

Proposed Fuller's Folly Development, Newcastle West, Co. Limerick

Screening for Appropriate Assessment



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EXECUTIVE SUMMARY

The current document provides a Screening for Appropriate Assessment of the proposed development at Fuller's Folly, Newcastle West, County Limerick. The proposed development is small in size, consisting of an area c. 0.0477 ha in size and consists of the redevelopment of an existing building in Newcastle West town for the purposes of a tourist attraction. The Arra River is immediately adjacent to the site. This report assesses whether the proposed development is likely to have a significant effect on the Natura 2000 site network.

The closest Natura 2000 site is the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, located c. 4.4km west of the proposed development site. The site is designated for Hen Harrier. There are no important features of conservation concern on the proposed development site or in the immediate vicinity that would be affected and / or that would result in the proposed development having significant adverse impacts in terms of the structure / function of the local Natura 2000 network.

The Lower River Shannon SAC is located >25km downstream from the proposed development site. Due to the small scale of the proposed development and separation distance from this site this Natura 2000 site is also screened out.

No direct impacts on any Natura 2000 site are anticipated from the proposed development as the site is not within any designated area. The potential for indirect and cumulative impacts on the Natura 2000 networks was also assessed. It was concluded that no significant impacts would result from the proposed development.

Based on the assessment of the proposed tourist development at Fuller's Folly, Newcastle West, Co. Limerick, and any possibility of impacts, it is concluded that the proposed development will not result in any significant adverse impacts on any Natura 2000 site. Therefore, it is concluded that Appropriate Assessment is not required.



TABLE OF CONTENTS

1. INTRODUCTION	4
1.1 CONSULTATION	4
1.2 LEGISLATIVE CONTEXT	5
2. METHODOLOGY	8
2.1 DESK STUDY	8
2.2 ASSESSMENT METHODOLOGY	8
3. DESCRIPTION OF PROJECT CHARACTERISTICS	10
4 IDENTIFICATION OF RELEVANT NATURA 2000 SITES	11
4.1 RATIONALE FOR APPROPRIATE ASSESSMENT SCREENING	11
4.2 NATURA 2000 SITES CONSIDERED FOR THE PROPOSED WORKS	13
4.2.1 <i>Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA</i>	13
4.2.2 <i>Lower River Shannon SAC</i>	13
4.2.3 <i>Askeaton Fenn Complex SAC</i>	14
5. ASSESSMENT OF EFFECTS	19
5.1 ASSESSMENT OF POTENTIAL DIRECT IMPACTS AFFECTING NATURA 2000 SITES	19
5.2 ASSESSMENT OF POTENTIAL INDIRECT IMPACTS AFFECTING NATURA 2000 SITES	19
5.3 ASSESSMENT OF POTENTIAL CUMULATIVE IMPACTS AFFECTING THE NATURA 2000 SITE	20
6. SCREENING STATEMENT WITH CONCLUSIONS	21
REFERENCES	22
APPENDIX 1 NPWS SITE SYNOPSES	23



1. INTRODUCTION

The current document provides an Appropriate Assessment Screening for a proposed development at Fuller's Folly, Newcastle West, County Limerick. This report assesses whether the proposed development at this location is likely to have a significant effect on the Natura 2000 site network. Figure 1 outlines the location of local Natura 2000 within 15km of the proposed development. Effects upon the conservation objectives and qualifying interests (including habitats and species) within the affected designated areas are considered.

The proposed development is a relatively small-scale development of an existing building in Newcastle West town, as a tourist attraction. The development area is c. 0.0477 ha in size and adjacent to the Arra River (EPA code: IE_SH_24A040500), which flows in a easterly direction to its confluence with the Deel (Newcastle West) River (EPA code: IE_SH_24D020800).

Appropriate Assessment is required under Article 6 of the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (1992) or the Birds Directive (2009). This report assesses whether this development is likely to have a significant effect on the Natura 2000 site network. Effects upon the conservation objectives and qualifying interests (including habitats and species) within the affected designated areas are considered. The current document meets this requirement by providing a Screening Assessment of the development and follows the guidance for screening published by the Department of the Environment, Heritage and Local Government (DoEHLG, 2010) '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*'.

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

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

The current Screening Assessment therefore sets out to determine whether the proposed project, alone or in combination with other plans and projects, is likely to have significant effects on the Natura 2000 sites within the study area.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). When assessing the significance of potential effects, DoEHLG (2010) recommends that "*a precautionary approach is fundamental and, in cases of uncertainty, it should be assumed the effects could be significant*".

1.1 Consultation

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

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



1.2 Legislative context

Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora - '*The Habitats Directive*', has been transposed into Irish law by The European Community (Natural Habitats) Regulations 1997 (S.I. No. 94/1997).

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

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

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

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

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

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

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

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



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

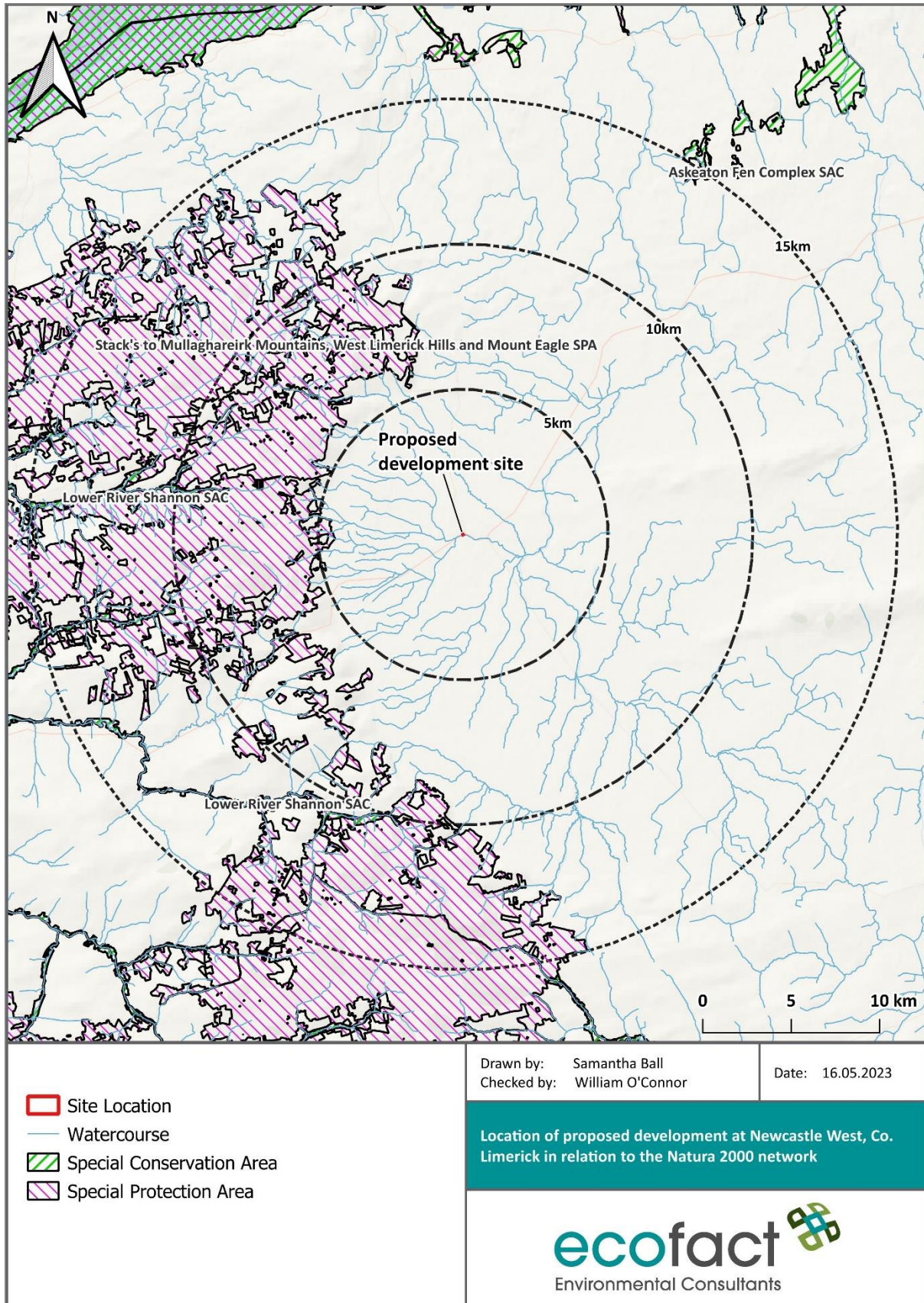


Figure 1 Natura 2000 sites within 15km of the proposed development at Fuller's Folly at Newcastle West, Co. Limerick.



2. METHODOLOGY

2.1 Desk study

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

A review of published literature was undertaken in order to collate data on the receiving environment; a range of additional sources of information including scientific reports produced by, and information on the websites of the EPA and NPWS were also reviewed. Information sources reviewed as part of the current assessment included NPWS site synopses, as well as protected species data held on the NPWS / NBDC online databases. A full bibliography of information sources reviewed is given in the reference section. Online aerial imagery was accessed to characterise the nature of proposed works locations near the Natura 2000 network.

2.2 Assessment Methodology

The current Screening for Appropriate Assessment follows the guidance published by the Department of the Environment, Heritage and Local Government (DoEHLG 2010) '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*'. Based on these guidelines, the Appropriate Assessment process is a four staged approach described below:

Stage One: Screening / Test of Significance - the process which determines, giving reasoning and conclusions, both whether a plan or project is directly connected to or necessary for the management of the Natura 2000 site and whether this plan or project, either alone or in combination with other projects and plans, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives. Mitigation cannot be provided at this stage, as per case C-323/17 People Over Wind and Peter Sweetman v Coillte, ruling of the Court of Justice of the European Union (CJEU). The European Commission (2018) guidelines describe the first stage as the pre-assessment Screening;

Stage Two: Appropriate Assessment - the consideration of the impact of the project or plan on the integrity of the Natura 2000 site, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

Stage Three: Assessment of Alternative Solutions - the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and

Stage Four: Assessment Where Adverse Impacts Remain - an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

The current report is a Screening Report. According to DoEHLG (2010), screening can result in the following possible conclusions or outcomes:



AA is not required. Screening establishes that the plan or project is directly connected with or necessary to the nature conservation management of the site.

No potential for significant effects / AA is not required. Screening establishes that there is no potential for significant effects and the project or plan can proceed as proposed. However, no changes may be made after this as this will invalidate the findings of screening. Documentation of the AA screening process, including conclusions reached and how decisions were made, must be kept on file.

Significant effects are certain, likely or uncertain. The plan or project **must either proceed to Stage 2 (AA), or be rejected.** Rejection of a plan or project that is too potentially damaging and/or inappropriate ends the process and negates any need to proceed to Stage 2 (AA).

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

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

A significant effect is defined as “*any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the site was designated, but excluding de minimis or inconsequential effects*” (English Nature 1999; EHS, 2002; Scottish Natural Heritage, 2006). Where the potential for a significant impact is identified, or if there is any uncertainty regarding an impact, then an Appropriate Assessment must be completed to assess if this effect would cause an *integrity* level impact. At Appropriate Assessment (NIS) stage mitigation can then also be specified to reduce or avoid this effect. A screening assessment cannot replace the requirement of Appropriate Assessment so if any potential impact on qualifying interests or their habitats is identified then Appropriate Assessment is required. Screening must be approached on a precautionary basis with the safeguards set out in Article 6(3) and (4) of the Habitats Directive triggered not by certainty - but by the possibility of significant effects.



3. DESCRIPTION OF PROJECT CHARACTERISTICS

The proposed development is a relatively small-scale renovation of an existing building in Newcastle West, Co. Limerick, to develop it as a tourist attraction. The proposed development covers an area c. 0.0477 ha in size and is located within an existing urban environment. The River Arra (EPA code: IE_SH_24A040500) flows adjacent to the south of the site.

It is noted that very limited details have been provided in relation to the proposed project. Indeed, the only details provided have been a series of project drawings.



4 IDENTIFICATION OF RELEVANT NATURA 2000 SITES

4.1 Rationale for Appropriate Assessment Screening

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

Following the guidelines set out by DoEHLG (2010) Appropriate Assessment Stage 1: Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3); i.e. whether a plan or project can be excluded from Appropriate Assessment requirements because it is directly connected with or necessary to the management of the site; and the potential effects of a project or plan, either alone or in combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives, and considering whether these effects will be significant.

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

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

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



Figure 2. Proposed development location for the Fuller's Folly tourist attraction at Newcastle West, Co. Limerick.



4.2 Natura 2000 sites considered for the proposed works

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) considered in the current screening are listed in Table 1. The proposed development is located within 5km of one Natura 2000 sites. Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is the closest Natura 2000 site to the proposed development situated c. 4.4km to the west of the proposed development site at Fuller's Folly, Newcastle West. The Lower River Shannon SAC is located c. 8.2km to the west of the proposed development, as well as c. 9.9km to the south and 16.4km to the north, as is the River Shannon and Fergus Estuaries SPA. Designated sites within a 15km radius of the proposed development will be considered further in relation to potential impacts arising from the proposed development.

Table 1. Designated Natura 2000 Sites within 15km of the proposed development site Fuller's Folly, Newcastle West, Co. Limerick.

Natura 2000 Site	Distance (km)
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	c. 4.4km west
Lower River Shannon SAC	c. 8.2km west
Askeaton Fen Complex SAC	c. 14.4km northeast

4.2.1 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 (004161) 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. The principal tree species present are 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.

This SPA is a stronghold for Hen Harrier *Circus cyaneus* and supports the largest concentration of the species in the country. According to the Hen Harrier Monitoring Report (2021), there were 34 pairs recorded within the SPA in 2021. The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is of ornithological importance because it provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top sites in the country for the species. The presence of three species, Hen Harrier *Circus cyaneus*, Merlin *Falco columbarius* and Short-eared Owl *Asio flammeus*, which are listed on Annex I of the E.U. Birds Directive is of note.

NPWS (2022) gives the conservation objectives for the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

4.2.2 Lower River Shannon SAC

The Lower River Shannon SAC (002165) is a very large, long site approximately 14 km wide and 120 km long, encompassing: the drained river valley which forms the River Shannon estuary; the broader River Fergus estuary, plus a number of smaller estuaries (e.g., Poulmasherry Bay); the freshwater lower reaches of the Shannon River, between Killaloe and Limerick, plus the freshwater stretches of much of the Feale and Mulkear catchments; a marine area at the mouth of the Shannon estuary with high rocky cliffs to the north and south; ericaceous heath on Kerry Head and Loop Head; and several lagoons. The underlying geology ranges from Carboniferous limestone (east of Foynes) to Namurian shales and flagstones (west of Foynes) to Old Red Sandstone (at Kerry Head). The salinity of the system varies daily with the ebb and flood of the tide and with annual rainfall fluctuations seasonally.



The Lower River Shannon SAC is of 'great ecological interest' as it contains a large number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including two priority habitats, Coastal Lagoons [1150] and Alluvial Forests [91E0], as well as the only known resident population of Bottle-nosed Dolphin *Tursiops truncatus* in Ireland and all three Irish lamprey species. In terms of Annex I habitats, this site is highly diverse, including priority Alluvial Forests [91E0] on the banks of the Shannon near Limerick; priority Coastal Lagoons [1150], including Cloonconeen Pool; Vegetated Sea Cliffs [1230] featuring lichens near Kilcredaun Point; and Reefs [1170] in the Shannon Estuary exposed to wave action, among many others.

The only known resident population of Bottle-nosed Dolphin *Tursiops truncates* [1349] is found in the estuary. Annex II listed Freshwater Pearl Mussel *Margaritifera Margaritifera* [1029] is found in the Cloon River. The Lower River Shannon SAC site is also designated due to its importance for a number of other Annex II species namely the Otter *Lutra lutra* [1355] and Atlantic salmon *Salmo salar* [1106] along with the three Irish Lamprey species; Sea lamprey *Petromyzon marinus* [10965], Brook lamprey *Lampetra planeri* [1096] and River lamprey *Lampetra fluviatilis* [1099].

NPWS (2012a) gives the conservation objectives for the Lower River Shannon SAC.

4.2.3 Askeaton Fenn Complex SAC

Askeaton Fen Complex SAC 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. In Askeaton Fen Complex SAC a diversity of fen types are represented in a gradation from open water to drier seepage areas. 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.

NPWS (2018) gives the conservation objectives for the Askeaton Fenn Complex SAC.



Table 2 Summary details of the designated Natura 2000 sites within 15km of the site of the proposed development at Fuller's Folly, Newcastle West, Co. Limerick considered in the current screening.

Natura 2000 Site	Qualifying Interests	Location in Relation to Proposed Development Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	Hen Harrier (<i>Circus cyaneus</i>) [A082]	This SPA is located 4.4km west of the proposed development site. The site and the proposed development are separated by agricultural land and urban development. There is no hydrological connection between the development site and the SPA.	No	None- The two sites are sufficiently geographically isolated from each other and there is no direct hydrological connection between the two sites. There is no suitable habitat for Hen Harriers within, or adjacent to, the proposed development site.
Lower River Shannon SAC (002165)	Sandbanks which are slightly covered by sea water all the time [1110]	This habitat type is present in the main channel of the Lower Shannon SAC which lies to the north of the site and 29km downstream from the proposed development site. This habitat type is geographically separated from the development site.	No	Geographic separation – No pathway for impacts
	Estuaries [1130]			
	Mudflats and sandflats not covered by seawater at low tide [1140]			
	Coastal lagoons [1150]			
	Large shallow inlets and bays [1160]			
	Perennial vegetation of stony banks [1220]			



Natura 2000 Site	Qualifying Interests	Location in Relation to Proposed Development Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
	<p>Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]</p> <p>Salicornia and other annuals colonising mud and sand [1310]</p> <p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]</p> <p>Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</p> <p>Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]</p> <p>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]</p>			
	<p>Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) [1029]</p>	<p>This species is geographically separated from the proposed development as it is only found in the Cloon river, c. 80km downstream from the site</p>	<p>No</p>	<p>Geographic separation – No pathway for impacts</p>
	<p>Sea Lamprey (<i>Petromyzon marinus</i>) [1095]</p>	<p>The closest section of the SAC to the proposed development site is located 8.4km to the west. However, there is no hydrological connection between these two sections. To the north of the development site, the SAC is located c. 29km downstream from the Arra river which flows adjacent to the development site.</p>	<p>Yes</p>	<p>None- there are no changes to site use, the new facility will be self-contained, and products will not produce dust. No potential for significant impacts</p>
	<p>Brook Lamprey (<i>Lampetra planeri</i>) [1096]</p>		<p>Yes</p>	



Natura 2000 Site	Qualifying Interests	Location in Relation to Proposed Development Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
	River Lamprey (<i>Lampetra fluviatilis</i>) [1099]	The closest section of the SAC to the proposed development site is located 8.4km to the west. However, there is no hydrological connection between these two sections. To the north of the development site, the SAC is located c. 29km downstream from the Arra river which flows adjacent to the development site.	Yes	
	Salmon (<i>Salmo salar</i>) [1106]	The closest section of the SAC to the proposed development site is located 8.4km to the west. However, there is no hydrological connection between these two sections. To the north of the development site, the SAC is located c. 29km downstream from the Arra river which flows adjacent to the development site.	Yes	
	Common Bottlenose Dolphin (<i>Tursiops truncatus</i>) [1349]	This species is present within the main channel of the SAC only, to the north of the site.	No	Geographic separation – No pathway for impacts
	Otter (<i>Lutra lutra</i>) [1355]	The closest section of the SAC to the proposed development site is located 8.4km to the west. However, there is no hydrological connection between these two sections. To the north of the development site, the SAC is located c. 29km downstream from the Arra river which flows adjacent to the development site, but not through it..	Yes	None- there are no changes to site use, the new facility will be self-contained, and products will not produce dust. No potential for significant impacts



Natura 2000 Site	Qualifying Interests	Location in Relation to Proposed Development Site	Potential Pathway for Impacts (Yes / No)	Potential for Significant Impacts
Askeaton Fen Complex SAC (002279)	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i> [7210]	This SAC is located c 14.3km north-east of the development site. They are geographically separated.	No	None - due to the geographical separation between the proposed development site and this habitat in the SAC– there is no potential for impacts to travel this distance.
	Alkaline fens [7230]			



5. ASSESSMENT OF EFFECTS

The potential direct, indirect and cumulative impacts on Natura 2000 sites identified in Section 4 resulting from the proposed works at Fuller's Folly, Newcastle West, Co. Limerick are discussed below.

5.1 Assessment of potential direct impacts affecting Natura 2000 sites

The proposed works at Fuller's Folly, Newcastle West are located outside of the Natura 2000 network. The planned works at this location therefore will not result in any direct impacts on any designated area. The nearest Natura 2000 site to the proposed works is the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, located approximately 4.4km west of the proposed development.

5.2 Assessment of potential indirect impacts affecting Natura 2000 sites

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

The proposed development site is situated approximately 4.4km west of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. The two locations are separated by agricultural land and urban development, neither of which are suitable habitat for Hen Harrier. Details were not provided regarding the construction phase of the proposed development but are unlikely to give rise to indirect disturbance impacts to Hen Harrier, which is listed as the qualifying interest of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. Likewise, due to geographical separation and the small scale of the proposed development, indirect disturbance impacts to any qualifying interests of the Natura 2000 sites considered in this report is unlikely.

No significant risk of invasive species impacts is associated with the proposed works. There are no records of invasive species present on the proposed site according to the National Biodiversity Data Centre (NBDC, 2023) website. However, there are records of Indian Balsam (*Impatiens glandulifera*) and Japanese Knotweed (*Fallopia japonica*) adjacent to the development site. As the proposed development is situated at a distance to any of the Natura 2000 sites; standard best practice procedures during construction are sufficient to prevent invasive species introduction.

Water quality is an important indicator of conservation value for aquatic Natura 2000 sites. There is no watercourse within the proposed development site, but the River Arra flows adjacent to the site. The Lower River Shannon SAC is sufficiently geographically separated from the proposed development site and this SAC will not be affected by any water quality impacts from the proposed development. With respect to the scale of the development and the distance from this Natura 2000 site, there is no potential for changes to key species for which the site is designated and no reduction in species density due to changes in water quality will be caused by the proposed development.

The proposed works at Fuller Folly, Newcastle West are located outside of the Natura 2000 network and within an urban area. Therefore, no impacts on any Natura 2000 sites, or qualifying interests are anticipated for this development when operational.



5.3 Assessment of potential cumulative impacts affecting the Natura 2000 site

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

According to the Limerick City & County Council Planning website, there a number of small developments adjacent to the proposed development site at Fuller's Folly, which have recently been granted. These developments mainly include the upgrading or renovation of existing buildings, either as home improvements or for converting the property usage from residential to commercial use (planning ID's: 20227, 20785 and 27131). As these developments are small in scale and located sufficiently from the Natura 2000 network, no cumulative impacts are anticipated on Natura 2000 sites or their qualifying interests.



6. SCREENING STATEMENT WITH CONCLUSIONS

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

The proposed tourist development at Fuller's Folly, Newcastle West, County Limerick is located c. 4.4km from the closest Natura 2000 site. It is noted that very limited details have been provided in relation to the proposed project. Indeed, the only details provided have been a series of project drawings. However, it can still be concluded that the proposed development will not result in significant impacts on the any Natura 2000 sites, or the qualifying interests of these sites. This is due to the relatively small scale of the proposed development and the distance, separation, and absence of pathways for effects. No direct impacts to the Natura 2000 sites are envisaged as the proposed works are located outside the boundary of these designated areas. Indirect and cumulative impacts were also considered in the context of the proposed development. The Lower River Shannon SAC at >25km downstream is sufficiently geographically separated from the proposed development site and this SAC will not be affected by any water quality impacts from the proposed development.

The current assessment has determined that there would be no impacts arising from the proposed development that have the potential to result in significant adverse effects on the Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, Lower River Shannon SAC or Askeaton Fen Complex SAC.

From the examination of the information available it is assessed that the proposed development will not result in significant impacts to the Natura 2000 network. Based on the information provided, it is not considered necessary for the 'Appropriate Assessment' process to proceed to Stage 2 (NIS).

Table 3. DoEHLG (2010) potential findings, outcomes and conclusion for Screening for Appropriate Assessment for Fuller's Folly, Newcastle West, County Limerick.

Finding	Potential Outcome	Conclusion
Project is directly connected to or necessary for the management of a designated site	Stage 2 (AA) is not required	
No potential for significant effects	Stage 2 (AA) is not required	✓
Potential for significant effects identified, or potential for impacts is uncertain	Stage 2 (AA) is required and a Natura Impact Statement will be prepared	



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APPENDIX 1 NPWS Site Synopses

SITE NAME: Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
SITE CODE: 004161

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 is skirted by the towns of Newcastle West, Ballydesmond, Castleisland, Tralee and Abbeyfeale. The mountain peaks included in the site are not notably high or indeed pronounced, the highest being at Knockfeha (451 m). Other mountains included are Mount Eagle, Knockanefune, Garraunbaun, Taur, Rock Hill, Knockacummer, Mullaghmuish, Knight's Mt, Ballincollig Hill, Beennageeha Mt, Sugar Hill, Knockanimpuba and Knockathea, amongst others. 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 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. The principal tree species present are 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 cespitosus*) and Purple Moor-grass (*Molinia caerulea*). The remainder of the site is mostly rough grassland that is used for hill farming. This varies in composition and includes some wet areas with rushes (*Juncus* spp.) and some areas subject to scrub encroachment.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier (*Circus cyaneus*).

This SPA is a stronghold for Hen Harrier and supports the largest concentration of the species in the country. A survey in 2005 recorded 45 pairs, which represents over 20% of the all-Ireland total. A similar number of pairs had been recorded in the 1998-2000 period. 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, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage 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. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey.

Short-eared Owl (*Asio flammeus*), a very rare species in Ireland, has been known to breed within the site. Nesting certainly occurred in the late 1970s and birds have been recorded intermittently since. The owls are considered to favour this site due to the presence of Bank Voles, a favoured prey item. Merlin also breed within the site but the size of the population is not known. Red Grouse is found on some of the unplanted areas of bog and heath – this is a species that has declined in Ireland and is now Red-listed.

The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is of ornithological importance because it provides excellent nesting and foraging habitat for breeding Hen Harrier and is one the top sites in the country for the species. The presence of three species, Hen Harrier, Merlin and Short-eared Owl, which are listed on Annex I of the E.U. Birds Directive is of note.



SITE NAME: LOWER RIVER SHANNON SAC
SITE CODE: 002165

This very large site stretches along the Shannon valley from Killaloe 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. The Shannon and Fergus flow through Carboniferous limestone as far as Foynes, but west of Foynes Namurian shales and flagstones dominate (except at Kerry Head, which is formed from Old Red Sandstone). The eastern sections of the Feale catchment flow through Namurian Rocks and the western stretches through Carboniferous Limestone. The Mulkear flows through Lower Palaeozoic Rocks in the upper reaches before passing through Namurian Rocks, followed by Lower Carboniferous Shales and Carboniferous Limestone. The Mulkear River itself, immediately north of Pallas Green, passes through an area of Rhyolites, Tuffs and Agglomerates. Rivers within the subcatchment of the Feale include the Galey, Smearlagh, Oolagh, Allaughaun, Owveg, Clydagh, Caher, Breanagh and Glenacarney. Rivers within the sub-catchment of the Mulkear include the Killeenagarrieff, Annagh, Newport, the Dead River, the Bilboa, Glashacloonaraveela, Gortnageragh and Cahernahallia.

The site is a SAC selected for lagoons and alluvial wet woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic salmon, and Otter.

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 (considered to be a line across the narrow strait between Kilcredaun Point and Kilconly Point). Within this main unit there are several tributaries with their own 'sub-estuaries' e.g., the Deel River, Mulkear River, and Mague River. To the west of Foynes, a number of small estuaries form indentations in the predominantly hard coastline, namely Poulmasherry Bay, Ballylongford Bay, Clonderalaw Bay and the Feale or Cashen River Estuary.

Both the Fergus and inner Shannon estuaries feature vast expanses of intertidal mudflats, often fringed with saltmarsh vegetation. The smaller estuaries also feature mudflats, but have their own unique characteristics, e.g., Poulmasherry Bay is stony and unusually rich in species and biotopes. Plant species are typically scarce on the mudflats, although there are some Eel-grass beds (*Zostera* spp.) and patches of green algae (e.g., *Ulva* sp. and *Enteromorpha* sp.). The main macro-invertebrate community, which has been noted from the inner Shannon and Fergus estuaries, is a *Macoma-Scrobicularia-Nereis* community.

In the transition zone between mudflats and saltmarsh, specialised colonisers of mud predominate: swards of Common Cord-grass (*Spartina anglica*) frequently occur in the upper parts of the estuaries. Less common are swards of Glasswort (*Salicornia europaea* agg.). In the innermost parts of the estuaries, the tidal channels or creeks are fringed with species such as Common Reed (*Phragmites australis*) and Club-rushes (*Scirpus maritimus*, *S. tabernaemontani* and *S. triquetrus*). In addition to the nationally rare Triangular Club-rush (*Scirpus triquetrus*), two scarce species are found in some of these creeks (e.g., Ballinacurra Creek): Lesser Bulrush (*Typha angustifolia*) and Summer Snowflake (*Leucojum aestivum*).



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. The dominant type of saltmarsh present is Atlantic salt meadow occurring over mud. Characteristic species occurring include Common Saltmarsh Grass (*Puccinellia maritima*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Sea-milkwort (*Glaux maritima*), Sea Plantain (*Plantago maritima*), Red Fescue (*Festuca rubra*), Creeping Bent (*Agrostis stolonifera*), Saltmarsh Rush (*Juncus gerardi*), Long-bracted Sedge (*Carex extensa*), Lesser Seaspurrey (*Spergularia marina*) and Sea Arrowgrass (*Triglochin maritima*). 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 compass of Common Saltmarsh-grass (*Puccinellia maritima*) and Hard-grass (*Parapholis strigosa*).

Saltmarsh vegetation also occurs around a number of lagoons within the site. The two which have been surveyed as part of a National Inventory of Lagoons are Shannon Airport Lagoon and Cloonconeen Pool. Cloonconeen Pool (4-5 ha) is a natural sedimentary lagoon impounded by a low cobble barrier. Seawater enters by percolation through the barrier and by over-wash. This lagoon represents a type which may be unique to Ireland since the substrate is composed almost entirely of peat. The adjacent shore features one of the best examples of a drowned forest in Ireland. Aquatic vegetation in the lagoon includes typical species such as Beaked Tasselweed (*Ruppia maritima*) and green algae (*Cladophora* sp.). The fauna is not diverse but is typical of a high salinity lagoon and includes six lagoon specialists (*Hydrobia ventrosa*, *Cerastoderma glaucum*, *Lekanesphaera hookeri*, *Palaemonetes varians*, *Sigara stagnalis* and *Enochrus bicolor*). In contrast, 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*).

Most of the site west of Kilcredaun Point/Kilconly Point is bounded by high rocky sea cliffs. The cliffs in the outer part of the site are sparsely vegetated with lichens, Red Fescue, Sea Beet (*Beta vulgaris*), Sea Campion (*Silene maritima*), Thrift and Plantains (*Plantago* spp.). A rare endemic Sea Lavender (*Limonium recurvum* subsp. *pseudotranswallinum*) occurs on cliffs near Loop Head. Cliff-top vegetation usually consists of either grassland or maritime heath. The boulder clay cliffs further up the estuary tend to be more densely vegetated, with swards of Red Fescue and species such as Kidney Vetch (*Anthyllis vulneraria*) and Bird's-foot Trefoil (*Lotus corniculatus*).

The site supports an excellent example of a large shallow inlet and bay. Littoral sediment communities in the mouth of the Shannon Estuary occur in areas that are exposed to wave action and also in areas extremely sheltered from wave action. Characteristically, exposed sediment communities are composed of coarse sand and have a sparse fauna. Species richness increases as conditions become more sheltered. All shores in the site have a zone of sand hoppers at the top and below this each of the shores has different characteristic species giving a range of different shore types in the cSAC.

The intertidal reefs in the Shannon Estuary are exposed or moderately exposed to wave action and subject to moderate tidal streams. Known sites are steeply sloping and show a good zonation down the shore. Well developed lichen zones and littoral reef communities offering a high species richness in the sublittoral fringe and strong populations of *Paracentrotus lividus* are found. The communities found are tolerant to sand scour and tidal streams. The infralittoral reefs range from sloping platforms with some vertical steps to ridged bedrock with gullies of sand between the ridges to ridged bedrock with boulders or a mixture of cobbles, gravel and sand. Kelp is very common to about 18m. Below this it becomes



rare and the community is characterised by coralline crusts and red foliose algae. Flowing into the estuaries are a number of tidal rivers.

Other coastal habitats that occur within the site include the following:

- Stony beaches and bedrock shores - these shores support a typical zonation of seaweeds (*Fucus* spp., *Ascophyllum nodosum* and kelps).
- Shingle beaches - the more stable areas of shingle support characteristic species such as Sea Beet, Sea Mayweed (*Matricaria maritima*), Sea Campion and Curled Dock (*Rumex crispus*).
- Sandbanks which are slightly covered by sea water at all times – there is a known occurrence of sand/gravel beds in the area from Kerry Head to Beal Head.
- Sand dunes - a small area of sand dunes occurs at Beal Point. The dominant species is Marram Grass (*Ammophila arenaria*).

Freshwater rivers have been included in the site, most notably the Feale and Mulkear catchments, the Shannon from Killaloe to Limerick (along with some of its tributaries, including a short stretch of the Kilmastulla River), the Fergus up as far as Ennis, and the Cloon River. These systems are very different in character: the Shannon being broad, generally slow-flowing and naturally eutrophic; the Fergus being smaller and alkaline; while the narrow, fast-flowing Cloon is acid in nature. The Feale and Mulkear catchments exhibit all the aspects of a river from source to mouth. Seminatural habitats, such as wet grassland, wet woodland and marsh occur by the rivers, however, improved grassland is most common. One grassland type of particular conservation significance, *Molinia* meadows, occurs in several parts of the site and the examples at Worldsend on the River Shannon are especially noteworthy. Here are found areas of wet meadow dominated by rushes and sedges and supporting diverse and species-rich vegetation, including such uncommon species as Blue-eyed Grass (*Sisyrinchium bermudiana*) and Pale Sedge (*Carex pallescens*).

Floating river vegetation characterised by species of Water-crowfoot (*Ranunculus* spp.), Pondweeds (*Potamogeton* spp.) and the moss *Fontinalis antipyretica* are present throughout the major river systems within the site. The rivers contain an interesting bryoflora with *Schistidium alpicola* var. *alpicola* recorded from in-stream boulders on the Bilboa, new to County Limerick.

Alluvial woodland occurs on the banks of the Shannon and on islands in the vicinity of the University of Limerick. The woodland is up to 50m wide on the banks and somewhat wider on the largest island. The most prominent woodland type is gallery woodland where White Willow (*Salix alba*) dominates the tree layer with occasional Alder (*Alnus glutinosa*). The shrub layer consists of various willow species with sally (*Salix cinerea* ssp. *oleifolia*) and what appear to be hybrids of *S. alba* x *S. viminalis*. The herbaceous layer consists of tall perennial herbs. A fringe of Bulrush (*Typha* sp.) occurs on the riverside of the woodland. On slightly higher ground above the wet woodland and on the raised embankment remnants of mixed oak-ash-alder woodland occur. These are poorly developed and contain numerous exotic species but locally there are signs that it is invading open grassland. Alder is the principal tree species with occasional Oak (*Quercus robur*), Elm (*Ulmus glabra*, *U. procera*), Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and the shrubs Guelder-rose (*Viburnum opulus*) and willows. The ground flora is species-rich.

Woodland is infrequent within the site; however, Cahiracon Wood contains a strip of old Oak woodland. Sessile Oak (*Quercus petraea*) forms the canopy, with an understorey of Hazel and Holly (*Ilex aquifolium*). Great Wood-rush (*Luzula sylvatica*) dominates the ground flora. Less common species present include Great Horsetail (*Equisetum telmateia*) and Pendulous Sedge (*Carex pendula*).



In the low hills to the south of the Slievefelim Mountains, the Cahernahallia River cuts a valley through the Upper Silurian rocks. For approximately 2km south of Cappagh Bridge at Knockanavar, the valley sides are wooded. The woodland consists of Birch (*Betula* spp.), Hazel, Oak, Rowan (*Sorbus aucuparia*), some Ash (*Fraxinus excelsior*) and Willow (*Salix* spp.). Most of the valley is not grazed by stock, and as a result the trees are regenerating well. The ground flora feature prominent Greater wood-rush and Bilberry (*Vaccinium myrtillus*) with a typical range of woodland herbs. Where there is more light available, Bracken (*Pteridium aquilinum*) features.

The valley sides of the Bilboa and Gortnageragh Rivers, on higher ground northeast of Cappamore, support patches of semi-natural broadleaf woodland dominated by Ash, Hazel, Oak and Birch. There is a good scrub layer with Hawthorn, Willow, Holly and Blackthorn (*Prunus spinosa*) common. The herb layer in these woodlands is often open with a typically rich mixture of woodland herbs and ferns. Moss species diversity is high. The woodlands are ungrazed. The hazel is actively coppiced in places. There is a small area of actively regenerating cut away raised bog at Ballyrorheen. It is situated approx. 5km northwest of Cappamore Co. Limerick. The bog contains some wet areas with good moss (*Sphagnum*) cover. Species of particular interest include the Cranberry (*Vaccinium oxycoccos*) and the White Sedge (*Carex curta*) along with two other regionally rare mosses including *S. fimbriatum*. The site is being invaded by Birch (*Betula pubescens*) scrub woodland. Both commercial forestry and the spread of rhododendron has greatly reduced the overall value of the site. A number of plant species that are Irish Red Data Book species occur within the site; several are protected under the Flora (Protection) Order, 1999:

- Triangular Club-rush (*Scirpus triquetrus*) - in Ireland this protected species is only found in the Shannon Estuary, where it borders creeks in the inner estuary.
- Opposite-leaved Pondweed (*Groenlandia densa*) - this protected pondweed is found in the Shannon where it passes through Limerick City.
- Meadow Barley (*Hordeum secalinum*) - this protected species is abundant in saltmarshes at Ringmoylan and Mantlehill.
- Hairy Violet (*Viola hirta*) - this protected violet occurs in the Askeaton/Foynes area.
- Golden Dock (*Rumex maritimus*) - noted as occurring in the River Fergus Estuary.
- Bearded Stonewort (*Chara canescens*) - a brackish water specialist found in Shannon Airport lagoon.
- Convergent Stonewort (*Chara connivens*) - presence in Shannon Airport Lagoon to be confirmed.

Overall, the Shannon and Fergus Estuaries support the largest numbers of wintering waterfowl in Ireland. The highest count in 1995-96 was 51,423 while in 1994-95 it was 62,701. Species listed on Annex I of the E.U. Birds Directive which contributed to these totals include: Great Northern Diver (3; 1994/95), Whooper Swan (201; 1995/96), Pale-bellied Brent Goose (246; 1995/96), Golden Plover (11,067; 1994/95) and Bar-tailed Godwit (476; 1995/96). In the past, three separate flocks of Greenland White-fronted Goose were regularly found but none were seen in 1993/94. Other wintering waders and wildfowl present include Greylag Goose (216; 1995/96), Shelduck (1,060; 1995/96), Wigeon (5,976; 1995/96); Teal (2,319; 1995-96); Mallard (528; 1995/96), Pintail (45; 1995/96), Shoveler (84; 1995/96), Tufted Duck (272; 1995/96), Scaup (121; 1995/96), Ringed Plover (240; 1995/96), Grey Plover (750; 1995/96), Lapwing (24,581; 1995/96), Knot (800; 1995/96), Dunlin (20,100; 1995/96), Snipe (719; 1995/96), Black-tailed Godwit (1062; 1995/96), Curlew (1504; 1995/96), Redshank (3228; 1995/96), Greenshank (36; 1995/96) and Turnstone (107; 1995/96). A number of wintering gulls are also present, including Black-headed Gull (2,216; 1995/96), Common Gull (366; 1995/96) and Lesser Black-backed Gull (100; 1994/95).



This 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. A number of species listed on Annex I of the E.U. Birds Directive breed within the site. These include Peregrine Falcon (2-3 pairs), Sandwich Tern (34 pairs on Rat Island, 1995), Common Tern (15 pairs: 2 on Sturamus Island and 13 on Rat Island, 1995), Chough (14-41 pairs, 1992) and Kingfisher. Other breeding birds of note include Kittiwake (690 pairs at Loop Head, 1987) and Guillemot (4010 individuals at Loop Head, 1987)

There is a resident population of Bottle-nosed Dolphin in the Shannon Estuary consisting of at least 56-68 animals (1996). This is the only known resident population of this E.U. Habitats Directive Annex II species in Ireland. Otter, a species also listed on Annex II of this directive, is commonly found on the site.

Five species of fish listed on Annex II of the E.U. Habitats Directive are found within the site. These are Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad (*Allosa fallax fallax*) and Salmon (*Salmo salar*). The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries. The Fergus is important in its lower reaches for spring salmon while the Mulkear catchment excels as a grilse fishery though spring fish are caught on the actual Mulkear River. The Feale is important for both types. Twaite Shad is not thought to spawn within the site. There are few other river systems in Ireland which contain all three species of Lamprey. Two additional fish of note, listed in the Irish Red Data Book also occur, namely Smelt (*Osmerus eperlanus*) and Pollan (*Coregonus autumnalis pollan*). Only the former has been observed spawning in the Shannon.

Freshwater Pearl-mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs abundantly in parts of the Cloon River.

There is a wide range of land uses within the site. The most common use of the terrestrial parts is grazing by cattle and some areas have been damaged through overgrazing and poaching. Much of the land adjacent to the rivers and estuaries has been improved or reclaimed and is protected by embankments (especially along the Fergus Estuary). Further, reclamation continues to pose a threat as do flood relief works (e.g., dredging of rivers). Gravel extraction poses a major threat on the Feale. In the past, Cord-grass (*Spartina* sp.) was planted to assist in land reclamation. This has spread widely and may oust less vigorous colonisers of mud and may also reduce the area of mudflat available to feeding birds.

Domestic and industrial wastes are discharged into the Shannon, but water quality is generally satisfactory - except in the upper estuary, reflecting the sewage load from Limerick City. Analyses for trace metals suggest a relatively clean estuary with no influences by industrial discharges apparent. Further industrial development along the Shannon and water polluting operations are potential threats. Fishing is a main tourist attraction on the Shannon and there are a large number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The River Feale is a designated Salmonid Water under the E.U. Freshwater Fish Directive. Other uses of the site include commercial angling, oyster farming, boating (including dolphin-watching trips) and shooting. Some of these may pose threats to the birds and dolphins through disturbance. Specific threats to the dolphins include underwater acoustic disturbance, entanglement in fishing gear and collisions with fast moving craft.

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 E.U. Habitats Directive, including the priority habitat lagoon, the only known



resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species. A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the E.U. Birds Directive, primarily to protect the large numbers of migratory birds present in winter.