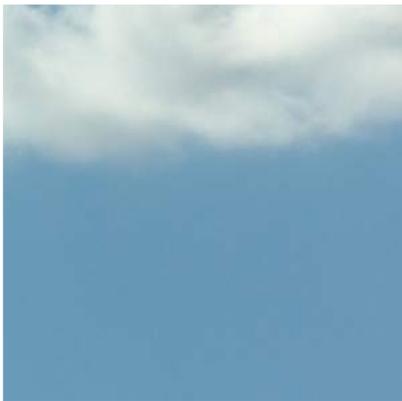
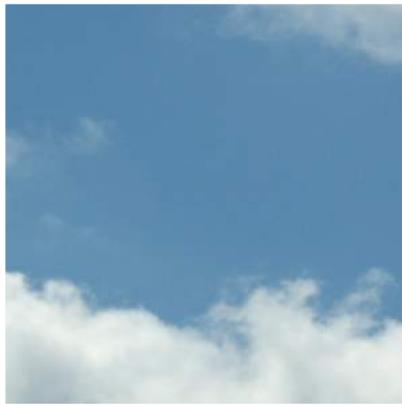
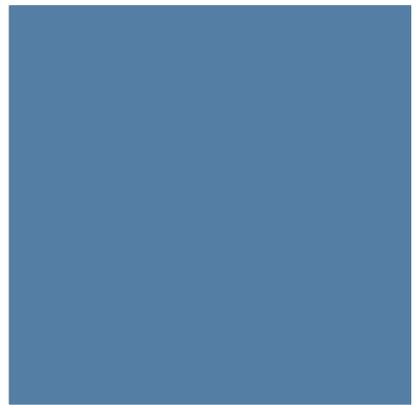


RPS

N55 Corduff to South of Killydoon - Section B

Natura Impact Assessment

April 2017



Natura Impact Statement for Section B

N55 Corduff to South of Killydoon

DOCUMENT CONTROL SHEET

Client:	Cavan County Council					
Project Title:	N55 Corduff to South of Killydoon – Section B					
Document Title:	Natura Impact Statement for Section B					
Document No:	MDT0573Rp0020					
This Document Comprises:	DCS	TOC	Text	No. of Appendices	List of Figures	List of Tables
	1	1	34	0	1	1

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
A01	Approval of Client	K. Banks	Brian Deegan	Michael Noonan	West Pier	24/03/2014
A02	Approval of Client	K. Banks	Paul Chadwick	Michael Noonan	West Pier	10/02/2015
F01	Final	K. Banks	Paul Chadwick	Michael Noonan	West Pier	April 2017

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1 INTRODUCTION

This Natura Impact Statement (NIS) contains a record of the Appropriate Assessment, undertaken by RPS on behalf of Cavan County Council, in respect of the proposed N55 Corduff to South of Killydoon – Section B road improvement scheme in Co Cavan. This report is in accordance with the requirements of Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora; the Planning and Development (Amendment) Act 2010; and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011).

1.1 SITE LOCATION AND EXISTING SITUATION

The N55 Route corridor is a National Secondary road linking the midlands towns of Cavan and Athlone, via the towns of Granard, Edgeworthstown and Ballymahon. It is strategically important to this largely agricultural region for the transport of produce to factory/market.

Cavan County Council have engaged on a programme of route improvements for the N55 within their county jurisdiction over a number of years. Route improvements have been made in a progressive way and the section of the N55 between Cavan and Ballinagh is completed to an acceptable standard. Other sections of the N55 between Ballinagh and the County Longford boundary have also been improved in short sections over recent years.

Currently the only sections of the route that have not been improved are a 1km section south of Ballinagh between the townlands of Garrymore and Pottahee and a 5.7km section between the townland of Corduff and South of the village of Killydoon. These sections of the N55 are below standards and are narrow, hilly and bendy (see **Figure 1.1**).

1.2 PHASING

It is envisaged that, for budget and funding reasons, the scheme will progress in a series of separate construction contracts. To facilitate this approach, the scheme has been designed to be amenable to procurement on a staged delivery basis. The following staged procurement process is envisaged;

1. Section A Garrymore to Pottahee – an approximately 1km long section of the N55 south of the village of Ballinagh plus Corduff to Ballytrust – Extension of the Corduff Stage 3 realignment southwards for an additional 2km to tie-in to the existing road circa 1km from the Ballytrust Bends (Chainage 3700 to Chainage 5670).
2. Section B Ballytrust to Grousehall – Extension of the above scheme for a further 3.7km to tie-in to the existing road south of Killydoon (Chainage 0 to Chainage 3700).

Due to the proposed phasing of construction, the Appropriate Assessment Screening for Section A has been completed and is a separate document MDT0573Rp0019. Section B is the subject of this AA, however Section A will also be considered when assessing the cumulative and in-combination impacts.

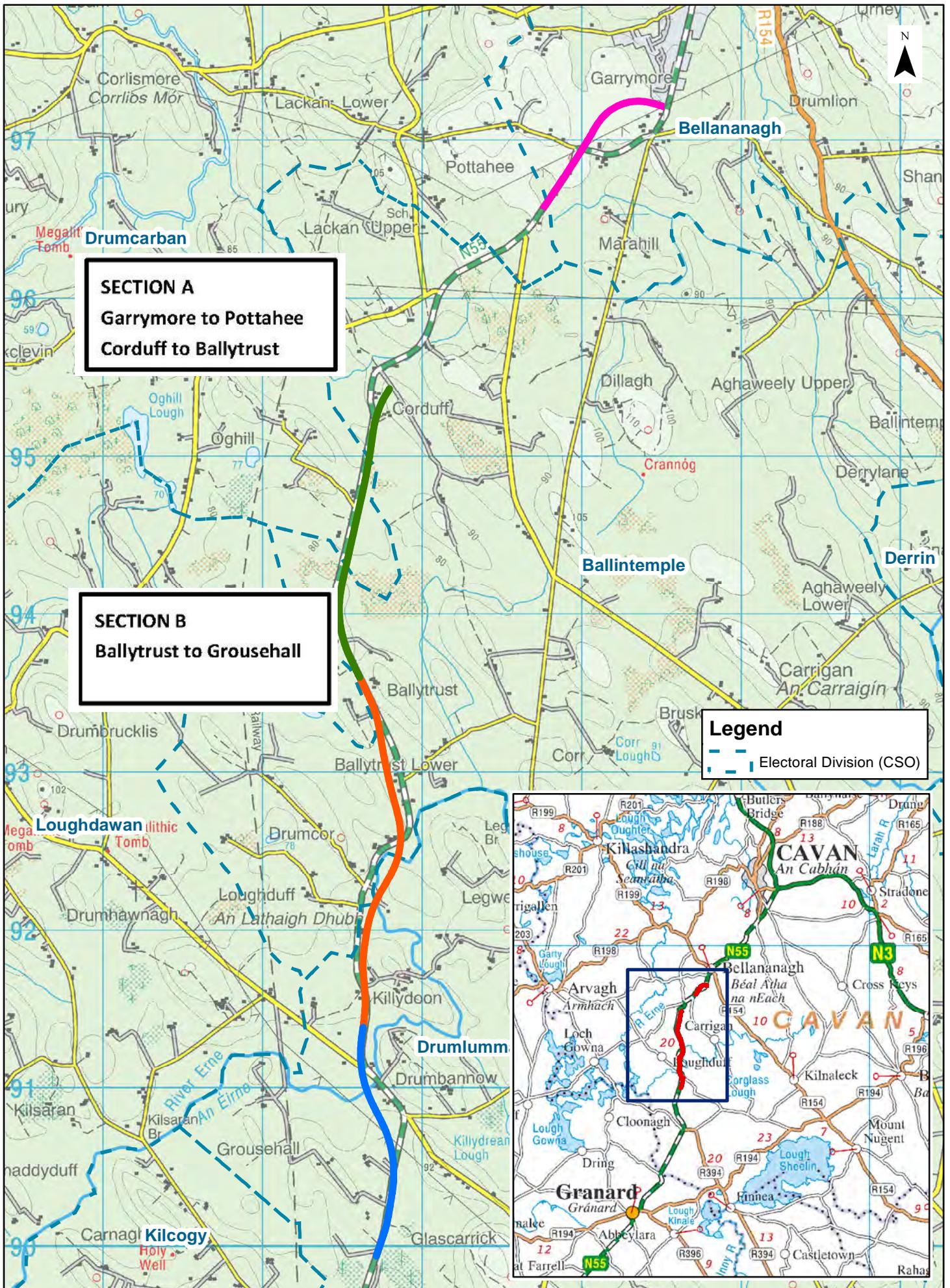


Figure 1.1 - Proposed Road Improvement Scheme

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N55 Corduff to South Killydoon



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Drawing Number	Rev		
MDT0573Arc0003D01	D01		
Drawn By	Checked By	Approved By	Date
NON	EO	EO	10/04/2014

Legislative Context – Habitats Directive

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as “The Habitats Directive”, provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of European Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs), designated under the Habitats Directive, and Special Protection Areas (SPAs), designated under the Conservation of Wild Birds Directive (79/409/ECC), as codified by Directive 2009/147/EC.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects, likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment of Natura 2000 Sites, (abbreviated AA):

Article 6(3) states:

Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

Article 6(4) states:

If, in spite of a negative assessment of the implications for the [Natura 2000] 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, Member States 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; beneficial consequences of primary importance for the environment; or, further to an opinion from the Commission, other imperative reasons of overriding public interest.

This means that where the implementation of the proposed road improvement scheme is likely to have a significant effect on a Natura 2000 site, the Planning/Competent Authority must ensure that an appropriate assessment is carried out in view of that site’s conservation objectives. The proposed road improvement scheme can be approved by the Planning/Competent Authority only if it has been ascertained that it will not adversely affect the integrity of the Natura 2000 site(s) concerned, or in the case of a negative assessment and where there are no alternative solutions, the scheme can only be approved for reasons of overriding public interest.

2 METHODOLOGY

Both EU and national guidance exists in relation to Member States fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this AA has regard to the following guidance:

- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of Environment, Heritage and Local Government. <http://www.npws.ie>
- Managing Natura 2000 Sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC, European Commission 2000; <http://ec.europa.eu>
- 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; <http://ec.europa.eu>
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission. <http://ec.europa.eu>

These guidance documents promote a four stage assessment approach with the outcome from each stage determining if a following stage is required. The four stages are shown in **Figure 2.1** and briefly described in **Sections 2.1-2.4**.

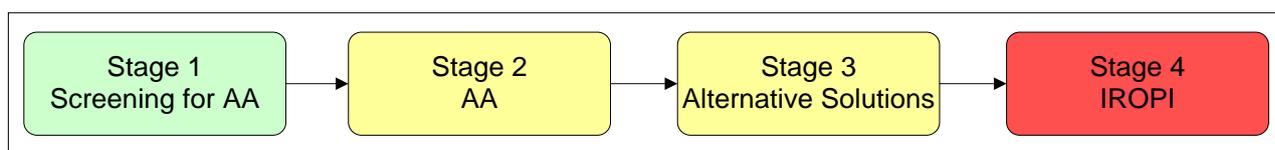


Figure 2.1: Stages of Appropriate Assessment. taken from **Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (2010)**.

2.1 STAGE 1

Screening / Test of Significance - this stage identifies whether the project is directly connected to or necessary for the management of a Natura 2000 site; and identifies whether the project is likely to have significant impacts upon a Natura 2000 site either alone or in combination with other projects or plans.

The output from this stage is a determination of not significant, significant, potentially significant, or uncertain effects for each Natura 2000 site within 15km of the project. The latter three determinations will cause that site to be brought forward to Stage 2.

2.2 STAGE 2

Appropriate Assessment – this stage considers the impact of the project on the integrity of the Natura 2000 site(s), either alone or in combination with other projects or plans, with respect to (1) the site's conservation objectives; and (2) the site's structure and function and its overall integrity. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts

The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the competent authority to carry out the appropriate assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must consider alternatives (Stage 3) or proceed to Stage 4.

2.3 STAGE 3

Assessment of Alternative Solutions - the process examines alternative ways of achieving the objectives of the project that avoid adverse impacts on the integrity of the Natura 2000 sites. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or all alternatives would result in negative impacts to the integrity of the Natura 2000 sites then the process either moves to Stage 4 or the project is abandoned.

2.4 STAGE 4

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.

2.5 SITE WALKOVER SURVEY

Field surveys were carried out in March, 2014, to identify the presence of Annex I Habitats and Annex II Species in the River Erne along the potentially impacted stretch.

Surveys were undertaken at the location of the proposed bridges and along both the upstream and downstream stretches of the proposed works.

3 STAGE ONE: SCREENING

3.1 INTRODUCTION

This screening process is an assessment of the Natura 2000 sites that Section B of the proposed road improvement scheme could potentially affect. This process:

- Identifies sites within a 15km radius of the proposed works;
- Provides an outline summary of the proposed development;
- Summarises what the possible effects on those Natura 2000 sites could be; and
- Screens out Natura 2000 sites that are unlikely to be affected.

3.2 DESCRIPTION OF PROJECT

The proposed development is an improvement of the N55 National Secondary Route within the existing route corridor, as shown in **Figure 1.1**. It includes on-line and off-line sections, with the aim of improving the alignment while minimising costs by making use of the existing roadway.

Section B of the scheme commences at Ballytrust and runs to Grousehall south of Killydoon (Ch 0 to Ch 3700) and extends for 3.7km. (**Figures 3.1- 3.2**).

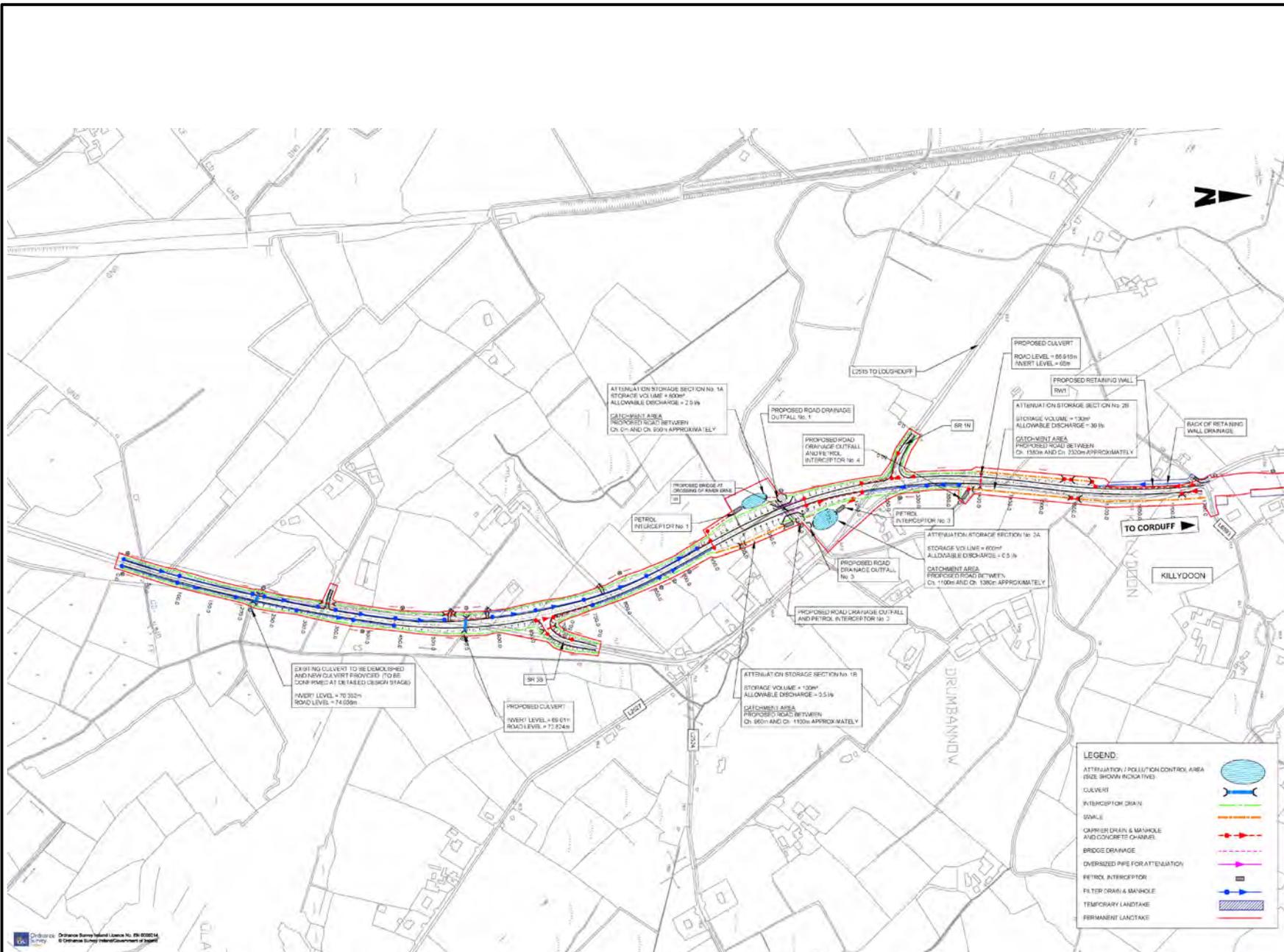
The works to be carried out as part of Section B of the N55 Corduff to South of Killydoon road scheme are summarised as follows:

- 3 no. new bridge structures over the River Erne (bridges are all single span (up to 23.5m);
- 5 no. culverts to accommodate existing watercourses;
- 7 oil/petrol interceptors; and
- 7 areas with attenuation capacity.

The Preferred Route Option is an S2 Type 2 single carriageway in accordance with DMRB TD27, incorporating 2 x 3.5m wide lanes with 0.5m wide hard strips and 3m wide verges. This is consistent with the National Secondary Roads Needs Study and also with other adjacent upgrades of the N55 in the area. The Preliminary Design of the scheme adopts a Design Speed of 100kmph.

General Earthworks

Section B of the proposed road scheme will result in a deficit of approximately 114,080m³ of acceptable material.



Client
Cavan County Council
Comhairle Chontae an Chabháin

Project
N55 Corduff to South Killydoon Scheme

Title
Realignment at Killydoon
Proposed Drainage
Figure 3.2

Issue Details

Drawn by: N. Arisaga Project No. MDT0573
 Checked by: S. Khan File Ref.
 Approved by: K. Banks MDT0573M2011D01
 Scale: Not to Scale Drawing No. Rev.
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Improved Safety Performance

The existing road is predominantly bendy and narrow. The N55 has been the subject of a number of upgrades in recent years and the sections Garrymore to Pottahee and Corduff to South of Killydoon are the remaining sections in county Cavan that have not yet been upgraded, and which the standards fall well below the National standards. As the adjacent improvements are completed, the existing unimproved sections become the exceptions rather than the norm for the N55 and this is likely to increase the potential for accidents as overall travel speeds increase on the N55. The severity of such accidents is likely to be high due to the likelihood of direct collisions between opposing traffic streams.

The proposed scheme will offer a major improvement in the quality of the route, leading to reduced risk of collision. There will also be substantial improvements in journey times.

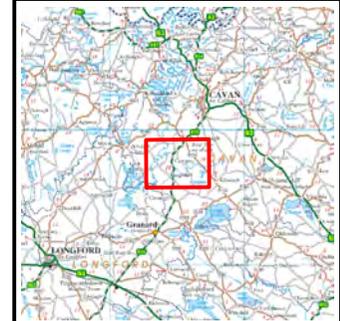
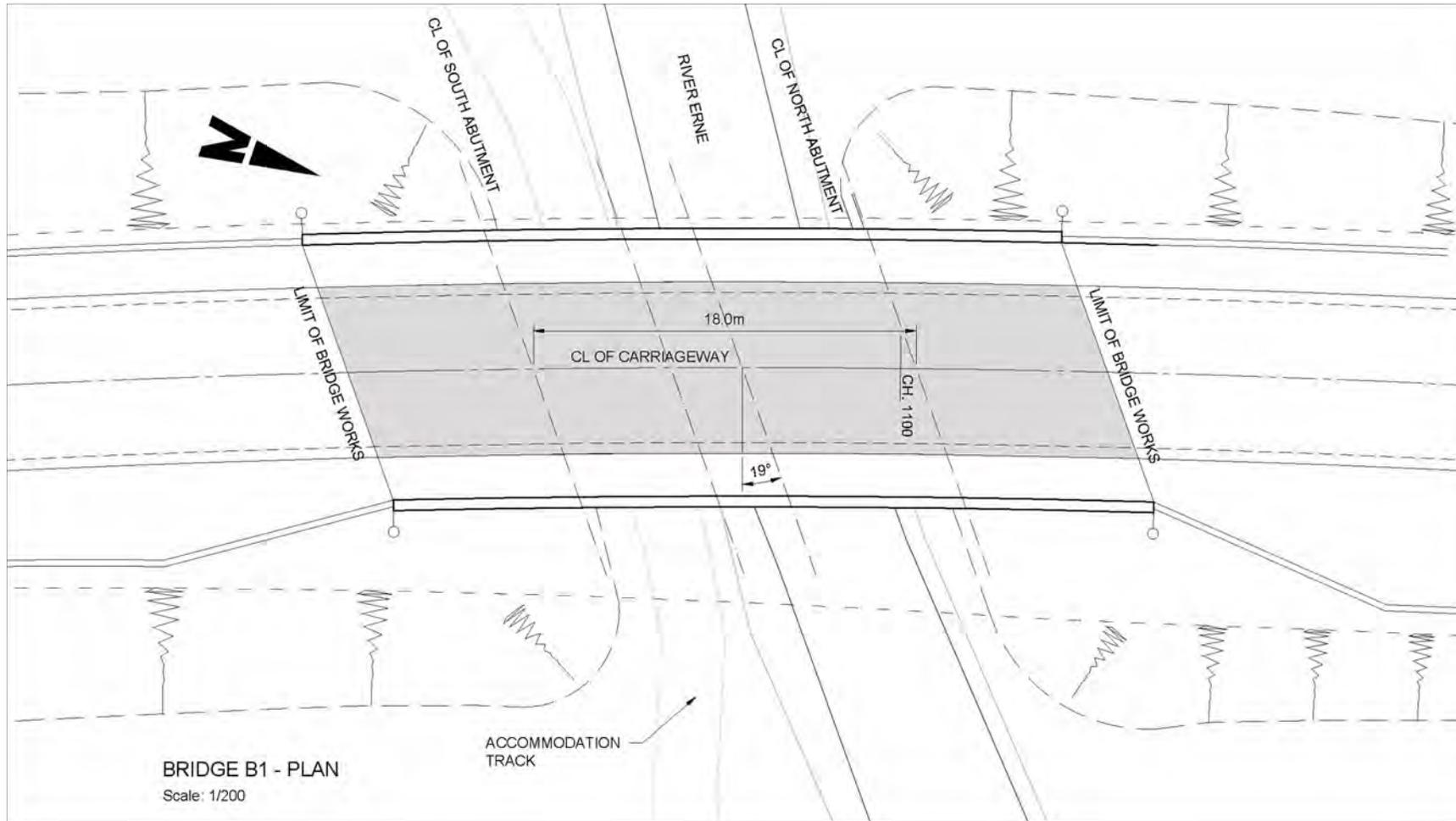
Surface Water Drainage

The drainage design of the project implements the concepts of Sustainable Drainage Systems (SuDS), and the Greater Dublin Strategic Drainage Study (GDSDS), both of which require the drainage to be carefully integrated into the scheme while taking account of the original greenfield drainage patterns. It includes provisions to control volume and rate of runoff from the road as well as provisions to remove pollutant from the runoff.

Following these design principles, the net surface water run-off from the proposed road improvement scheme will not be increased.

Bridges

It is proposed to construct three bridges to cross the River Erne at Chainage 1100 (Structure B1), Chainage 2300 (Structure B2) and Chainage 2625 (Structure B3). The river bridges are proposed to be single span (up to 23.5m) structures with full height reinforced concrete abutments (**Figures 3.3 – 3.5**).



Client

Project N55 Corduff to South Killydoon Scheme

Title

Southern Section Bridge B1 - Plan

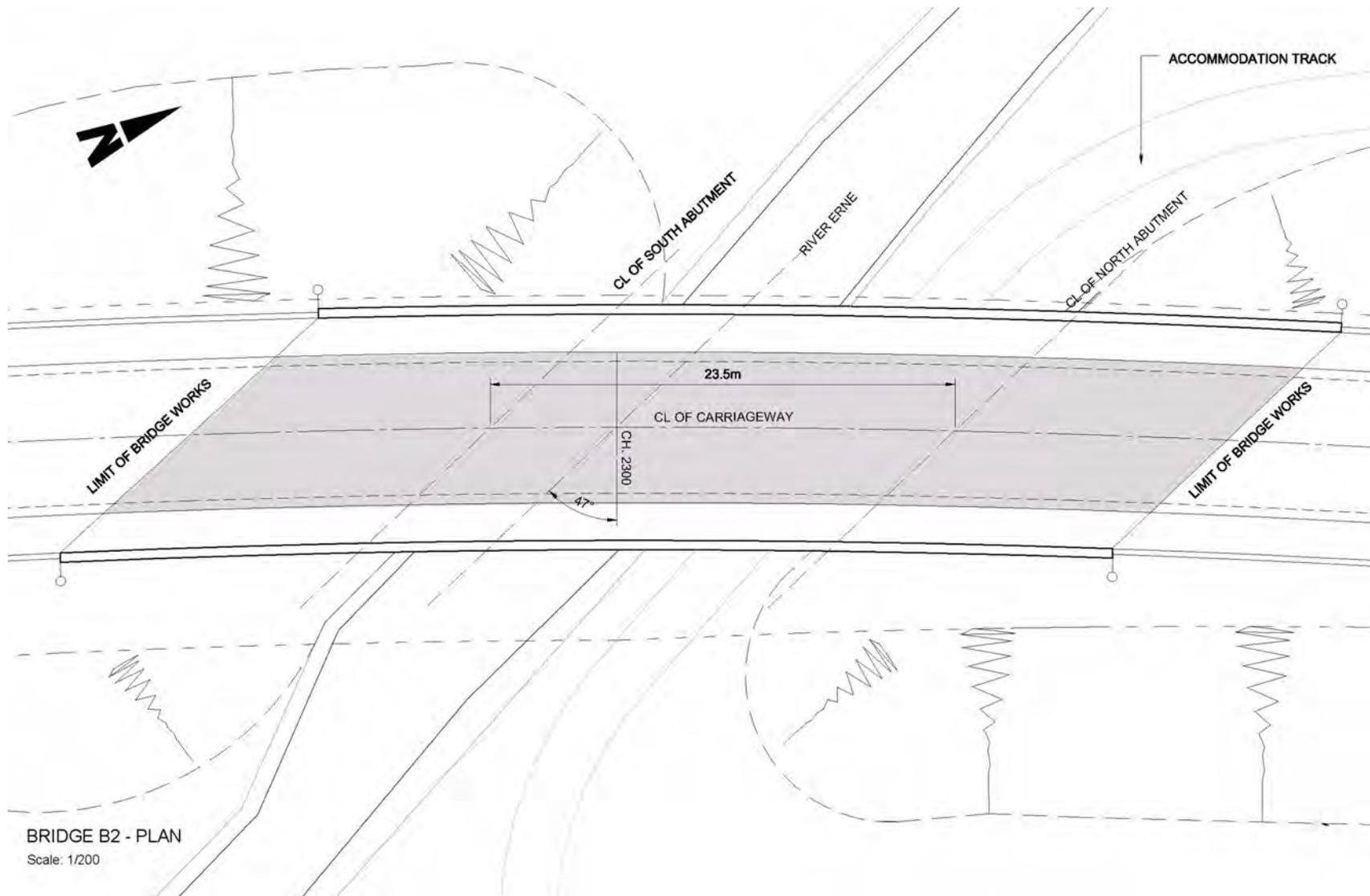
Figure 3.3



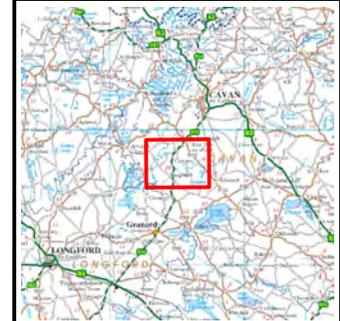
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BRIDGE B2 - PLAN
Scale: 1/200



Project N55 Corduff to South Killydoon Scheme

Title
Southern Section Bridge B2 - Plan

Figure 3.4

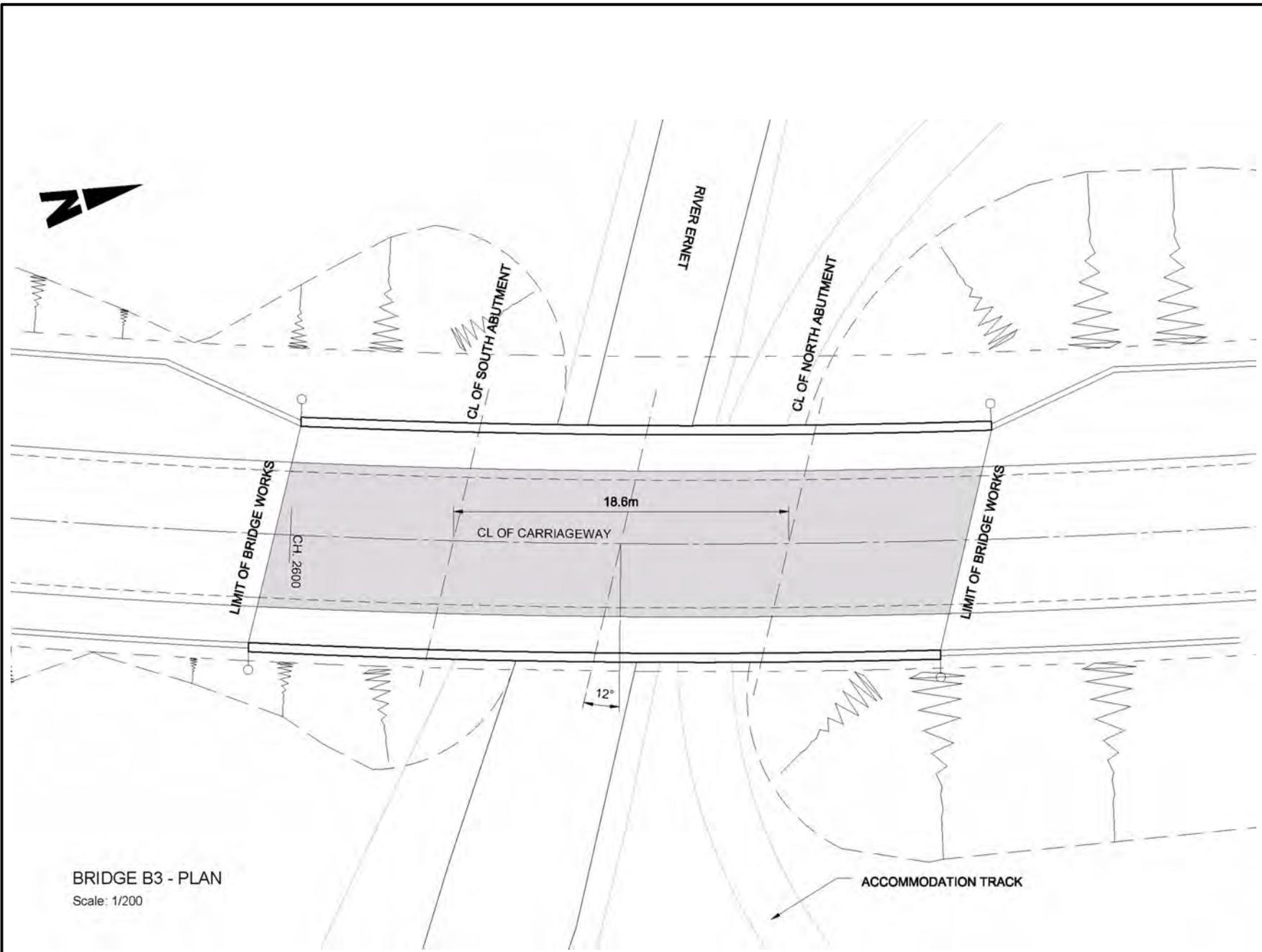


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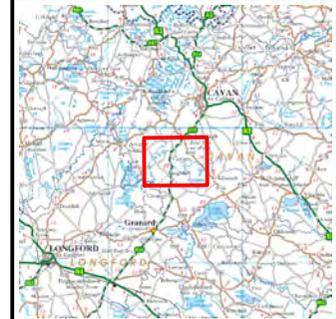
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BRIDGE B3 - PLAN
Scale: 1/200



Client



Cavan County Council
Comhairle Contae an Chabháin

Project **N55 Corduff to South Killydoon Scheme**

Title

Southern Section Bridge B3 - Plan

Figure 3.5



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Approved by: K. Banks	MDT0573M2014D01	
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3.3 IDENTIFICATION OF DESIGNATED CONSERVATION SITES

The EU Habitats Directive contains a list of habitats (Annex I) and species (Annex II) for which SACs must be established by Member States. Similarly, the EU Birds Directive contains lists of important bird species (Annex I) and other migratory bird species for which SPAs must be established. Those that are known to occur at a site are referred to as 'qualifying interests' and are listed in the Natura 2000 forms which are lodged with the EU Commission by each Member State. A 'qualifying interest' is one of the factors (such as the species or habitat that is present) for which the site merits designation.

Figure 3.6 identifies five Natura 2000 sites that are within a 15km radius of the proposed road improvement scheme, in line with guidance. A brief description of each Natura 2000 site is also provided based on the Site Synopsis (NPWS).

Section B of the proposed road improvement scheme will cross the River Erne, which flows into the Lough Oughter and Associated Lakes SAC (Site code: 000007), and the Lough Oughter Complex SPA (Site code: 004049) approximately 20km downstream of the proposed crossing points.

3.3.1 Lough Oughter and Associated Lakes SAC (000007)

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Cavan between Upper Lough Erne, Killeshandra and Cavan town. The site is a maze of waterways, islands, small lakes and peninsulas including some 90 inter-drumlin lakes and 14 basins in the course of the Erne River. This site is a candidate Special Area of Conservation for natural eutrophic lakes and bog woodland, two habitats listed on Annex I of the E.U. Habitats Directive, and for the Otter, a species listed on Annex II of the same Directive. The site also contains areas of dry woodland, marsh, reedbed and wet pasture.

The main threats to the quality of the site are water polluting activities such as run-off from fertiliser and slurry application, and sewage discharge which have raised the nutrient status of some lakes to hypertrophic. Housing and boating developments are on the increase, adjacent to and within the site respectively. There is also significant fishing and shooting pressure on and around the lakes. Increased afforestation has resulted in some loss of wetland habitat and also the loss of feeding ground for wintering birds such as Greenland White-fronted Geese.

The water quality of the SAC remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II species for which the site is designated. Good quality is dependent on controlling fertilisation of agricultural grasslands, and also requires that sewage be properly treated before discharge.

Overall, the Lough Oughter area contains important examples of two habitats listed on Annex I of the E.U. Habitats Directive and supports a population of the Annex II species, Otter. The site as a whole is the best inland example of a flooded drumlin landscape in Ireland and has many rich and varied biological communities. Nowhere else in the country does such an intimate mixture of land and water occur over a comparable area, and many of the species of wetland plants, some considered quite commonplace in Lough Oughter and its associated loughs, are infrequent elsewhere.

3.3.2 Lough Oughter Complex SPA (004049)

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe, Whooper Swan, and Wigeon. The E.U. Birds

Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The Lough Oughter Complex is of importance for a range of wintering waterfowl. Of particular note is an internationally important population of Whooper Swan that is based in the area and which uses the lakes as a roost. A population of Greenland White-fronted Goose of regional importance also roosts on the lakes and feeds mainly on agriculturally improved grassland nearby. The site supports nationally important wintering populations of two species, Great Crested Grebe and Wigeon. Other species which occur regularly include Mute Swan, Teal, Mallard, Pochard, Tufted Duck, Goldeneye, Lapwing, Curlew, Little Grebe, Cormorant and Black-headed Gull. A small colony of Common Tern also occurs.

Lough Oughter is at the centre of the Irish breeding range of Great Crested Grebe and the site supports in excess of 10% of the estimated national breeding total of this species.

Lough Oughter is a very nutrient-enriched lake and numbers of wintering wildfowl, especially diving duck, are likely to be depressed due to the enriched conditions. Water pollution is likely to remain a problem in the near future. Recreational and wildfowling activities currently cause some disturbance to the birds and any increase in such activities would be of concern.

Overall, the Lough Oughter Complex SPA is of ornithological importance for its wintering waterbird populations. Of particular note is the internationally important population of Whooper Swan that is based in the area. The site also supports nationally important populations of a further two wintering species and, notably, holds the highest breeding concentrations of Great Crested Grebe in the country. Two of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan and Greenland White-fronted Goose.

3.3.3 Moneybeg and Clareisland Bogs SAC (002340)

This site is located on the border of Counties Meath and Westmeath 9 km east of the town of Granard. It is situated mainly in the townlands of Clareisland or Derrymacegan, Williamstown and Moneybeg in County Westmeath and Ross in County Meath.

The site is a candidate Special Area of Conservation selected for active raised bog, degraded raised bog and Rhynchosporion, habitats that are listed on Annex I of the E.U. Habitats Directive. The site consists of two lowland raised bogs at Moneybeg and Clareisland, situated on the south and south-west shores of Lough Sheelin.

The Moneybeg and Clareisland Bogs site is of considerable conservation significance, comprising of two raised bogs with semi-natural lake margins at the north-eastern extreme of the range of raised bogs in Ireland. This is a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a diversity of raised bog habitats including, hummock/hollows and pools. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this type (over 60%) and so has a special responsibility for its conservation at an international level.

The main threats to the site are peat-cutting and associated activities such as drainage and burning. It must be noted however that the intensity of such damages appears to be relatively low at present in comparison to many other Irish raised bog sites. Agricultural reclamation and afforestation are potential threats to cutover areas of bog within the site. Burning events would damage the surface of the bogs.

3.3.4 Lough Sheelin SPA (004065)

Lough Sheelin is a medium- to large-sized lake, with a maximum length of 7 km. The lake lies near the top of the catchment of the Inny River, a main tributary of the River Shannon. It is a typical limestone lake and is fairly shallow (maximum depth 14 m).

The trophic status of the lake has varied greatly since the 1970s due to pollution from mainly agricultural sources. It was recently (1998-2000) classified as a highly eutrophic system.

Despite very variable water quality in recent decades, Lough Sheelin remains a very important site for wintering waterfowl, especially diving duck. It supports nationally important populations of Great Crested Grebe, Pochard, Tufted Duck and Goldeneye. A number of other species occur in relatively low numbers, including Mute Swan, Mallard, Coot, Little Grebe, Cormorant and Black-headed Gull.

The variable water quality over the years, with periods of highly eutrophic conditions, has had some adverse impacts on the wintering waterfowl, especially the diving duck. This would appear to be borne out by the very variable numbers of birds recorded over the years. It is considered that there is urgent need to reduce the phosphorus inputs to the feeder streams entering the lake. Recreational and wildfowling activities currently cause some disturbance to the birds and any increase in such activities would be of concern.

Lough Sheelin is a nationally important site for four species of wintering wildfowl and is one of the main Midlands lakes sites for wintering birds. An improvement in water quality would probably result in higher numbers of birds frequenting the site.

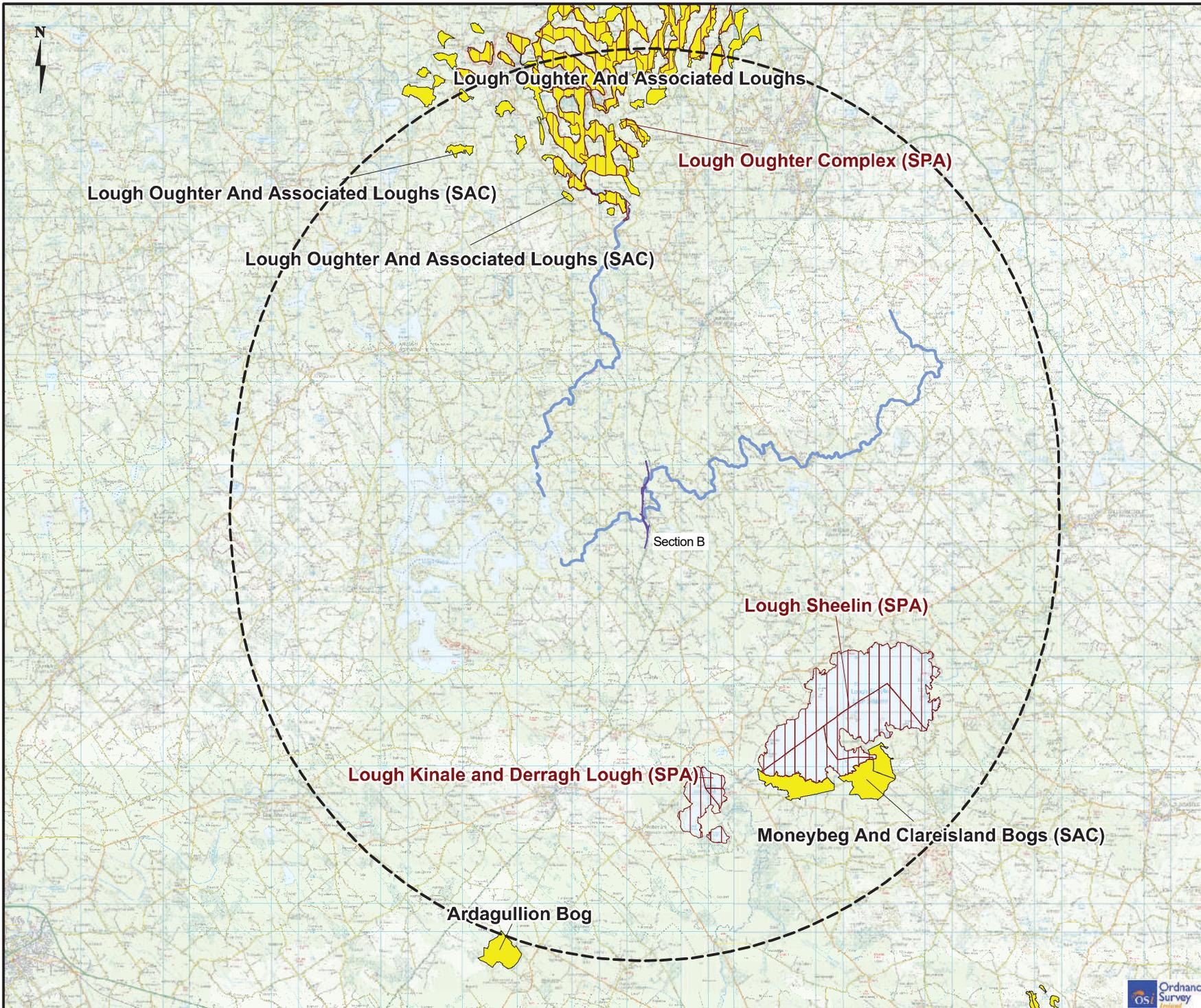
3.3.5 Lough Kinale and Derragh Lough SPA (004061)

Lough Kinale is a relatively small lake that is situated immediately downstream of Lough Sheelin, both lakes being near the top of the catchment of the Inny River, a main tributary of the River Shannon. Derragh Lough, a much smaller system, is connected to Lough Kinale and the Inny River. This is a typical limestone system and is very shallow (maximum depth of Lough Kinale is c. 4 m). As with Lough Sheelin, the trophic status of the lake has varied greatly since the 1970s due to pollution. It was recently (1998-2000) classified as a highly eutrophic system. The lake was formerly an important Trout fishery.

Despite the very variable water quality in recent decades, Lough Kinale and Derragh Lough remain important sites for wintering waterfowl, especially diving duck. The site supports nationally important populations of two species, Pochard and Tufted Duck. A large population of Mute Swan, close to the threshold for national importance, also uses the site. Coot, whilst still occurring in substantial numbers, formerly had a population of national importance. A number of other species are found, in relatively low numbers, including Great Crested Grebe, Mallard and Goldeneye. Marginal grassland areas outside of the site attract feeding wildfowl and waders such as Lapwing and Golden Plover.

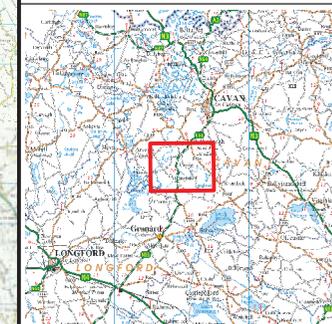
The variable water quality over the years, with periods of highly eutrophic conditions, has had adverse impacts on the wintering waterfowl, and especially the diving duck. This would appear to be borne out by very variable numbers of birds recorded over the years. The lake is still vulnerable to pollution and it is considered that there is urgent need to reduce the phosphorus inputs to the system. Afforestation has taken place close to parts of the shoreline and further planting would be undesirable. Angling and wildfowling activities currently cause some disturbance to the birds and any increase in such activities would be of concern.

Whilst relatively small in area and subject to a number of damaging activities, this site retains of national importance for two duck species. With an improvement in the environmental conditions pertaining at the site, higher numbers of some species would undoubtedly occur.



LEGEND

-  Landtake Boundaries Phase 3 & 4
-  Buffer, 15km
-  Special Protection Areas (SPA)
-  Special Area of Conservation (SPA)
-  River Erne



Client  Cavan County Council
Comhairle Contae na Cavan

Project **N55 Corduff to South Killydoon Scheme**

Title **Section B SAC and SPA**

Figure 3.6

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Approved by: B. Deegan	MDT0573M2006D01	
Scale: 1: 190,000 @ A4	Drawing No.	Rev.
Date: 21/03/2014	M2006	D01

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3.4 IDENTIFICATION OF QUALIFYING INTERESTS

The survey findings from this AA for the different Annexed species and habitat types recorded is presented in **Section 3.4.1**.

3.4.1 Existing Environment

The crossing locations of the River Erne contained a riffle / glide / pool habitat type, with a greater proportion of the riffle habitat upstream of the proposed crossing points. It has a good flow with a substratum type of boulders, cobbles, gravel and sand. Water depth at the time of the survey is 0.5 – 1m+. In-stream vegetation was sparse, but did contain a patchy distribution of Water-crowfoot (*Ranunculus* spp.).

The bank-side riparian vegetation is dominated by Ash, Oak, Beech, Alder, Hawthorn, Nettle, Bramble and Grasses. The river stretch is subject to shading – 40%, and surrounded by pasture lands.

Field examination at the location of the proposed bridge crossings, including both upstream and downstream of the crossing locations, revealed the presence of Annex II Species, which are outlined below, but no Annex I Habitats were recorded.

3.4.1.1 Otter (*Lutra lutra*) [1355]

Otter are widespread throughout the River Erne catchment, and otter prints, slides and spraint sites were recorded both upstream and downstream of the crossing locations. This watercourse was the subject of recent flooding, and so further signs of otters (e.g. spraints, feeding remains, paths/slides) could have been recently washed away.

The 2004/2005 Otter survey of Ireland (Baily and Rochford, 2006) found that larger catchments, such as the Lough Oughter and Associated Lakes SAC, were among the important SAC sites for otters, and the River Erne discharges to this lake complex.

3.5 SCREENING ASSESSMENT OF SIGNIFICANCE

3.5.1 Elements of the project likely to give rise to impacts on Natura 2000 sites

The proposed road improvement scheme is not directly connected or necessary to the management of the five Natura 2000 sites located within the 15km radius of Section B. Only those features of the proposed works that have the potential to impact on features and conservation objectives of the identified Natura 2000 sites are considered. In the initial screening of impacts, a number of potential impacts have been identified as summarised in **Table 3.1**. These include:

- Pollution of the River Erne with suspended solids due to runoff of soil from construction areas, which discharge downstream to the Lough Oughter and Associated Lakes SAC/SPA
- Pollution of the River Erne with other substances such as fuels, lubricants, waste concrete, waste water from site toilet and wash facilities, etc, which discharge downstream to the Lough Oughter and Associated Lakes SAC/SPA.
- Disturbance of Annexed species, Otter – Increased noise and human activity during the proposed bridge works has the potential for temporary disturbance to species; and

- Introduction / spread of invasive species – The introduction and spread of invasive species such as Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*), Giant hogweed (*Heracleum mantegazzianum*), etc. can have significant impacts on the ecological functioning of watercourses.

Table 3.1: Potential Significant Impacts on Natura 2000 Sites from Section B of the Proposed Road Improvement Scheme

Site Name	Direct Impacts	Indirect/ Secondary	Land - Take	Resource Requirements (Drinking Water Abstraction Etc.)	Emissions (Disposal to Land, Water or Air)	Excavation Requirements	Transportation Requirements	Duration of Construction, Operation, Decommissioning
Lough Oughter & Associated Lakes SAC	Potential negative impacts through pollution of waters discharging into lakes complex	Potential negative impacts through pollution of lakes complex resulting is species and habitat loss	The proposed bridge works are not within the SAC, so they will not impact on the site in this regard.	No impact on qualifying feature.	No impact on qualifying feature.	Excavation of in-stream and bankside material required as part of bridge works, potential negative impacts.	No impact on qualifying feature.	No impact on qualifying feature.
Lough Oughter Complex SPA	Potential negative impacts through pollution of waters discharging into lakes complex	Potential negative impacts through pollution of lakes complex resulting is species and habitat loss	The proposed bridge works are not within the SAC so they will not impact on the site in this regard.	No impact on qualifying feature.	No impact on qualifying feature.	Excavation of in-stream and bankside material required as part of bridge works, potential negative impacts.	No impact on qualifying feature.	No impact on qualifying feature.
Moneybeg and Clareisland Bogs SAC	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.
Lough Sheeline SPA	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.
Lough Kinale & Derragh Lough SPA	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.	No impact on qualifying feature.

3.5.2 Likely Changes to the Site

The likely changes that will arise from Section B of the proposed road improvement scheme have been examined in the context of a number of factors that could potentially affect the integrity of the Natura 2000 sites (**Table 3.2**).

Table 3.2 Likely Changes to Natura 2000 sites

Site Name	Reduction of Habitat Area	Disturbance to Key Species	Habitat or Species Fragmentation	Reduction in Species Density	Changes in Key Indicators of Conservation Value (water quality etc.)	Climate Change
Lough Oughter and Associated Lakes SAC	Potential negative impact	Potential negative impact	Potential negative impact	Potential negative impact	Potential negative impact	None
Lough Oughter Complex SPA	Potential negative impact	Potential negative impact	Potential negative impact	Potential negative impact	Potential negative impact	None
Moneybeg and Clareisland Bogs SAC	None	None	None	None	None	None
Lough Sheelin SPA	None	None	None	None	None	None
Lough Kinale and Derragh Lough SPA	None	None	None	None	None	None

3.6 CONCLUSIONS

The likely impacts that will arise from the construction and operation of the proposed road improvement scheme have been examined in the context of a number of factors that could potentially affect the integrity of the Natura 2000 network (**Table 3.2**). On the basis of the findings of this Screening for Appropriate Assessment, it is concluded that Section B of the proposed N55 Corduff to South of Killydoon road improvement scheme:

- (i) is not directly connected with or necessary to the management of a Natura 2000 site; and
- (ii) may have significant effects on a Natura 2000 site, the Lough Oughter and Associated Lakes SAC, and Lough Oughter Complex SPA.

Therefore, applying the Precautionary Principle and in accordance with Article 6(3) of the Habitats Directive, Section B of the proposed road improvement scheme will be brought forward for a Stage 2 Appropriate Assessment.

4 STAGE TWO: APPROPRIATE ASSESSMENT

4.1 INTRODUCTION

In this section, the Natura 2000 sites, Lough Oughter and Associated Lakes SAC and Lough Oughter Complex SPA, are described and all potential impacts resulting from the proposed Section B of the N55 Corduff to South of Killydoon scheme are discussed in relation to the conservation objectives of these designated sites.

4.2 DESCRIBE THE ELEMENTS OF THE PROJECT THAT ARE LIKELY TO GIVE RISE TO SIGNIFICANT EFFECTS ON THE SITE

4.2.1 Pollution with suspended solids

Potential impacts from suspended sediment due to runoff of soil as a result of the proposed bridge crossings can have severe negative impacts on invertebrate and plant life and on all life stages of fish. In addition, the following can affect the ecology of the River Erne and downstream SAC and SPA:

- Suspended sediment can reduce water clarity and visibility in the river and downstream in the SAC and SPA, impairing the ability of fish, birds and otters to find food items;
- Settled sediments can smother and displace aquatic organisms such as macroinvertebrates in the downstream SAC and SPA, reducing the amount of food items available to fish, birds and otters
- Increased levels of sediment can displace fish out of prime habitat into less suitable areas (Chilibeck et al 1992). Suspended solids can abrade or clog the gills of fish. It takes a high concentration of solid wastes to clog a fish gill and cause asphyxiation, but only a little to cause abrasions and thus permit the possibility of infections (Solbe 1988).

4.2.2 Pollution with other substances associated with the construction process

The potential exists for a range of serious pollutants to enter the River Erne during the proposed bridge crossings. For example, any of the following will have deleterious effects on fish, plants and invertebrates if allowed to enter watercourses:

- Raw or uncured concrete and grouts;
- Wash down water from exposed aggregate surfaces, cast-in-place concrete and from concrete trucks;
- Fuels, lubricants and hydraulic fluids for equipment used on the development site; and
- Bitumen and silanes used for waterproofing concrete surfaces.

4.2.3 Disturbance of Annexed Species

Temporary disturbance of protected Annexed species, potentially causing them to abandon their habitat, can result from the increased noise and human activity levels associated with heavy machinery and the proposed bridge works. This is particularly important in relation to Otters which use the River Erne.

4.2.4 Introduction and Spread of Invasive Species

The introduction and spread of invasive species such as Japanese Knotweed (*Fallopia japonica*), Himalayan Balsam (*Impatiens glandulifera*), Giant hogweed (*Heracleum mantegazzianum*), etc. can have significant impacts on the ecological functioning of watercourses. As well as being aggressive colonists of riverbanks and shading local flora, in winter plants die back exposing soil. The soil is then eroded into rivers, altering substrate characteristics, providing favourable conditions for abundant aquatic plant growth and rendering the river substrates unsuitable for Salmon and Lamprey spawning (Caffrey, 1994; Lucey, 1994).

Japanese Knotweed has been recorded along the N55, approximately 4km north of the proposed works area (www.biodiversityireland.ie) but it is not anticipated that the proposed works will impact or disturb these plants.

4.3 QUALIFYING INTERESTS OF THE NATURA 2000 SITE

The importance of a site designated under the Habitats Directive is defined by its qualifying features or interests. Qualifying interests for any Natura 2000 site are listed on a *pro forma*, called the Natura 2000 standard data form, which forms the basis of the rationale behind designation, and informs the Conservation Management Plan for targeted management and monitoring of key species and habitats. Qualifying interests for the Lough Oughter and Associated Lakes SAC are given in **Tables 4.1** and **4.2**, while the Lough Oughter Complex SPA is given in **Table 4.3**, along with the specific sensitivities / main threats relevant to each feature. The environmental sensitivities have been derived from the baseline assessments of conservation status carried out by National Parks and Wildlife Service (NPWS) as part of the report to the EU commission on *The Status of EU Protected Habitats and Species in Ireland*, submitted in 2008.

Table 4.1: Qualifying Interests (Habitats) of the Lough Oughter and Associated Lakes SAC (Site No.000007)

Annex I Habitats	Environmental Sensitivity / Main Threats
Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation [3150]	<ul style="list-style-type: none"> • Nutrient enrichment
Bog woodland [91D0]	<ul style="list-style-type: none"> • Drainage • Peat cutting • Burning • Development

Table 4.2: Qualifying Interests (Species) of the Lough Oughter and Associated Lakes SAC (Site No. 000007)

Qualifying Feature Annex II Species	Environmental Sensitivity / Main Threats
Otter	<ul style="list-style-type: none"> • Surface and marine water dependent • Moderately sensitive to hydrological change <ul style="list-style-type: none"> • Pesticides, poisoning, hunting • Modifying watercourses

Table 4.3: Qualifying Interests (Species) of the Lough Oughter Complex SPA (Site No. 004049)

Qualifying Feature Annex I Species	Environmental Sensitivity / Main Threats
Great Crested Grebe Whooper Swan Wigeon	<ul style="list-style-type: none"> • Nutrient Enrichment • Water Pollution • Recreational and Wildfowling Activities

4.4 CONSERVATION OBJECTIVES

Article 6 of the Habitats Directive states 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 of the site in view of the site's conservation objectives.

The importance of a site designated under the Habitats Directive is defined by its qualifying features or interests. Qualifying interests for any Natura 2000 site are listed on a *pro forma*, called the Natura 2000 standard data form, which forms the basis of the rationale behind designation, and informs the Conservation Management Plan for targeted management and monitoring of key species and habitats.

4.4.1 Lough Oughter and Associated Lakes SAC

The conservations objectives for the Lough Oughter and Associated Lakes SAC are set out below:

1. To maintain or restore the favourable conservation condition of the species listed as Special Conservation Interests for this SAC, which are:
 - Otter (*Lutra lutra*) (**Recorded during current surveys**);
 - Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation; and
 - Bog woodland.

4.4.2 Lough Oughter Complex SPA

The conservation objectives for the Lough Oughter Complex SPA are set out below:

To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, which are:

- Great Crested Grebe (*Podiceps cristatus*) [A005];
- Whooper Swan (*Cygnus cygnus*) [A038];
- Wigeon (*Anas penelope*) [A050]; and
- Wetlands & Waterbirds [A999].

4.5 DESCRIBE HOW THE PROJECT WILL EFFECT KEY SPECIES AND KEY HABITATS

4.5.1 Construction Impacts

The Lough Oughter and Associated Lakes SAC and the Lough Oughter Complex SPA are located approximately 20km downstream of the proposed road improvement scheme (see **Figure 3.6**). Direct impacts to habitats and species will therefore not occur.

There is potential for alterations to the quality of surface water entering the Natura 2000 site as a result of the proposed road improvement works. Suspended solids and other construction generated pollutants (e.g. fuels, oils, lubricants, etc.) could enter the River Erne, which feeds into Lough Oughter, and this would result in negative effects on the qualifying interests of these Natura 2000 sites. Suspended sediment can: settle on spawning areas, infill the intragravel voids and smother the eggs and alevins in the gravel; can infill pools and riffles, reducing the availability and quality of rearing habitat for fish; can smother and displace aquatic organisms such as macroinvertebrates, reducing the amount of food items available to fish, birds and otter; can reduce water clarity and visibility in the river, impairing the ability of fish, birds and otter to find food items. The potential exists for a range of other serious pollutants (e.g. fuels, oil, cement, etc.) to enter the affected watercourse during the proposed works, which can have deleterious effects on fish, plants, invertebrates, birds and otter.

Furthermore, accidental spillage of contaminants during construction may cause short to long term, moderate to significant impacts to soil, surface water and groundwater environment if not stored and used in an environmentally safe manner. In addition, waste material generated from construction activities may require disposal off-site if not suitable for reuse on site. Temporary storage on site may be required and impacts to surface waters from direct runoff during rainfall events may occur. Again, the potential for surface water contamination exists if any of the contaminants enter the River Erne and in turn Lough Oughter, which will result in negative effects on the qualifying interests of these Natura 2000 sites.

If such substances were to reach Lough Oughter and Associated Lakes in sufficient quantities, the quality of the habitats and species for which the site is designated could be adversely affected.

In addition, the introduction and spread of invasive species can have significant impacts on the ecological functioning of watercourses. Invasive species can be introduced into a location by contaminated vehicles and equipment, in particular tracked vehicles, which were previously used in locations that contained invasive species. Likewise, the spread of invasive species can be accelerated by breaking off pieces of stems and rhizomes during the excavation works and depositing it further along the riverbank.

4.5.2 Operation Impacts

The Lough Oughter and Associated Lakes SAC and the Lough Oughter Complex SPA are located approximately 20km downstream of the proposed road improvement scheme (see **Figure 3.6**). Direct impacts to habitats and species will therefore not occur.

Culverts and other artificial channels, if not appropriately designed and constructed with the aquatic ecosystem in mind, can totally prevent any upstream movement of many aquatic organisms, including fish. Even in the case of watercourses unsuitable for fish, movement of other aquatic organisms in field drains or ephemeral watercourses can be disrupted by unsuitable culverts. If the proposed crossings of the River Erne are not appropriately designed and constructed with the aquatic ecosystem in mind, it may disrupt the movement of aquatic organisms. These aquatic organisms may be important food sources for the fish species which inhabit the River Erne, and in turn mammals such as the Otter (qualifying species) which will result in negative effects on the qualifying interests of these Natura 2000 sites.

The proposed road improvement scheme will include a wider carriageway but the actual overall length of carriageway will be reduced. This may result in a minimal increase in the surface water run-off from the proposed road improvement scheme, however the effects on the surface water hydrology in the River Erne are considered negligible, and will not impact on the qualifying interests of the Natura 2000 site.

4.5.3 Cumulative and In-Combination Impacts

This step aims to identify at this early stage any possible significant in-combination or cumulative effects/impacts of Section B of the proposed N55 Corduff to South of Killydoon with other such plans and projects on Lough Oughter and Associated Lakes SAC and the Lough Oughter Complex SPA.

There are a number of other pressures and threats impacting on the qualifying interests of the Lough Oughter and Associate Lakes SAC, and Lough Oughter Complex SPA as identified in **Tables 4.1, 4.2 and 4.3**.

The North Western River Basin Management Plan, 2009-2015, outlines objectives and measures for all waters in the North Western RBD, one of which is to contribute to mitigating the effects of floods. But more so it sets out a number of objectives and measures to ensure that all waters achieve at least good status, generally by 2027 at the latest, and that status doesn't deteriorate in any waters. Such objectives and measures will ensure that the integrity of the Lough Oughter and Associated Lakes SAC and Lough Oughter Complex SPA are protected, and the proposed bridge works must consider these objectives and measures to ensure that the status of all waters is protected.

Other plans and projects specific to the Lough Oughter and Associated Lakes SAC and the Lough Oughter Complex SPA include the following:

- The Cavan County Development Plan 2014 - 2020;
- North Western River Basin Management Plan 2009-2015;

- Water Services Investment Programme;
- IPPC Programme;
- Local Authority Discharges;
- Groundwater Pollution Reduction Programmes;
- Surface Water Pollution Reduction Programmes;
- Fisheries Management Plans; and
- Flood Risk Management Plans.

The above mentioned county development plan has specific objectives in place to ensure the protection of the Natura 2000 network. No other pathway has been identified by which any of the plans and projects identified could have a significant ‘in combination’ effect on the Lough Oughter and Associated Lakes SAC and the Lough Oughter Complex SPA. In fact, the in combination effect of the above water related plans and programmes would have positive effects on water quality resulting in positive indirect impacts on any receiving Natura 2000 sites.

Table 4.4: Summary of Impacts on the Qualifying Features of the Lough Oughter and Associated Lakes SAC

Qualifying Feature Annex I Habitats & Annex II Species	Sensitivity	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)
Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation [3150]	<ul style="list-style-type: none"> • Nutrient enrichment 	No direct effects predicted as this habitat was not recorded in the vicinity of the proposed road improvement works.	Indirect effects may occur during proposed road improvement works (See Section 4.5).
Bog woodland	<ul style="list-style-type: none"> • Drainage • Peat cutting • Burning • Development 	No direct effects predicted as this habitat was not recorded in the vicinity of the proposed road improvement works.	No indirect effects predicted as this habitat was not recorded in the vicinity of the proposed road improvement works.
Otter	<ul style="list-style-type: none"> • Surface and marine water dependent • Moderately sensitive to hydrological change 	Direct effects may occur during the proposed road improvement works (See Section 4.5).	Indirect effects may occur during proposed road improvement works (See Section 4.5).

Table 4.5: Summary of Impacts on the Qualifying Features of the Lough Oughter Complex SPA

Qualifying Feature Annex I Species	Sensitivity	Direct (isolated, interactive, cumulative, short-term, long- term)	Indirect (isolated, interactive, cumulative, short- term, long-term)
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	<ul style="list-style-type: none"> • Nutrient Enrichment • Water Pollution • Recreational and Wildfowling Activities 	No direct effects predicted as this species was not recorded in the vicinity of the proposed road improvement works.	Indirect effects may occur during proposed road improvement works (See Section 4.5).
Whooper Swan (<i>Cygnus cygnus</i>) [A038]	<ul style="list-style-type: none"> • Nutrient Enrichment • Water Pollution • Recreational and Wildfowling Activities 	No direct effects predicted as this species was not recorded in the vicinity of the proposed road improvement works.	Indirect effects may occur during proposed road improvement works (See Section 4.5).
Wigeon (<i>Anas penelope</i>) [A050]	<ul style="list-style-type: none"> • Nutrient Enrichment • Water Pollution • Recreational and Wildfowling Activities 	No direct effects predicted as this species was not recorded in the vicinity of the proposed road improvement works.	Indirect effects may occur during proposed road improvement works (See Section 4.5).

4.6 MITIGATION MEASURES

Where a likely significant adverse effect has been identified during an Appropriate Assessment or cannot conclusively be ruled out, it may be possible to proceed with a proposal where mitigation measures can be implemented to address the adverse effect. Measures have therefore been included in the design of Section B of the proposed road improvement scheme to ensure that the adverse impacts identified will be mitigated.

4.6.1 Reduction and Prevention of Suspended Solids Pollution

As the Lough Oughter and Associated Lakes SAC and SPA support several habitats and species, measures will be put in place to ensure that no significant impact on the SAC or SPA is caused by suspended solids. The key factors in erosion and sediment control for land based works are to intercept and manage runoff. This limits the potential for soils to be eroded and enter the River Erne in runoff. Runoff and surface erosion control is more effective and less expensive than sediment control with sediment control ponds only. The following general guidelines for erosion and sediment control are largely based on Goldman *et al* (1986). They shall be adhered to during construction of the proposed road improvement scheme.

- i. Schedule development with potential to impact on sensitive watercourses to minimise risk of potential erosion by, where possible, planning construction activities during drier months, halting construction during periods of heavy precipitation and run-off to minimise

- soil disturbance, and restrict vehicular and equipment access or provide working surfaces/pads.
- ii. Retain existing vegetation where possible and physically mark clearing boundaries on the construction site.
 - iii. Re-vegetate denuded areas, particularly cut and fill slopes and disturbed slopes as soon as possible. Use mulches or other organic stabilisers to minimise erosion until vegetation is established on sensitive soils.
 - iv. Cover temporary fills or stockpiles which are likely to erode into nearby watercourses with polyethylene sheeting.
 - v. Divert runoff away from denuded areas.
 - vi. Minimise the length and steepness of slopes where possible.
 - vii. Minimise runoff velocities and erosive energy by maximising the lengths of flow paths for precipitation runoff, constructing interceptor ditches and channels with low gradients to minimise secondary erosion and transport, and lining unavoidably steep interceptors or conveyance ditches with filter fabric, rock or polyethylene lining to prevent channel erosion.
 - viii. Retain eroded sediments on site with erosion and sediment control structures such as sediment traps, silt fences and sediment control ponds.
 - ix. Access roads shall be constructed or topped with a suitable coarse granular material/nonwoven geotextile, and if possible organic topsoil shall be stripped prior to access road construction.
 - x. Where possible in-stream work shall be avoided. If unavoidable keep in-stream work to a minimum and as far as possible protect the natural stream conditions and structure to promote stability of bank and bed structures and retain riparian vegetation.
 - xi. Temporary stream diversions (such as to facilitate culvert installation) shall only be carried out in consultation with Inland Fisheries Ireland. Where fish are likely to be present removal of fish may be necessary. The diversion should be excavated in isolation of stream flow, starting from the bottom end of the diversion channel and working upstream to minimise sediment production. The temporary channel should be constructed in such a way as to minimise suspended solids released when the river is re-routed. Upon completion the bank should be stabilised around the temporary diversion.
 - xii. Sediment control ponds shall be designed for a minimum retention time of 15 hours.
 - xiii. It is important that at the planning stage, provision is made for a sufficient land area to accommodate the necessary sediment control measures.
 - xiv. Other than single span temporary bridges with no instream structures, strictly no temporary stream crossings or temporary culverting should take place without the prior agreement of Inland Fisheries Ireland.
 - xv. Machinery should never cross a watercourse by entering it (e.g. at fords).

The proposed road improvement scheme will ensure that no suspended solids enter the River Erne or any other drainage outfall into Lough Oughter and Associated Lakes during the construction phase.

4.6.2 Reduction or Elimination of Pollution with other Substances Associated with the Construction Process

As the Lough Oughter and Associated Lakes SAC and SPA supports several habitats and species, measures will be put in place to ensure that no significant impact on the SAC or SPA is caused by pollution generated during the construction process.

Where the construction site has potential to impact on River Erne, the following guidelines based on Chilibeck *et al* (1992), NRA (2005) and SRFB (2007) should be followed:

- i. Raw or uncured waste concrete should be disposed of by removal from the site or by burial on the site in a location and in a manner that shall not impact on the watercourse.
- ii. Wash down water from exposed aggregate surfaces, cast-in-place concrete and from concrete trucks shall be trapped on-site to allow sediment to settle out and reach neutral pH before clarified water is released to the drainage system or allowed to percolate into the ground.
- iii. Fuels, lubricants and hydraulic fluids for equipment used on the construction site shall be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to current best practice (Enterprise Ireland BPGCS005).
- iv. Fuelling and lubrication of equipment shall be carried out in bunded areas only which are located as far as possible away from the River Erne.
- v. Any spillage of fuels, lubricants or hydraulic oils shall be immediately contained and the contaminated soil removed from the site and properly disposed of.
- vi. Oil booms and oil soakage pads shall be kept on site to deal with any accidental spillage.
- vii. Waste oils and hydraulic fluids shall be collected in leak-proof containers and removed from the site for disposal or re-cycling.
- viii. Foul drainage from site offices etc. shall be removed to a suitable treatment facility or discharged to a septic tank system constructed in accordance with EPA guidelines.

The proposed road improvement scheme will ensure that no substances associated with the construction process enter the River Erne or any other drainage outfall into Lough Oughter and Associated Lakes.

4.6.3 Location of Sites for use as Storage Areas, Machinery Depots, Site Offices, Temporary Access Roads or the Disposal of Spoil

All sediments from the spoil fill and construction and demolition waste will be retained on site through the use of erosion and sediment control structures such as sediment traps, silt fences and sediment

control ponds. Such measures shall remain in place until all disturbed ground or exposed sediments have been re-colonised with established vegetation.

4.6.4 Mitigating Permanent Loss of Habitat

The most effective method of mitigating habitat loss is to minimise it and where this is not possible to create new habitat. The length of the River Erne to be bridged should be kept to the minimum necessary. A 5m wide leave strip should be established upstream and downstream of the proposed river crossing points. Leave strips are the areas of land and vegetation adjacent to watercourses that are to remain in an undisturbed state, throughout and after the development process (Chilibeck et al 1992). Leave strips are valuable not only because riparian vegetation is a vital component of a healthy river ecosystem, but because this vegetation acts as an effective screen/barrier between the stream and the development area, intercepting runoff and acting as an effective filter for sediment and pollutants from the development area. Where new road construction is to take place close to rivers/streams, a riparian leave strip should be clearly marked and its significance explained to machinery operators.

Other than single span bridges with no instream structures, strictly no temporary stream crossings or temporary culverting shall take place without the prior agreement of Inland Fisheries Ireland.

4.6.5 Mitigation of Obstruction to Upstream Movement of Fish and Other Aquatic Fauna

Fishery Guidelines for Local Authority Works published by the Department of the Marine and Natural Resources recommends that long stretches of river or stream should never be culverted and that rivers or streams should be culverted for *essential reasons only* (Anon 1998).

To prevent obstruction of salmonid migration to spawning areas, in-stream works in the River Erne shall not be carried out between the end of September and the beginning of July without the approval of Inland Fisheries Ireland. Avoidance of instream works during the nine month autumn to summer period shall avoid any significant disruption to upstream fish movement.

The proposed road improvement scheme shall be designed and constructed in such a way as to ensure that streams remain passable for fish and other aquatic fauna. This can only be reliably achieved by crossing methods, which retain or provide 'natural' rough substrates which will slow currents near the bottom and create flow refuges, enabling invertebrates and juvenile fish to migrate upstream in otherwise impassable water velocities.

To ensure no negative impact on fish movement on the River Erne, the road crossings shall be by way of a single span bridge at least 1.2 times the width of the river, embedded at least 30cm below the existing stream bed.

To avoid habitat fragmentation and obstruction to movement of aquatic and wetland fauna, if culverting of watercourses such as field drains (not shown on OS Discovery Map) is required, the culvert diameter should be at least 1.2 times the bankfull width of the drain and culverts should be embedded to a depth of at least 25% of the pipe diameter. Such culverting shall be agreed with Inland Fisheries Ireland prior to works commencing.

4.6.6 Reduction and Prevention of Hydrocarbon Pollution during the Operational Phase

The proposed sustainable drainage system shall prevent significant pollution to surface receiving waters, i.e. the River Erne. The system installed shall ensure that no breach of Salmonid Standards (S.I. No. 293 of 1988) takes place and shall have a proven capability of achieving and sustaining at least the following percentage pollution reduction in runoff:

Total Suspended Solids	85%
Heavy Metals:	50 – 80%
Chemical Oxygen Demand	50%
Hydrocarbons:	90%

Petroleum interceptors shall be installed and all surface water draining from the site must pass through these interceptors before discharging into the River Erne or any other drainage outfall into Lough Oughter and Associated Lakes.

As virtually all treatment options require proper maintenance in order to function properly, and as such petroleum interceptors can become a source of pollution if not properly maintained, the site management shall adopt a program, as part of their Environmental Management System, of regular cleaning, maintenance and inspection of the surface water runoff treatment system to ensure the system is functioning correctly in its entirety.

4.6.7 Mitigation of Obstruction to Otter Movements

The construction of roads can lead to fragmentation of habitat for Otters, and to mortalities on new or existing roads. Where a road scheme leads to the loss of access to important foraging habitat, such loss can lead to a decline in breeding success. Signs of Otters were found close to the location of the proposed new bridge, B1 at Killydoon. The construction of the single span bridge will potentially lead to temporary loss of access to foraging habitat, but is unlikely to have a permanent significant negative impact. The design of the three proposed bridges includes an access track alongside the river, and the river bank will be retained under the bridge. The movement of Otters along the watercourse will therefore not be obstructed by the proposed road scheme.

4.6.8 Mitigation of Spread of Invasive Species

All plant and equipment employed on the proposed works (e.g. excavator, footwear/waders, etc.) must be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive aquatic / riparian species such as Japanese knotweed and Himalayan Balsam. A sign off sheet must be maintained to confirm cleaning.

5 CONCLUSIONS

If Section B of the proposed road realignment works contain the necessary pollution control measures to ensure the prevention of any polluting substances from entering the River Erne, as identified previously in **Section 4.6**, it is not anticipated that the proposed road realignment works will impact on the River Erne.

The conclusion of this Natura Impact Statement is that, with the implementation of best practice and the recommended mitigation measures, it is considered that the proposed Section B of the N55 Corduff to South of Killydoon road scheme will not have a significant effect either individually or in combination with other plans or projects on the conservation objectives of the Lough Oughter and Associated Lakes SAC and the Lough Oughter Complex SPA.

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