Water Services Authority:
Meath County Council

Ballivor Agglomeration,
Ballivor Wastewater Treatment Plant,
Kilballivor TD, Ballivor, Navan, County Meath

WASTEWATER DISCHARGE LICENCE APPLICATION

APPROPRIATE ASSESSMENT

October 2009

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BALLIVOR AGGLOMERATION
WASTE WATER DISCHARGE LICENCE APPLICATION

APPROPRIATE ASSESSMENT

PROJECT:

Ballivor Waste Water Treatment Plant & Agglomeration
Waste Water Discharge Licence Application

CLIENT:

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DOCUMENT AMENDMENT RECORD

Client:	**Meath County Council**
Project:	**Ballivor Waste Water Treatment Plant & Agglomeration Waste Water Discharge Licence Application**
Title:	**Appropriate Assessment**

PROJECT NUMBER: 5270				**DOCUMENT REF: 5270 Appropriate Assessment Ballivor**			
B	Issued to Meath Co. Co.	RMcN	08/09/09	ES	22/10/09	ES	22/10/09
A	Issued to Meath Co. Co.	RMcN	08/09/09	ES	29/09/09	ES	29/09/09
Revision	**Description & Rationale**	**Originated**	**Date**	**Reviewed**	**Date**	**Authorised**	**Date**
TOBIN Consulting Engineers							

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APPENDICES

1.0 INTRODUCTION

This Appropriate Assessment report is to provide the requirements of the Habitats Directive legislation.

The existing waste water treatment plant (WWTP) at Ballivor, Co Meath discharges the treated effluent into an unnamed stream, a tributary of the Stoneyford River. The Stoneyford River is included in the River Boyne and Blackwater SAC (Site Code 2299). This discharge point is located approximately 2km upstream from the SAC, refer to Figure 1 below.

No changes to the existing WWTP, discharge or quality of discharge are proposed as part of the new EPA Waste Water Discharge Licence. Ballivor WWTP utilises biological processes in conjunction with physical settlement, and nutrient removal to provide treatment to incoming waste water for compliance with the relevant legislative effluent treatment standards.

Sensitive ecological receptors within the Boyne and Blackwater SAC include:

- Habitats: Alluvial fens and alluvial forests;
- Species: Atlantic Salmon (*Salmo salar*);
- Species: River Lamprey (*Lampetra fluviatilis*);
- Species: Otter (*Lutra lutra*).

The Appropriate Assessment considers all specific ecological features of the SAC and conservation objectives and where the potential of impacts may arise; appropriate mitigation is detailed.

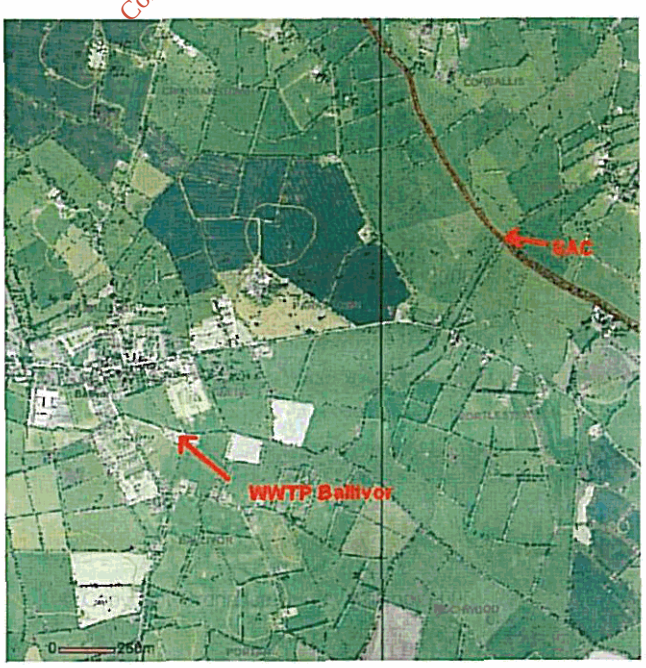

Figure 1: WWTP Primary Discharge Point in relation to the SAC (Source NPWS website)

2.0 APPROPRIATE ASSESSMENT - LEGISLATIVE CONTEXT & METHODOLOGY

2.1 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 79/409/EC on the conservation of wild birds – '*The Birds Directive*'. The Birds Directive 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.*

If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the

environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest

2.2 GUIDANCE

This Appropriate Assessment has been carried out using the following guidance:

- EPA Ireland guidelines[1] (Main reference);
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg (EC 2000);
- 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, Office for Official Publications of the European Communities, Luxembourg (EC 2001);
- 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. Office for Official Publications of the European Communities, Luxembourg (EC 2007).

The format of this report is mainly structured based on EPA guidelines.

Based on these documents, the assessment procedure as detailed in the guidelines is a four stage approach consisting of the following stages which are summarised in Figure 1.

Stage One: Screening / Test of Significance - the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

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

[1] http://www.epa.ie/downloads/forms/lic/wwda

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.

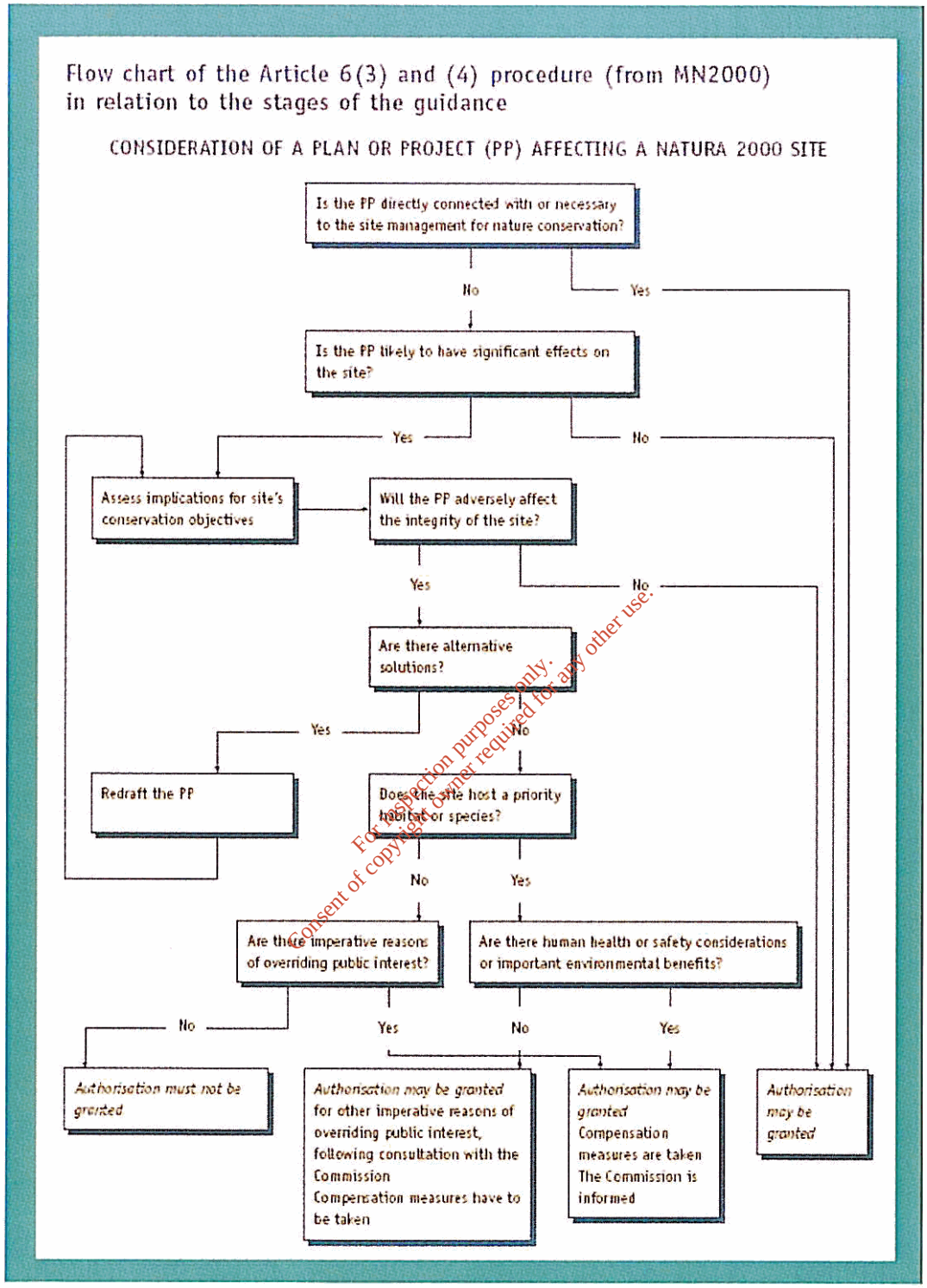

Figure 1: Flowchart Outlining the Appropriate Assessment Process

(Extracted from Assessment of Plans and Projects – EC 2001).

3.0 STAGE 1 - SCREENING

3.1 INTRODUCTION

This stage of the process identifies the likely impacts upon a Natura 2000 site from a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant.

The screening phase was progressed in the following steps as per EPA guidelines:

Step 1 – Management of the Site;
Step 2 – Description of the Plan or Project;
Step 3 - Characteristics of the Site;
Step 4 – Assessment of Significance.

3.2 STEP 1 - MANAGEMENT OF THE SITE

Conservation sites in the vicinity of the WWTP and its treated discharge include River Boyne and Blackwater SAC (site code 002299). A full description of the River Boyne and Blackwater SAC is detailed in Appendix A.

Waste water discharges are **not** connected or necessary for the management of this site.

No other European designated sites may potentially be impacted. Therefore no other sites are considered.

3.3 STEP 2 - DESCRIPTION OF BALLIVOR SEWERAGE SCHEME

A sewage treatment plant is in operation on site. A full description of the plant operations and water quality monitoring implemented by Meath County Council are detailed in the Waste Water Dischare Licence Application. The primary discharge/emission from the Ballivor Sewerage Agglomeration is to an unnamed stream, which is a tributary of the Stonyford River. The unnamed stream has no designation of ecological significance, but drains into the Stonyford River ca. 2km downstream, which is designated as an SAC (River Boyne and Blackwater SAC). The existing discharge does not appear to be having a negative effect on the water quality of the unnamed stream, or indeed on the water quality of the Stonyford River. It is therefore not expected that the discharge is having any negative affect on the downstream ecology (aquatic).

3.4 STEP 3 – CHARACTERISTICS OF THE SITE

Ongoing potential risks to current water quality status may arise within the Stoneyford River indirectly from the treated effluent discharge and downstream of here. The treated effluent discharge may

increase eutrophication risks to sensitive aquatic receptors, such as lamprey and salmon, whose favourable conservation status is included in the objectives of the SAC.

3.5 STEP 4 - ASSESSMENT OF SIGNIFICANCE

Water quality at the treated effluent discharge location is considered "At risk of not achieving good status" (Transitional Water framework Directive Status). However, no measurable impacts have been detected which are attributable to the discharges at Ballivor based on EPA biological water quality monitoring. The nearest EPA monitoring stations in the Stoneyford River upstream and downstream of the agglomeration recorded Q4 (good water quality - unpolluted) each in the most recent data. This suggests that the assimilative quality of the unnamed river discharge point is satisfactory for maintaining the current discharge quality and hence a "good" biological water quality.

It is unlikely therefore that the existing discharge levels and management are contrary to requirements of legislation including the Water Framework Directive and EC (Quality of Salmonid Waters) Regulations, 1988 (S.I. 293/1988). Current water quality impacts are therefore not deemed a significant additional impact to conservation objectives of the SAC (including salmonid populations).

For completeness, an Appropriate Assessment Stage (site visit – ecological assessment and recommendations) is detailed below. A probable programme of measure requirements will be required as part of any draft Water Framework Directive Boyne Catchment Management Plan to attain a "good" overall status on the River Boyne. This will include appropriate mitigation / recommendations for improving water quality, which may require future consideration in the current Ballivor plant design and operational management.

4.0 STAGE 2 - APPROPRIATE ASSESSMENT

The appropriate assessment phase was progressed in the following steps as per EPA guidelines:

Step 1 – Information Required;
Step 2 and 3 - Impact Prediction and Conservation Objectives;
Step 4 – Mitigation/ Recommendation.

4.1 APPROPRIATE ASSESSMENT STEP ONE - INFORMATION REQUIRED

4.1.1 Details of Project Affecting the River Boyne and River Blackwater SAC

Details on the existing waste water discharge concentrations and water quality, assimilative capacity of the Stonyford River downstream of the proposed discharge and a baseline ecological study conducted are detailed below

Existing Waste Water Treatment & Discharge Standards:

The design discharge concentrations are detailed as follows:

Ballivor Wastewater Treatment Plant – Design Discharge Concentrations	
Parameter	**Design Discharge Concentration (mg/l)**
BOD	<25 (achieving 5.0)
COD	<125 (achieving 25)
Total Suspended Solids	<35 (achieving <10)
Total Nitrogen (as N)	(achieving 13)
Ammonia (as N)	(achieving 3.6)
Total Phosphorus (as P)	<0.5mg/l

Transitional Water Framework Directive Status:

This water quality at the discharge point is considered "At risk of not achieving good status".

Q Value (Environmental Protection Agency) Water Quality Assessment:

The EPA most up to date biological water quality data for the Stonyford River at the discharge point and downstream is "Good - unpolluted status" Q 4.

Assimilative Capacity Stonyford River:

No detectable additional impacts to water quality in the Stoneyford River can be sourced currently to the Ballivor WWTP. Downstream assimilative capacity is adequate for the current discharge levels to maintain biological water quality levels at a good status (Q 4).

4.1.2 Description of Habitats and Wildlife in the Affected Area of the SAC

A site visit was conducted by an experienced ecologist from TOBIN Consulting Engineers on 21st August 2009.

The unnamed stream tributary (into which treated effluent discharges) and Stoneyford River (SAC) were in high flow during the visit. It was confirmed that the plant is located adjacent to riparian deciduous woodland. The unnamed stream and Stoneyford Rivers have an unnatural (drained) profile and thus are likely to have been significantly modified by past arterial drainage works.

Salmonid habitat is present in both the unnamed stream / Stonyford River and of moderate to good quality even bearing in mind probable past drainage works. The Stoneyford River downstream of the plant is a well recognised angling tributary of the River Boyne. It holds an excellent stock of brown trout

(*Salmo trutta*) and is a naturally productive fishery with a diverse macro-invertebrate fauna (O Reilly 2004)[2]

The Stoneyford River habitat downstream of the confluence with the unnamed stream provides potential forage habitat for otter and probably kingfisher (Annex 1 Birds Directive). Breeding sites for these species are less favourable given the artificial "drainage ditch" shaping of the channel. Bat species (listed on Annex 2 Habitats Directive) are likely to be common and old bridges noted provide potential roost habitat.

All Lamprey species are listed on Annex 1 of the Habitats Directive and included in the conservation objectives of the SAC. Larvae were surveyed by O Connor *et al.*, (2006)[3] within the entire River Boyne catchment. The assessment for the Stoneyford River was that it is likely that the only lamprey species present in this stretch of river is *Lampetra planeri*. Lamprey populations here are considered to be probably just at favourable conservation status.

4.2 APPROPRIATE ASSESSMENT STEP TWO AND THREE - IMPACT PREDICTION AND MITIGATION

4.2.1 Conservation Objectives of the Site

Consultation was conducted with the National Parks and Wildlife (NPWS) designations department regarding conservation objectives for the River Boyne and Blackwater SAC.

No specific 'Conservation Management Plan' has been published for the site to date. A 'Draft Management Plan' as detailed in Appendix B is available.

This 'Draft Management Plan' details the following conservation objectives for the site:

European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status areas designated as candidate Special Areas of Conservation. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites. According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, is stable or increasing,
- The ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future;
- The conservation status of its typical species is favourable as defined below.

[2] O Reilly P (2004) Rivers of Ireland. Merlin Unwin Books.
[3] O'Connor W. (2006) A survey of juvenile lamprey populations in the Boyne Catchment. *Irish Wildlife Manuals*, No. 24 National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

The favourable conservation status of a species is achieved when:

- Population data on the species concerned indicate that it is maintaining itself;
- The natural range of the species is neither being reduced or likely to be reduced for the foreseeable future;
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Objective 1: To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Alkaline fens; Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae).
Objective 2: To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: *Lampetra fluviatilis, Salmo salar, Lutra lutra.*
Objective 3: To maintain the extent, species richness and biodiversity of the entire site.
Objective 4: To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

4.2.2 Predicted Impacts on the Qualifying Interests of River Boyne and River Blackwater SAC

No significant additional impacts from the continued treated effluent discharge are likely to measurably impact the conservation objectives of the SAC provided significant increases are avoided which may give rise to a general decrease in water quality down stream of the discharge points on the unnamed stream and indirectly the Stoneyford River.

4.2.3 Mitigation/ Recommendations

No specific recommendations are required currently except to continue water quality monitoring (biological and chemical parameters) and maintain / improve (where possible) current discharge levels.

The Water Framework Directive requires that a mid to long-term strategy be implemented for the entire Boyne River catchment. A programme of measures which detail the actions to be taken will be detailed in order to achieve compliance with this legislation. It will require action by all potential pollution sources/ managers to achieve a discharge quality which overall achieves a high water quality status. Where this status exists it is to be maintained and no deterioration in status should occur. All waters must achieve at least Good Status by 2015. This is relevant to the Boyne catchment where current water quality status does not satisfy these requirements. Any upgrade to good status will indirectly benefit sensitive aquatic receptors of the River Boyne and Blackwater SAC and satisfy the requirements of the Habitats Directive.

Recommendations for the Ballivor WWTP management will be informed by the requirements of the draft Water Framework Directive Management plan[4].

5.0 OUTCOMES

No additional impacts will arise which may indirectly or directly impact conservation objectives (sensitive ecological receptors described) from the discharge of treated effluent from Ballivor WWTP, providing effective monitoring and implementation of water quality licensing requirements are carried out.

Therefore no *additional measurable* impacts should arise from the existing treated sewage outfall.

It is considered therefore that there is no requirement for stage 3 and 4 of the Appropriate Assessment.

Signed off by:

Mr. Roger McNaughton
Senior Ecologist

Dr. Emma Sweeney
Senior Environmental Scientist

[4] Eastern Regional Fisheries Board: A Draft River Basin Management Plan has been prepared and was published in December 2008. It is at the consultation stage.

APPENDIX A

SITE DESCRIPTION: RIVER BOYNE AND RIVER BLACKWATER SAC (SITE CODE: 002299)

This site comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath and smaller areas of Cavan and Louth. The underlying geology is Carboniferous Limestone for the most part with areas of Upper, Lower and Middle well represented. In the vicinity of Kells Silurian Quartzite is present while close to Trim are Carboniferous Shales and Sandstones. There are many large towns adjacent to but not within the site. Towns both small and large, include Ballivor, Navan, Kells, Trim, Athboy and Ballivor. The site is a candidate SAC selected for alkaline fen and alluvial woodlands, both 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 – Atlantic Salmon, Otter and River Lamprey. The main areas of alkaline fen are concentrated in the vicinity of Lough Shesk, Freehan Lough and Newtown Lough. The hummocky nature of the local terrain produces frequent springs and seepages which are rich in lime. A series of base-rich marshes have developed in the poorly-drained hollows, generally linked with these three lakes. Open water is usually fringed by Bulrush (*Typha latifolia*), Common Club-rush (*Scirpus lacustris*) or Common Reed (*Phragmites australis*) and this last species also extends shorewards where a dense stand of Great Fen Sedge or Saw Sedge (*Cladium mariscus*) frequently occurs. This in turn grades into a sedge and grass community (*Carex* spp., *Molinia caerulea*) or one dominated by the Black Bogrush (*Schoenus nigricans*). An alternative direction for the aquatic/terrestrial transition to take is through a floating layer of vegetation. This is normally based on Bogbean (*Menyanthes trifoliata*) and Marsh cinquefoil (*Potentilla palustris*). Other species gradually become established on this cover, especially plants tolerant of low nutrient status e.g. bog mosses (*Sphagnum* spp.). Diversity of plant and animal life is high in the fen and the flora, includes many rarities. The plants of interest include Narrow-leaved Marsh Orchid (*Dactylorhiza traunsteineri*), Fen Bedstraw (*Galium uliginosum*), Cowbane (*Cicuta virosa*), Frogbit (*Hydrocharis morsus-ranae*) and Least Bur-reed (*Sparganium minimum*). These species tend to be restricted in their distribution in Ireland. Also notable is the abundance of aquatic Stoneworts (*Chara* spp.), which are characteristic of calcareous wetlands. The rare plant, Round-leaved Wintergreen (*Pyrola rotundifolia*) occurs around Newtown Lough. This species is listed in the Red Data Book and is protected under the Flora Protection Order, 1999, and this site is its only occurrence in Co. Meath. Wet woodland fringes many stretches of the Boyne. The Boyne River

Islands are a small chain of three islands situated 2.5 km west of Drogheda. The islands were formed by the build up of alluvial sediment in this part of the river where water movement is sluggish. All of the islands are covered by dense thickets of wet, Willow (*Salix* spp.) woodland, with the following species occurring: Osier (*S. viminalis*), Crack Willow (*S. fragilis*), White Willow (*S. alba*), Purple Willow (*Salix purpurea*) and Grey Willow (*S. cinerea*). A small area of Alder (*Alnus glutinosa*) woodland is found on soft ground at the edge of the canal in the north-western section of the islands. Along other stretches of the rivers of the site Grey Willow scrub and pockets of wet woodland dominated by Alder have become established, particularly at the river edge of mature deciduous woodland. Ash (*Fraxinus excelsior*) and Birch (*Betula pubescens*) are common in the latter and the ground flora is typical of wet woodland with Meadowsweet (*Filipendula ulmaria*), Angelica (*Angelica sylvestris*), Yellow Iris, Horsetail (*Equisetum* spp.) and occasional tussocks of Greater Tussocksedge (*Carex paniculata*). The dominant habitat along the edges of the river is freshwater marsh - the following plant species occur commonly here: Yellow Flag (*Iris pseudacorus*), Creeping Bent (*Agrostis stolonifera*), Canary Reed-grass (*Phalaris arundinacea*), Marsh Bedstraw (Galium palustre), Water Mint (*Mentha aquatica*) and Water Forget-me-not (*Myosotis scorpioides*). In the wetter areas of the marsh Common Meadow-rue (*Thalictrum flavum*) is found. In the vicinity of Dowth, Fen Bedstraw (*Galium uliginosum*), a scarce species mainly confined to marshy areas in the midlands, is common in this vegetation. Swamp Meadow-grass (*Poa palustris*) is an introduced plant, which has spread into the wild (naturalised) along the Boyne approximately 5 km south-west of Ballivor. It is a rare species, which is listed in the Red Data Book and has been recorded among freshwater marsh vegetation on the banks of the Boyne in this site. The only other record for this species in the Republic is from a site in Co. Monaghan. The secondary habitat associated with the marsh is wet grassland and species such as Tall Fescue (*Festuca arundinacea*), Silverweed (*Potentilla anserina*), Creeping Buttercup (*Ranunculus repens*), Meadowsweet (*Filipendula ulmaria*) and Meadow Vetchling (*Lathyrus pratensis*) are well represented. Strawberry Clover (*Trifolium fragiferum*), a plant generally restricted to coastal locations in Ireland, has been recorded from wet grassland vegetation at Trim. At Rossnaree riverbank on the River Boyne, is Round-Fruited Rush (*Juncus compressus*) found in alluvial pasture, which is generally periodically flooded during the winter months. This rare plant is only found in three counties in Ireland. Along much of the Boyne and along tributary stretches are areas of mature deciduous woodland on the steeper slopes above the floodplain marsh or wet woodland vegetation. Many of these are planted in origin. However the steeper areas of King Williams Glen and Townley Hall wood have been left unmanaged and now have a more natural character. East of Curley Hole the woodland has a natural appearance with few conifers. Broad-leaved species include Oak (*Quercus* spp.), Ash (*Fraxinus excelsior*), Willows, Hazel (*Corylus avellana*), Sycamore (*Acer pseudoplatanus*), Holly (*Ilex aquifolium*), Horse chestnut (*Aesculus* sp.) and the shrubs Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Elder (*Sambucus nigra*). South-west of Ballivor and in Dowth, the addition of some

more exotic tree species such as Wych Elm (*Ulmus glabra*), Beech (*Fagus sylvatica*), and occasionally Lime (*Tilia cordata*), are seen. Coniferous trees, Larch (*Larix* sp.) and Scots Pine (*Pinus sylvestris*) also occur. The woodland ground flora includes Barren Strawberry (*Potentilla sterilis*), Enchanter's Nightshade (*Circaea lutetiana*) and Ground-ivy (*Glechoma hederacea*), along with a range of ferns. Variation occurs in the composition of the canopy, for example, in wet patches alongside the river, White Willow and Alder form the canopy. Other habitats present along the Boyne and Blackwater include lowland dry grassland, improved grassland, reedswamp, weedy wasteground areas, scrub, hedge, drainage ditches and canal. In the vicinity of Lough Shesk, the dry slopes of the morainic hummocks support grassland vegetation which, in some places, is partially colonized by Gorse (*Ulex europaeus*) scrub. Those grasslands which remain unimproved for pasture are species-rich with Common Knapweed (*Centaurea nigra*), Creeping Thistle (*Cirsium arvense*) and Ribwort Plantain (*Plantago lanceolata*) commonly present. Fringing the canal alongside the Boyne south-west of Ballivor, are Reed Sweet-grass (*Glyceria maxima*), Great Willowherb (*Epilobium hirsutum*) and Meadowsweet. The Boyne and its tributaries is one of Ireland's premier game fisheries and it offers a wide range of angling from fishing for spring salmon and grilse to seatrout fishing and extensive brown trout fishing. Atlantic Salmon (*Salmo salar*) use the tributaries and headwaters as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. Atlantic Salmon run the Boyne almost every month of the year. The Boyne is most important as it represents an eastern river, which holds large three-sea-winter fish from 20 –30 lb. These fish generally arrive in February with smaller spring fish (10 lb) arriving in April/May. The grilse come in July, water permitting. The river gets a further run of fish in late August and this run would appear to last well after the fishing season. The salmon fishing season lasts from 1st March to 30th September. The Blackwater is a medium sized limestone river, which is still recovering from the effects of the arterial drainage scheme of the 70's. Salmon stocks have not recovered to the numbers pre drainage. The Deel, Riverstown, Stoneyford and Tremblestown

Rivers are all spring fed with a continuous high volume of water. They are difficult to fish in that some are overgrown while others have been affected by drainage with the resulting high banks. The site is also important for the populations of two other species listed on Annex II of the E.U. Habitats Directive, namely River Lamprey (*Lampetra fluviatilis*) which is present in the lower reaches of the Boyne River while the Otter (*Lutra lutra*) can be found throughout the site. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. Common Frog, another Red Data Book species, also occurs within the site. All of these animals with the addition of the Stoat and Red Squirrel, which also occur within the site, are protected under the Wildlife Act. Whooper Swans winter regularly at several locations along the Boyne and Blackwater Rivers. Parts of these areas are within the cSAC site. Known sites are at Newgrange (c. 20 in

recent winters), near Ballivor (20+ in recent winters), Wilkinstown (several records of 100+) and River Blackwater from Kells to Navan (104 at Kells in winter 1996/97, 182 at Headfort in winter 1997/98, 200-300 in winter 1999/00). The available information indicates that there is a regular wintering population of Whooper Swans based along the Boyne and Blackwater River valleys. The birds use a range of feeding sites but roosting sites are not well known. The population is substantial, certainly of national, and at times international, importance. Numbers are probably in the low hundreds. Intensive agriculture is the main landuse along the site. Much of the grassland is in very large fields and is improved. Silage harvesting is carried out. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the lakes. In the more extensive agricultural areas sheep grazing is carried out. Fishing is a main tourist attraction on the Boyne and Blackwater and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The Eastern Regional Fishery Board have erected fencing along selected stretches of the river as part of their salmonid enhancement programme. Parts of the river system have been arterially dredged. In 1969 an arterial dredging scheme commenced and disrupted angling for 18 years. The dredging altered the character of the river completely and resulted in many cases in leaving very high banks. The main channel from Drogheda upstream to Navan was left untouched, as were a few stretches on the Blackwater. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to salmonid habitat in the area. Drainage of the adjacent river systems also impacts on the many small wetland areas throughout the site. The River Boyne is a designated Salmonid Water under the EU Freshwater Fish Directive. The site supports populations of several species listed on Annex II of the EU Habitats Directive, and habitats listed on Annex I of this directive, as well as examples of other important habitats. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.

19.06.2003

APPENDIX B

CONSERVATION OBJECTIVES RIVER BOYNE AND RIVER BLACKWATER SAC

European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status areas designated as candidate Special Areas of Conservation. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites. According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, is stable or increasing, and
- the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable as defined below.

The favourable conservation status of a species is achieved when:

- population data on the species concerned indicate that it is maintaining itself, and
- the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Objective 1: To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Alkaline fens; Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae).

Objective 2: To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: *Lampetra fluviatilis, Salmo salar, Lutra lutra.*

Objective 3: To maintain the extent, species richness and biodiversity of the entire site.

Objective 4: To establish effective liaison and co-operation with landowners, legal users and relevant authorities.