sports and leisure activities, recreational activities and hunting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	Shelduck in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Shelduck, other than that occurring from natural patterns of variation	Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Wigeon (<i>Anas penelope</i>) [A050]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Wigeon is a medium-sized duck with a round head and small bill. The head and neck of the male are chestnut, with a yellow forehead, pink breast and grey body. In flight, birds show white bellies and males have a large white wing patch. It is Red-listed in Ireland. Current national wintering population estimates are 62,980 wintering individuals. 25 SPAs are designated for this species in the Republic of Ireland. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 3,761 individuals. The main pressures acting on this species are outdoor sports and leisure activities and recreational activities.	Loss of habitat for foraging and roosting, and outdoor sports and leisure activities, recreational activities and hunting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Wigeon in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing or intensity of use of areas by Wigeon, other than that occurring from natural patterns of variation	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Teal (<i>Anas crecca</i>) [A052]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	The Teal is a small duck with short neck. The males have a brown head, striking green patch which extends from the eye towards the back of the neck and is thinly bordered yellow. They are grey bodied with horizontal white stripe along the body, green speculum and creamy-yellow patch bordered by black on either side of the rump. The females are brown, streaked and mottled dark, with green speculum. It is amber-listed in Ireland due to a decline in the breeding population. Current national wintering population estimates are 29,050 individuals. 21 SPAs are designated for this species in the Member State. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 2,260 individuals.	Loss of habitat for foraging, breeding and roosting, and outdoor sports and leisure activities, recreational activities and hunting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Teal in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing or intensity of use of areas by Teal, other than that occurring from natural patterns of variation	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Pintail (<i>Anas acuta</i>) [A054]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Pintail has a widespread global distribution across North America and north Eurasia. Most birds occurring in winter migrate from more northern and eastern breeding areas in Fennoscandia and Russia. European distribution in winter is predominantly coastal, and Pintail form large flocks on brackish coastal lagoons, in estuaries and deltas, and on large inland lakes. Current national wintering population estimates are 1,280 wintering individuals. 11 SPAs are designated for this species in the Member State. The SPA network is considered to support 1,251 wintering individuals. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 62 individuals. The main pressures acting on this species are outdoor sports and leisure activities, recreational activities and hunting.	Loss of habitat for foraging and roosting, and outdoor sports and leisure activities, recreational activities and hunting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Pintail in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing or intensity of use of areas by Pintail, other than that occurring from natural patterns of variation	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Shoveler (<i>Anas clypeata</i>) [A056]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	The Shoveler is medium to large sized with a long and broad bill. Males have a green head, white breast, chestnut belly and flanks and blue upper forewing. Females are similar to Mallard but distinguished by the bill and darker brown belly. It is red-listed in Ireland. It is a resident and winter migrant. Most occur between October and March. Current national wintering population estimates are 2,770 wintering individuals. 16 SPAs are designated for this species in the Member State. The SPA network is considered to support 2,770 wintering individuals. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 107 individuals. The main pressures acting on this species are outdoor sports and leisure activities, recreational activities and hunting.	Loss of habitat for foraging and roosting, and outdoor sports and leisure activities, recreational activities and hunting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Shoveler in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing or intensity of use of areas by Shoveler, other than that occurring from natural patterns of variation	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Scaup (<i>Aythya marila</i>) [A062]</b>	Within 400 m of the	Scaup is a medium-sized duck. The males have a black head and neck, with white wing bar, but lack a crest, have an elongated shape, and a	Loss of habitat for foraging, roosting and breeding.	To maintain the favourable conservation condition of	Population trend	Long term population trend stable or increasing	No Likely Significant Effect:

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
	boundary of the SPA containing this Qualifying Interest	pale grey bill. The females are dull brown with pale grey-brown flanks and slightly darker back. A broad white band surrounds the base of grey bill. In Ireland it is a Winter visitor, from Iceland, northern Europe and western Siberia, mostly occurring between November and April. Found mainly along the coast in shallow bays although Lough Neagh is the single most important site in Ireland. There has been a 30% decline in the non-breeding population in Ireland between 1994/95 and 2003/04 with a current national population estimate of c. 4,430. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 102 individuals. The main pressures acting on this species are pollution of surface waters, outdoor sports and leisure activities, recreational activities and hunting.	None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	Scaup in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Scaup, other than that occurring from natural patterns of variation	Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Ringed Plover (<i>Charadrius hiaticula</i>) [A137]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Ringed Plover are found across the northern hemisphere. The winter as far south as Africa and many are resident in Ireland all year round. The species generally breeds on the coasts of Eurasia and Arctic Canada, but also breed at inland sites in Western Europe. Current national population estimates are c. 9,060 individuals. 15 SPAs are designated for this species in the Member State. The baseline wintering population size in the River Shannon and River Fergus Estuaries SPA is 223 individuals.	Loss of habitat for foraging and roosting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Ringed Plover in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing or intensity of use of areas by Ringed Plover, other than that occurring from natural patterns of variation	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Golden Plover (<i>Pluvialis apricaria</i>) [A140]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	The global distribution of Golden Plovers is very much restricted to boreal regions of the western Palearctic, with only a small extension further east. Golden Plovers generally breed between 60° –70° N, although nesting occurs significantly further south in Britain and Ireland (being the southernmost extent of the global range). Generally, within southern parts of the range the distribution is discontinuous. In winter, birds migrate south and westwards, with localised wintering occurring from North Africa and Iberia, east through the Mediterranean Basin to the Middle East and the shores of the Caspian Sea. Large numbers winter in Britain and Ireland, France and the Low Countries. Current national population estimates are between 134 and 156 breeding pairs. 36 SPAs are designated for this species in the Member State. The SPA network is considered to support 76 breeding pairs. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 5,664 individuals. The main pressures acting on this species are mining and quarrying, forest planting on open ground, grazing, interspecific faunal relations and slash and burn practices.	Loss of habitat for foraging and roosting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Golden Plover in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing or intensity of use of areas by Golden Plover, other than that occurring from natural patterns of variation	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Grey Plover (<i>Pluvialis squatarola</i>) [A141]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Grey Plovers have a very restricted global distribution. They have an almost circumpolar breeding range, occurring in the high Arctic from the Kanin Peninsula east to the Bering Sea. In North America, they occur from Alaska to the western side of Baffin Island. Globally, there are five recognised biogeographic populations. Of these, birds occurring in Europe belong to the East Atlantic Flyway population which comprises those breeding in the western Russian high Arctic. These birds winter from the Wadden Sea, along the Atlantic coasts of Europe south to West Africa. Current national population estimates are 2,850 wintering individuals. 21 SPAs are designated for this species in the Member State. The SPA network is considered to support 558 individuals. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 299 individuals.	Loss of habitat for foraging and roosting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Grey Plover in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing or intensity of use of areas by Grey Plover, other than that occurring from natural patterns of variation	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Lapwing (<i>Vanellus vanellus</i>) [A142]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Lapwings have a wide global distribution throughout the temperate regions of Eurasia, from Britain, Ireland and Iberia in the west, to the Pacific coast of Russia at the Sea of Japan in the east. In Scandinavia, breeding extends North but through most of the range Lapwings breed further south. Lapwings breed in all European countries, although within the Mediterranean Basin their distribution is highly localized. Across most of the range, Lapwings are highly migratory, moving south at the end of the breeding season to winter. Recent declines in the breeding population have been reported in many parts of North-west Europe. Current national population estimates are 2000 breeding pairs. 23 SPAs are designated for this species in the Member State. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 15,126 individuals.	Loss of habitat for foraging, roosting and breeding. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Lapwing in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing or intensity of use of areas by Lapwing, other than that occurring from natural patterns of variation	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>Knot (<i>Calidris canutus</i>) [A143]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Knots are found in many regions of the world, although they are highly localised within each region. The breeding distribution is circumpolar, with the species nesting in the high Arctic. After the breeding season, they migrate through temperate coastal regions in the northern hemisphere to wintering grounds in the southern hemisphere. They undertake some of the longest migrations of any bird species. Current national wintering population estimates are 28,030 individuals. 13 SPAs are designated for this species in the Member State. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 2,015 wintering individuals.	Loss of habitat for foraging, roosting and breeding. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Knot in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Knot, other than that occurring from natural patterns of variation	
<b>Dunlin (<i>Calidris alpina</i>) [A149]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Dunlin have a wide global distribution around the Arctic, and are found in nearly all Arctic regions. In Europe, they also extend south to temperate regions where they are found in wetland habitats. Breeding Dunlin are characteristic of moorland and upland habitats and this is reflected in the species' breeding distribution. Current national wintering population estimates are 150 breeding pairs. 23 SPAs are designated for this species in the Member State. The SPA network is considered to support 62 breeding pairs. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 15,131 individuals. The main pressures acting on this species are modification of cultivation practices, mowing, fertilisation, grazing and interspecific faunal relations.	Loss of habitat for foraging, roosting and breeding. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Dunlin in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Dunlin, other than that occurring from natural patterns of variation	
<b>Black-tailed Godwit (<i>Limosa limosa</i>) [A156]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	The Black-tailed Godwit is very similar in size and shape to Bar-tailed Godwit, but the slightly longer, straighter bill, neck and legs give it a more elegant appearance. Its winter plumage is a similar greyish brown to Bar-tailed, but generally plainer, with less dark-centred feathers, especially on the wings. In flight, the similarities between the godwits disappears. Black-tailed shows a striking contrasting upperwing - mostly black with bold white wingbars, a square white rump and a black tail. It typically wades in shallow water on tidal mudflats and favours the inner more silty parts of estuaries and inlets. It can occur in large flocks of several hundred birds. It is amber-listed in Ireland as the majority of Black-tailed Godwits winter at less than ten sites. Current national population estimates are 18,080 wintering individuals. 25 SPAs are designated for this species in the Member State. The SPA network is considered to support 16,752 wintering individuals. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 2,035 individuals. The main pressures acting on this species are marine and freshwater aquaculture.	Loss of habitat for foraging and roosting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Black-tailed Godwit in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Black-tailed Godwit other than that occurring from natural patterns of variation	
<b>Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	The Bar-tailed Godwit breeds in Arctic regions of Eurasia, from Northern Scandinavia, through high latitudes of Russia to the west coast of Alaska. It winters in North-western Europe south to southern Spain and Portugal. Bar-tailed Godwits are almost entirely coastal in their winter habits, feeding mainly on worms both on sandy and muddy shores. As a mid- to high-Arctic nesting species, significant between-year population changes might be expected as a consequence of variation in weather and predation pressures on breeding areas. Current national wintering population estimates are 11,890 individuals. 24 SPAs are designated for this species in the Member State. The SPA network is considered to support 10,951 individuals. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 460 individuals. The main pressures acting on this species are marine/freshwater aquaculture and changes in abiotic conditions.	Loss of habitat for foraging and roosting. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Bar-tailed Godwit in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Bar-tailed Godwit other than that occurring from natural patterns of variation	
	Within 400 m of the	The breeding distribution of Curlew is globally restricted to the temperate and boreal regions of Europe and Asia. The species breeds	Loss of habitat for foraging, roosting and breeding.	To maintain the favourable conservation condition of	Population trend	Long term population trend stable or increasing	No Likely Significant Effect:

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>Curlew (<i>Numenius arquata</i>) [A160]</b>	boundary of the SPA containing this Qualifying Interest	from Ireland and Britain in the west, across continental Europe to the Russian far east. In winter, Curlews migrate south from their breeding areas and occur widely, though sparsely on southern hemisphere coasts in the Northern winter. Despite its recent expansion into lowland agricultural habitats, the species is still more abundant in uplands and Northern regions where there are extensive areas of moorland and rough grazing. Current national wintering population estimates are 98 breeding pairs. 19 SPAs are designated for this species in the Member State. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 2,396 individuals.	None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	Curlew in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Curlew other than that occurring from natural patterns of variation	Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
<b>Redshank (<i>Tringa totanus</i>) [A162]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	The Eastern Atlantic Flyway population of the nominate race of Redshank winters from the North Sea countries through the western part of the Mediterranean to West Africa. Both <i>T. totanus</i> and <i>T. robusta</i> Redshank populations are classified as declining. At least some of this decline is attributable to changes in agricultural practices and loss of important wetland sites. Current national wintering population estimates are c. 29,520 individuals. 21 SPAs are designated for this species in the Member State. The baseline population size in the River Shannon and River Fergus Estuaries SPA is wintering 2,645 individuals.	Loss of habitat for foraging, roosting and breeding. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Redshank in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Redshank other than that occurring from natural patterns of variation	
<b>Greenshank (<i>Tringa nebularia</i>) [A164]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	Greenshank is a distinctive long-legged, long-billed wader. It is quite large, very white looking at long range, with dark wings. Its bill is straight with a very slight upturn. Its legs are washed out greyish green. In flight, quite long-winged, shows no wing bar, just plain, blackish wings, contrasting with a long white rump and back. Not very common, typically seen singly or in very small groups. Current national wintering population estimate is 890 wintering individuals. 3 SPAs are designated for this species in the Republic of Ireland. The baseline population size in River Shannon and River Fergus Estuaries SPA is 61 individuals. The main pressure acting on this species is changes in abiotic conditions.	Loss of habitat for foraging, roosting and breeding. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Greenshank in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Greenshank other than that occurring from natural patterns of variation	
<b>Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	The Black-headed Gull is the most widely distributed seabird breeding in Ireland, with similar numbers breeding inland as on the coast. The majority of the breeding population is resident throughout the year. Black-headed gulls breed throughout the middle latitudes of the Palaearctic and have recently formed a breeding outpost in north eastern North America. Habitats such as wetlands, bogs, marshes and artificial ponds are favoured breeding sites, but dry areas adjacent to water are also used. Current national population estimate is 50,181 individuals. 19 SPAs are designated for this species in the Member State. The baseline population size in the River Shannon and River Fergus Estuaries SPA is 2,681 wintering individuals.	Loss of habitat for foraging, roosting and breeding. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of Black-headed Gull in River Shannon and River Fergus Estuaries SPA (NPWS, 2013c)	Population trend	Long term population trend stable or increasing	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this species.
					Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by Black-headed Gull other than that occurring from natural patterns of variation	
<b>Wetland and Waterbirds [A999]</b>	Within 400 m of the boundary of the SPA containing this Qualifying Interest	This site is designated for wetland and waterbirds because it contains wetland habitat of high ornithological importance for wintering waterfowl, with one species occurring in internationally important numbers and a further seven species having populations of national importance. High tide roosting sites, however, are limited. Wintering bird populations have been well monitored since the 1970s.	Loss of habitat for foraging, roosting and breeding, changing agricultural practices, water pollution. <b>Yes – Given the proximity of the proposed road development to the SPA at Churchtown Estuary, there is considered a potential risk of disturbance during the construction phase.</b>	To maintain the favourable conservation condition of wetland habitat in River Shannon and River Fergus Estuaries SPA as a resource for the regularly occurring migratory waterbirds that utilise it (NPWS, 2013c)	Habitat Area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261 hectares, other than that occurring from natural patterns of variation.	<b>Yes – Owing to the proximity of the proposed road development to the SPA at Churchtown Estuary, the potential risk of disturbance during the construction phase cannot be ruled out at this stage.</b>

**Table 4.3 Screening Matrix for the Curraghchase Woods SAC. Source: NPWS (2013a), unless otherwise referenced. \* = a “priority habitat” in danger of disappearing from the EU.**

Qualifying Interest (Qualifying Interest)	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<p><b>*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</b></p>	4 km north	<p>Residual Alluvial Forests occur on heavy soils that are periodically inundated by the annual rise of river levels, but which are otherwise well drained and aerated during low water. In addition, there are gallery forests of tall willows (<i>Salicion albae</i>) alongside river channels and occasionally on river islands, where the tree roots are almost continuously submerged. 25 SAC are designated for this habitat type in the Member State. It is estimated that a total of 1,046 ha of 91E0 occurs within the Natura 2000 network. This habitat forms c. 2% (7.16 ha) of the SAC, equivalent to c. 0.7% of the entire national Natura 2000 contribution for this Qualifying Interest. The overall conservation status of this habitat is considered to be Bad but “improving”.</p>	<p>Inappropriate grazing, invasive species, clearance; changes to hydrological regime. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.</p>	<p>To maintain the favourable conservation condition of Alluvial Forests in the Curraghchase Woods SAC</p>	Habitat area	Area stable or increasing, subject to natural processes, at least c.8.5ha for sites surveyed.	<p>No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat or its attributes and targets.</p>
					Habitat distribution	No decline.	
					Woodland size	Area stable or increasing. Where topographically possible, “large” woods at least 25ha in size and “small” woods at least 3ha in size	
					Woodland structure: cover and height	Diverse structure with a relatively closed canopy containing mature trees; sub-canopy layer with semi- mature trees and shrubs; and well-developed herb layer	
					Woodland structure: community diversity & extent	Maintain diversity and extent of community types	
					Woodland structure: natural regeneration	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	
					Hydrological regime: flooding depth/height of water table	Appropriate hydrological regime necessary for maintenance of alluvial vegetation	
					Woodland structure: dead wood	At least 30m <sup>3</sup> /ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems > 40cm diameter (> than 20cm diameter in the case of alder)	
					Woodland structure: veteran trees	No decline	
					Woodland structure: indicators of local distinctiveness	No decline	
					Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%	
					Vegetation composition: typical species	A variety of typical native species present, depending on woodland type, including alder ( <i>Alnus glutinosa</i> ), willows ( <i>Salix spp</i> ) and, locally, oak ( <i>Quercus robur</i> ) & ash ( <i>Fraxinus excelsior</i> )	
					Vegetation composition: negative indicator species	Negative indicator species, particularly non-native invasive species, absent or under control	

Qualifying Interest (Qualifying Interest)	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
* <i>Taxus baccata</i> woods of the British Isles [91J0]	4 km north	Yew Woodland is a highly restricted habitat type in Ireland. It occurs at a handful of sites in the Southwest, mostly on skeletal soils over limestone outcrops or pavement. The canopy in these stands is typically dominated by <i>Taxus baccata</i> with <i>Fraxinus excelsior</i> and frequently the introduced <i>Fagus sylvatica</i> . <i>Corylus avellana</i> and <i>Ilex aquifolium</i> are frequent components of the shrub layer but typically in small quantities. The dense evergreen canopy is inimical to the strong development of the field layer and regeneration is very limited or absent. The herb layer is characteristically species-poor and poorly developed with the most frequent and abundant species being <i>Hedera helix</i> , which is locally dominant, <i>Brachypodium sylvaticum</i> , <i>Viola riviniana</i> and ferns, especially <i>Phyllitis scolopendrium</i> . A striking feature is the rocky forest floor which is typically covered by an extensive carpet of bryophytes dominated by a few robust pleurocarpous species. 5 SAC are designated for this habitat type in the Member State and 82.95 ha of Yew Woodland occur within the national Natura 2000 network. This habitat forms c. 1% (3.58 ha) of the SAC, equivalent to c. 4.33% of the entire national Natura 2000 contribution for this Qualifying Interest. The quality of the existing Yew Woodland is still poor due to over-grazing, lack of regeneration and invasive species. The overall conservation status of this habitat is considered to be Bad but "improving".	Over-grazing, lack of regeneration and invasive species. None – Given the nature of the proposed road development, potential pathways of risk are not considered to exist.	To maintain the favourable conservation condition of <i>Taxus baccata</i> woods in the Curraghchase Woods SAC	Habitat area	Area stable or increasing, subject to natural processes, with a minimum area of 73.46ha	No Likely Significant Effect: Due to the distance of this Qualifying Interest from the proposed road development and that potential pathways are not considered to exist, there will be no significant effect on this habitat or its attributes and targets.
					Habitat distribution	No decline	
					Woodland size	Area stable or increasing	
					Woodland structure: cover and height	Diverse structure with a relatively closed canopy containing mature trees; sub-canopy layer with semi-mature trees and shrubs; and herb and bryophyte layer	
					Woodland structure: community diversity & extent	Maintain diversity and extent of community types	
					Woodland structure: natural regeneration	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	
					Woodland structure: dead wood	At least 30m <sup>3</sup> /ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter	
					Woodland structure: veteran trees	No decline	
					Woodland structure: indicators of local distinctiveness	No decline	
					Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%	
Vegetation composition: typical species	A variety of typical native species present, including yew ( <i>Taxus baccata</i> ) and ash ( <i>Fraxinus excelsior</i> )						
Vegetation composition: negative indicator species	Negative indicator species, particularly non-native invasive species, absent or under control						
Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i> [1303]	4 km north	Lesser Horseshoe Bat is widely distributed in western, central and southern Europe, as far east as Kashmir and through northern Africa to Arabia, Ethiopia and Sudan (Mitchell-Jones <i>et al.</i> , 1999). Ireland represents the most northerly and westerly limits of the species' distribution (Roche, 2001) and here it is confined to 6 west coast counties: Mayo, Galway, Clare, Limerick, Cork and Kerry (McAney, 1994). Although this Bat has declined in many European countries, Ireland is considered a stronghold for the species (Marnell <i>et al.</i> , 2009). The Lesser Horseshoe is the only member of the <i>Rhinolophidae</i> occurring in Ireland. Summer roosting sites are often in the attics of old or derelict buildings. Lesser Horseshoe bats are faithful to a roost site and will return to the same site each year.	Loss of roosting sites due to deterioration or renovation of old buildings, loss of commuting routes and unsympathetic management of foraging sites. <b>Yes – Given the nature of the proposed road development, potential</b>	To maintain the favourable conservation condition of Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i> in the Curraghchase Woods SAC	Population per roost	Minimum number of 182 bats in winter for Roost ID 623; minimum number of 127 in winter and 358 in summer for Roost ID 505; minimum number of 176 in winter and 315 in summer for Roost ID 296; minimum number of 218 in summer for Roost ID 615	<b>Yes – Owing to the movement of Lesser Horseshoe Bat across the landscape and the potential for the proposed road development to intersect flight paths and thus result in habitat fragmentation, potentially significant impacts on this Qualifying Interest cannot be ruled out at this stage.</b>
					Winter roosts	No decline	
					Summer roosts	No decline	

Qualifying Interest (Qualifying Interest)	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
		Hibernation sites are typically caves, souterrains, cellars and icehouses (O'Sullivan, 1994). Lesser Horseshoe rely on linear landscape features, e.g. treelines, stonewalls and hedgerows, to navigate and commute from roosts to feeding sites and are reluctant to fly out in the open (Schofield, 2008). The Bats forage on flying insects predominantly in deciduous woodland and riparian vegetation normally within a few km of their roosts (Bontadina et al., 2002; Motte & Libois, 2002). They are sensitive to disturbance and normally do not occupy the same buildings as humans. Loss of roosting sites due to deterioration or renovation of old buildings, loss of commuting routes and unsympathetic management of foraging sites are the major threats to this species (McAney, 1994; McGuire, 1998; Roche, 2001). 41 SAC are designated for this species in the Member State, containing 5,000–6,670 of the country's c. 14,000 individuals. There is a hibernation roost for c. 60 Lesser Horseshoe Bats in Curraghchase House. This SAC is considered to be of "good" conservation value for this species. The overall conservation status of the species is considered Favourable.	<b>pathways of risk are considered to exist.</b>		Number of auxiliary roosts	No decline	
					Extent of potential foraging habitat	No significant decline	
					Linear features	No significant loss, within 2.5km of qualifying roosts.	
					Light pollution	No significant increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts.	

**Table 4.4 Screening Matrix for the Askeaton Fens SAC. Source: NPWS (2013a), unless otherwise referenced. \* = a “priority habitat” in danger of disappearing from the EU.**

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
<b>Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i> [7210]</b>	0.5km	This fen type is often dominated by saw sedge ( <i>Cladium mariscus</i> ). <i>Cladium</i> fens occur in a variety of situations including fens found in valleys or depressions, floodplains, over-grown-ditches, extensive wet meadows, within tall reed beds, on the landward side of lakeshore communities, calcium rich flush areas in blanket bogs, dune slack areas, fens adjacent to raised and blanket bogs, in turloughs, wet hollows in machair and often in association with alkaline fen. The key ecological requirements are a high water table, a calcareous, low nutrient water supply and minimal water level fluctuation. The main pressures were identified as peat extraction, wetland reclamation and infilling. Wetland habitats are afforded additional protection under recent Agriculture Environmental Impact Assessment Regulations, however the Overall Status is considered to be Bad due to the pressures outlined; the overall trend is Unknown due to the absence of a national survey for this habitat.	Peat extraction, wetland reclamation and infilling. <b>Yes – Given the nature of the proposed road development, potential pathways of risk are considered to exist.</b>	To maintain or restore the favourable conservation condition of Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i> in the Askeaton Fen Complex SAC	Habitat area	Area stable or increasing, subject to natural processes	<b>Yes – Owing to the proximity and hydrological connectivity of this habitat type with regard to the proposed road development including areas of fen habitat which are not designated as part of the SAC but which conform to the Annex habitat classification and form part of the overall complex of site, in tandem with the underlying karstified limestone geology along the proposed road alignment, potentially significant impacts on this Qualifying Interest cannot be ruled out at this stage.</b>
					Habitat distribution	No decline, subject to natural processes	
					Ecosystem function: hydrology	Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	
					Ecosystem function: peat formation	Maintain active peat formation, where appropriate	
					Ecosystem function: water quality	Maintain appropriate water quality, particularly nutrient levels, to support the natural structure and functioning of the habitat	
					Vegetation structure: typical species	Maintain vegetation cover of typical species including brown mosses and vascular plants	
					Vegetation composition: non-native species	Cover of non-native species less than 1%	
					Vegetation composition: trees and shrubs	Cover of scattered native trees and shrubs less than 10%	
					Physical structure: disturbed bare ground	Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%	
					Physical structure: drainage	Areas showing signs of drainage as a result of drainage ditches or heavy trampling not more than 10%	
Indicators of local distinctiveness	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat						
<b>Alkaline fens [7230]</b>	0.5km	Alkaline fens are typically calcareous basin or flush fen systems with extensive areas of species-rich small sedge communities. These fen systems are often a complex mosaic of habitats, with co-occurring tall sedge beds, reedbeds, wet grasslands, springs and open-water. The habitat is characterised by a broad range of small to medium <i>Carex</i> spp., carpets of brown mosses and high species diversity including black bog-rush ( <i>Schoenus nigricans</i> ), blunt-flowered rush ( <i>Juncus subnodulosus</i> ), devil's bit scabious ( <i>Succisa pratensis</i> ), hemp agrimony ( <i>Eupatorium cannabinum</i> ) and purple moor-grass ( <i>Molinia caerulea</i> ). This habitat requires a high water table, a calcareous, low nutrient water supply and minimal water level fluctuation. Low intensity mowing and/or grazing are also very important for maintaining species richness. The main pressures have been identified as peat extraction, wetland reclamation and infilling. Wetland habitats are afforded additional protection under recent Agriculture Environmental Impact Assessment Regulations, however the Overall Status is considered to be Bad due to the pressures outlined; the	Peat extraction, wetland reclamation and infilling. <b>Yes – Given the nature of the proposed road development, potential pathways of risk are considered to exist.</b>	To maintain or restore the favourable conservation condition of Alkaline fens in the Askeaton Fen Complex SAC	Habitat area	Area stable, subject to natural processes	<b>Yes – Owing to the proximity and hydrological connectivity of this habitat type with regard to the proposed road development including areas of fen habitat which are not designated as part of the SAC but which conform to the Annex habitat classification and form part of the overall complex of site, in tandem with the underlying karstified limestone geology along the proposed road alignment, potentially significant impacts on this Qualifying Interest cannot be ruled out at this stage.</b>
					Habitat distribution	No decline.	
					Vegetation composition: typical species	At least seven positive indicator species present	
					Vegetation composition: bryophyte layer	Bryophyte cover at least 50% on wooded pavement	
					Vegetation composition: negative indicator species	Collective cover of negative indicator species on exposed pavement not more than 1%	

Qualifying Interest	Closest proximity	Extent and character	Risk to this Qualifying Interest	Conservation Objective	Attribute	Target	Likely Significant Effect
		overall trend is Unknown due to the absence of a national survey for this habitat.			Vegetation composition: non-native species	Cover of non-native species not more than 1% on exposed pavement; on wooded pavement not more than 10% with no regeneration	
					Vegetation composition: scrub	Scrub cover no more than 25% of exposed pavement	
					Vegetation composition: bracken cover	Bracken ( <i>Pteridium aquilinum</i> ) cover no more than 10% on exposed pavement	
					Vegetation structure: woodland canopy	Canopy cover on wooded pavement at least 30%	
					Vegetation structure: dead wood	Sufficient quantity of dead wood on wooded pavement to provide habitat for saproxylic organisms	
					Physical structure: disturbance	No evidence of grazing pressure on wooded pavement	
					Indicators of local distinctiveness	Indicators of local distinctiveness are maintained	

### 4.3 Screening Conclusion

Having considered the nature, scale and location of the proposed road development and the Conservation Objectives of the European Sites within the likely zone of impact, and having applied the Precautionary Principle, it was determined that the proposed road development has the potential to result in likely significant effects on certain Qualifying Interests in four European Sites, as summarised in Table 4.5 below.

**Table 4.5 European Sites and their respective Qualifying Interests which have the potential to be significantly affected by the proposed road development (summarised from Tables 4.1 to 4.4 above).**

European Site	Qualifying Interest(s)
Lower River Shannon SAC [002165]	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260] *Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> ) [91E0] Sea Lamprey ( <i>Petromyzon marinus</i> ) [1095] River Lamprey ( <i>Lampetra fluviatilis</i> ) [1099] Atlantic Salmon ( <i>Salmo salar</i> ) [1106] European Otter ( <i>Lutra lutra</i> ) [1355]
River Shannon and River Fergus Estuaries SPA [004077]	Whooper Swan ( <i>Cygnus cygnus</i> ) [A038] Wetlands and Waterbirds [A999]
Curraghchase Woods SAC [000174]	Lesser Horseshoe Bat ( <i>Rhinolophus hipposideros</i> ) [1303]
Askeaton Fens Complex SAC [002279]	*Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] Alkaline fens [7230]

As significant effects on these European Sites and their respective Qualifying Interests, as listed in Table 4.5 above, cannot be ruled at this stage, the AA process must continue to Stage 2 in order to undertake a full assessment of the implications of the proposed road development for these European Sites, in view of their Conservation Objectives.

## 5.0 POTENTIAL IN-COMBINATION EFFECTS

Article 6(3) of the Habitats Directive requires that AA be carried out in respect of plans and projects that are likely to have significant effects on European Sites, “*either individually or in combination with other plans or projects*”. Therefore, regardless of whether or not the likely effects of a plan or project are significant when considered on their own, the significance of the combined effects of the plan or project under assessment and other past, present or foreseeable future plans or projects must also be evaluated.

As explained in Section 1.3, where a plan or project will be the subject of a full AA, it is not necessary to carry out an assessment of in-combination effects or the potential for such effects at the Screening stage. Given that it has already been established that the proposed development has the potential to significantly affect four European Sites (see Section 4.3), AA will be required and, as such, the in-combination element of the assessment is deferred to that stage.

## **6.0 CONCLUSION AND FINAL DETERMINATION**

This AA Screening Report was prepared in respect of the proposed Foynes to Limerick Road (including Adare Bypass). It has concluded, on the basis of objective information, that the proposed road development, either alone or in combination with other plans and projects, has the potential to significantly effect four European Sites, namely the Lower River Shannon SAC, the River Shannon and River Fergus Estuaries SPA, the Curraghchase Woods SAC and the Askeaton Fen Complex SAC.

Therefore, it is the considered opinion of the authors of this AA Screening Report that Limerick City & County Council, in carrying out its AA Screening in respect of the proposed road development, should find that the proposed road development, either individually or in combination with other plans or projects, is likely to have a significant effect on these European Sites and, therefore, that AA is required in respect proposed road development.

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