30th September 2010.

Administration
Environmental Licensing Programme
Office of Climate, Licensing & Resource Use
Environmental Protection Agency
Headquarters
P.O. Box 3000 Johnstown Castle Estate
County Wexford

RE: WASTE WATER DISCHARGE LICENCE APPLICATION:
D0366-01 – BELCARRA

Dear Ms Wylde

Further to your letter of 17th December 2009, I enclose the required responses to the queries raised in the correspondence.

For clarity, the responses have been made point by point with the answers to the queries raised indicated in blue.

This documentation includes:
- 1 no. signed copy & 1 no. copy in hardcopy format of the documentation
- 1 no. copies of all files in electronic searchable PDF format on CD-ROM
- 1 copies of digital geo-referenced drawing files on CD ROM

The content of the electronic files on the accompanying CD-ROM is a true copy of the original documentation.

Thank you,

Yours sincerely

Paddy Mahon
Director of Services

www.mayococo.ie
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MAYO COUNTY COUNCIL

BELCARRA

WASTE WATER DISCHARGE LICENCE

APPLICATION

Regulation 16 Compliance Requirements

Regulation 16 Compliance Responses – September 2010
Regulation 16 Compliance Requirements

**Question No. 1**

The application states that the treatment plant at Belcarra has a design capacity of 500 p.e. Please confirm the current p.e. being treated by the waste water treatment plant.

**Answer No. 1**

The Treatment Plant was designed to cater for a 500 PE.

The plant is currently operating at an estimated flow through the plant of 90m³/day as per Attachment A.1 Non-Technical Summary of the original application.

This equates to 400 PE @ 225l/per PE day.

**Question No. 2**

Carry out an Appropriate Assessment of the implications of the discharge from the Belcarra wastewater treatment plant for the designated site (River Moy SAC, site code 002298) in view of the site's conservation objectives.

The Circular L8/08 "Water Services Investment and Rural Water Programmes - Protection of Natural Heritage and National Monuments" issued by the Department of the Environment, Heritage & Local Government should be referred to.

In particular, the flow diagram in Appendix 1 should be completed and the results provided.

The Agency's Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 should be consulted when carrying out the appropriate assessment.

Your reply to this notice should include a revised non-technical summary which reflects the information you supply in compliance with the notice, insofar as that information impinges on the non-technical summary.

**Answer No. 2**

Attachment F.1, contains a copy of the "D0366-01, Appropriate Assessment Screening for Belcarra Wastewater Discharge Licence Application, September 2010".

The screening indicates that a full Appropriate Assessment will be required.
MAYO COUNTY COUNCIL
BELCARRA
WASTE WATER DISCHARGE LICENCE
APPLICATION

Regulation 16 Compliance Requirements

ATTACHMENT F.1

Screening for Appropriate Assessment – September 2010
APPROPRIATE ASSESSMENT SCREENING

For

BELCARRA WASTEWATER DISCHARGE
Licence Application

September 2010

In accordance with the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007)

And

Article 6(3) and 6 (4) of the
Habitats Directive 92/43/EEC
1. INTRODUCTION

Mayo County Council, Aras an Chontae, Castlebar, County Mayo made an application to the Environmental Protection Agency (EPA) for a Waste Water Discharge Licence, for Belcarra Agglomeration in compliance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007), in June 2009.

Under Part II Schedule 5 (5) of the Wastewater Discharge (Authorisation) Regulations 2007, In considering an application, where it appears to the Agency (i.e. Environmental Protection Agency) that the discharge concerned, or the proposed discharge, as the case may be, is likely to have a significant effect on a European site, either alone or in combination with other operations or activities, the Agency shall cause an assessment to be made of the implications for the site in view of that site’s conservation objectives, and the Agency in deciding on the application shall have regard to the conclusions of the assessment.

The Belcarra Wastewater Treatment Plant discharges into the Manulla River via discharge point SW1P. The Manulla River is designated salmonid. The Belcarra WWTP is located directly in the River Moy SAC (Site Code 002298). The Ballinafad SAC/pNHA (Site Code 002081) is located 3.3km south-east of the primary discharge point SW1P. The Carrowmore Lough Shore pNHA (Site Code 001492) is located 4.6km north-east of SW1P and The Lough Beg, Carrowmore pNHA (Site Code 001528) is located 3.7km southwest of the primary discharge point.

This report includes:-

1. Screening of the proposed plan in order to determine whether an Appropriate Assessment is required.

Purpose of Appropriate Assessment

Articles 6(3) and 6(4) of the Habitat Directive 92/43/EEC require an Appropriate Assessment of plans to prevent significant adverse effects on Natura 2000 sites.

Article 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 there on 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.

Article 6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of the Nature 2000 site is protected. It shall inform the Commission of the compensatory measures adopted.
The purpose of this Appropriate Assessment (AA) is to address the potential impacts of discharges from the Belcarra Waste Water Treatment Plant on the conservation objectives of Natura 2000 Sites – River Moy cSAC (Site Code 002298), Ballinafad SAC/pNHA (Site Code 002081), Carrowmore Lough Shore pNHA (Site Code 001492) and Lough Beg, Carrowmore pNHA (Site Code 001528).

The AA must determine whether the project is likely to have significant adverse effects on the site either alone or in conjunction with other plans and projects in the area and whether these effects will adversely affect the integrity of the SAC in terms of their nature conservation objectives.

**Figure 1.1 - Location Map – Belcarra WWTP and associated discharges and Natura 2000 sites.**
2. APPROPRIATE ASSESSMENT - THE PROCESS

According to European Commission Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EC (2001) and MN2000, the assessment requirements of Article 6 establish a stage-by-stage approach as follows:

**Stage 1 - Screening for a likely significant effect:** An initial assessment of the project or plans effect on a European site(s). If it cannot be concluded that there will be no significant effect upon a European site, an AA is required;

**Stage 2 - Appropriate Assessment:** The consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects of 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 3 – 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:

**Stage 4 – Assessment where no alternative solutions exist and 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.

Each stage determines whether a further stage in the process is required. If, for example, the conclusions at the end of Stage One are that there will be no significant impacts on the Natura 2000 site, there is no requirement to proceed further.

The following Assessment has been prepared in consultation with the following documents:

- EC (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- Guidance document on Article 6(4) of the ‘Habitats Directive’ 92/43/EEC.
3. STAGE 1 - SCREENING

Screening is the process of deciding whether or not an AA is required for the project or plan. Screening only requires sufficient information to determine if there is a likely significant effect on a Natura 2000 site and does not require the detailed information needed for the AA.

The following Stage 1 Screening was undertaken according to the Department of Environment, Heritage and Local Government Circular L8/08 and EC Methodological guidance on the provision of Article 6 (3) and (4) of the Habitats Directive 92/443/EEC. This Screening is used below to ascertain if an AA is required.

3.1 – Description of the Project

The Wastewater Treatment Works in Belcarra, commissioned in 2001, provides a collection network consisting of foul sewers and 1 No. pumping station and a WWTP for a population equivalent (P.E.) of 500. Treated effluent from the plant is discharged to the Manulla River through a primary discharge point (SW1P). The treatment plant process uses a biological filtration system consisting of Primary Settlement and a Rotating Biological Contactor. The sludge is tanker off site to Castlebar WWTP.

The WWTP is designed to treat wastewater to the following standards:

- BOD 25mg/l;
- COD 125mg/l;
- Suspended Solids 35mg/l;

The Waste Water Treatment process takes place in a package plant consisting of the following:

- Influent sampling point
- Influent chamber
- Primary settlement tank
- Rotating biological discs
- Sludge return to sludge holding area
- Final effluent sampling point
- Sludge storage in primary settlement tank

The existing pipe network in Belcarra consists mostly of 225mm diameter pipe collection system. The majority of the town gravitates to a pumping station located in the middle of the village. The sewage is then pumped across the Manulla River into a chamber and gravitates to the treatment plant. A small part of the town gravitates directly to the treatment plant. Emissions from the WWTP are discharged to the Manulla River through an outfall labelled SW1 (P) (120027E, 284563N). This is the primary discharge point. There is one secondary discharge point which is an emergency overflow from the pumping station SW2 (119982E, 284410N). The pumping station has been designed with a 2-hour emergency volume of storage. This is to give sufficient time for repair to the pumping plant or power supply.

The average volume currently discharged from the municipal effluent stream of the treatment plant is estimated at 90m³/day (400 PE). This is equivalent to an estimated maximum discharge of 2.25kg BOD and 3.15kg Suspended Solids per day.
Figure 3.1 - Location of primary discharge

(SW1P)
3.2 – Description of Natura 2000 Site

Name: River Moy SAC (Site Code 002298)
(see Appendix A for site synopses)

As can be seen in Figure 1.1, Belcarra WWTP is located directly in the River Moy SAC.
The River Moy SAC has an area of approximately 231ha. The SAC has been designated for the following habitats and species:

- Active Raised Bogs (Habitat Code 7110) – good representativity;
- Degraded raised bogs still capable of natural regeneration (Habitat Code 7120) – good representativity;
- Depressions of peat substrates of the Rhynchosporion – (Habitat Code 7150) – good representativity;
- Old sessile oak woods with Ilex and Blechnum in British Isles (Habitat Code 91A0) – excellent representativity;
- Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion al) (Habitat Code 91E0) – significant representivity;
- Salmo salar (Species Code 1106) – greater than 2% of national population
- Petromyzon marinus (Species Code 1095) – greater than 2% of national population
- Lampetra planeri (Species Code 1096) – greater than 2% of national population
- Lutra lutra (Species Code 1355) – greater than 2% of national population
- Austropotamobius pallipes (Species Code 1092) – greater than 2% of national population.

Name: Ballinafad SAC/pNHA (Site Code 002081)
(see Appendix A for site synopses)

Ballinafad SAC/pNHA is located 3.3km south-east of primary discharge SW1P.

It is a breeding site for the Lesser Horseshoe Bat (Rhinolophus hipposideros), a species listed on Annex II of the EU Habitats Directive.

This site is a large building which was formerly used as an agricultural college. The bats use the roof space which they access through roof hatches.

Name: Carrowmore Lough Shore pNHA (Site Code: 001492)

Carrowmore Lough Shore pNHA is located 4.6km north-east of primary discharge SW1P. It is located in the lower catchment of the Manulla River but not actually downstream.

Carrowmore is a large deep lake surrounded by gently rolling farmland. It lies in a depression underlain by calcareous rocks covered by a marl substrate.

Vegetation has encroached on its former margins to form bogland.

The shoreline is quite varied with an excellent diversity of habitats including areas of cutover bog, limestone outcrops, fen and freshwater marsh.

The variety of substrates and habitats in this area creates a good diversity of plant communities.
Name: Lough Beg, Carrowmore pNHA (Site Code 001528)

Lough Beg, Carrowmore pNHA is located 3.7km southwest of primary discharge point SW1P.

It lies approximately 6.5km northeast of Lough Carm, towards Belcarra in the townland of Carrowmore.

The site is a lake infill showing several interesting stages of fen development including extensive reedbeds (Phragmites australis), which were formed when the Lough was drained in the 1850’s.

The variety of plant species and habitats, coupled with proximity to roadways makes the site of general educational importance.

3.3 – Other projects and plans to be considered ‘in combination’.

There have been 22 planning applications granted since 2004 within the Agglomeration serviced by the Belcarra sewerage network.

There has been significant development in the village since 2004. There have been four medium sized housing developments, an apartment block and ten new stand alone houses constructed in the agglomeration since 2004. There was also a reconstruction of a sports centre. It is considered that the plant has reached its design population equivalent of 500 since its commissioning in 2001 and if further development of the village continues, additional capacity at the plant will have to be added to cater for the additional development.

There is one IPPC licensed premises within 5km of Belcarra WWTP.

Breaffy House Hotel (Licence No WP(W)51) – located 4.5km northeast of primary discharge point SW1P.

There is also 1 Mayo County Council discharge license within 5km of Belcarra WWTP.

– Glanbia Farms Ltd located 4km to the east of primary discharge point SW1P.

Neither one of these discharges are to be considered ‘in combination’ with Belcarra WWTP.

There is no Local Area Plan for Belcarra to be considered ‘in combination’ but due to development in recent years within the village, the treatment works is near its capacity and if further development of the village continues, additional capacity at the plant will have to be added to cater for the additional development.

Conclusion: There are no projects or plans to be considered ‘in combination’ with the current discharge license application.

3.4 – Assessment Criteria

3.4.1 – Is the development in or on the boundary of the aforementioned nature conservation sites?

Yes, discharges from the Belcarra WWTP are located directly within the River Moy SAC (see Figure 1.1).

**Flora Protection Order Species:**

On the basis of NPWS Records, 3 different Flora Protection Order Species have been recorded within the four 10km survey grids (M28, M38, M17 and M27) within 5km of Belcarra WWTP and associated discharge. These records are of Irish St. Johns Wort, Pillwort and Slender Naiad. The records for Irish St. Johns Wort were taken in the Tourmakeady area which is approximately 20km from Turlough. Pillwort was recorded just once in 1965 in Tourmakeady also, at Lough Mask. Slender Naiad was recorded just once also in 2004 at Lough Negaltia which is approximately 15km from Belcarra. None of the species listed above have been found within the 5km grid square in which Belcarra WWTP is located and therefore it is considered that the WWTP and associated discharge do not impact on these species.

**Wildlife Acts Species:**

The NPWS have recorded badger, common frog, Fallow Deer, Freshwater Crayfish, Irish hare, Irish Stoat, Otter, Pine Marten, Sika Deer, Whorl Snail, within four 10km survey grids (M28, M38, M17 and M27) within 5km of Belcarra WWTP and associated discharge. Three of these species are water dependent species.

The only species from this list potentially of risk from the WWTP and associated discharges are the freshwater crayfish and otter. Impacts on otter are considered indirect, while impacts on white-clawed crayfish are direct.

White-clawed crayfish are widely distributed throughout the Irish midlands, and are located in 28 x 10km grid squares in County Mayo. The population status is favourable although the overall conservation status for future prospects for the species is unfavourable-inadequate, due to the reduction of range and locality number and continuing pressures (Reynolds, 2007). Crayfish require moderate to good water quality with water quality Q-ratings of less than 3 deemed unsuitable to support this species (Reynolds, 2007). Ideally water quality should be maintained at Q3-4 or greater to support this species although the species is found within Q3 water quality.

Occasional discharges from wastewater treatment plants are considered a threat to this species (Reynolds, 2007). Water quality in the Manulla River both upstream and downstream of Belcarra WWTP is currently classified as Q3 (moderately polluted). Freshwater Crayfish have been recorded on a few occasions in the Manulla River at Manulla Bridge (approx. 4km downstream of SW1P) during the 1980’s.
Otter have been recorded in 2005 in the Manulla River at Ballinafad bridge approximately 3.3 km upstream of Belcarra WWTP. No evidence of otter was found within the vicinity of the WWTP and associated discharges during a site walk-over survey undertaken on the 29th August 2010 as part of this screening report. Otter populations have the potential to be indirectly impacted from water quality impacts from the WWTP should these affect fish populations which are an important food source for the otter. However, otter feed on a wide range of food including stickleback, frogs, eels and crayfish all of which can tolerate moderate pollution.

Water Quality in the Manulla River is currently classified as Q3 (EPA data). To achieve good water quality status under the EC Environmental Objectives (Surface Waters) Regulations 2009 (S.I.272 of 2009) in the Manulla River downstream of the Belcarra WWTP primary discharge point, the waste assimilative capacity (WAC) of the river at this point must not be exceeded.

The discharge from the WWTP is well within the WAC of the river for key parameters Biochemical Oxygen Demand (BOD), Suspended Solids and Ortho-Phosphate but the loading of Total Ammonia from the plant is outside the WAC of the receiving waters (see appendix B). The WWTP loading for Ammonia is 1.56kg/day while the WAC for Ammonia is 0.85kg/day.
The Dry Weather Flow (DWF) of the discharge from Belcarra Wastewater Treatment Plant is 2.2% of the DWF of the Manulla River. The WWTP in general does not appear to constitute a water quality risk to the river.

The dilution rate of the Manulla River is not very high (dilution rate = 44). The discharges from the wastewater treatment plant are well within the WAC of the river with the exception of Ammonia. This suggests that direct impact on nationally protected species that come under the Wildlife Acts (1976 & 2000) is possible, and as there is water dependent species (Freshwater Crayfish) located downstream in close proximity to the WWTP discharge point sufficient uncertainty remains that no direct impact on nationally protected species will occur.

3.4.3 – Is the development a surface water discharge or abstraction in the surface water catchment or immediately downstream of a nature conservation site with water dependant qualifying habitats/species?
Yes, Belcarra Wastewater Treatment Plant discharges to the Manulla River which is located within the River Moy Special Area of Conservation (Site Code 002298).

3.4.4 – Is the development a groundwater discharge or abstraction in the ground water catchment or within 5km of a nature conservation site with water dependant qualifying habitats/species?
No

3.4.5 - Is the development in the surface water or groundwater catchment of salmonid waters?
Yes, the development is located within the River Moy catchment.

3.4.6 – Is the treatment plant in an active or former floodplain or flood zone of a river, lake etc.?
The WWTP is located within ‘benefiting lands’ and a ‘drainage district’.

Drainage districts are a list of areas prepared on behalf of the Drainage Districts (Local Authorities with statutory responsibility for maintenance under the Arterial Drainage Act, 1925). These maps identify land that might benefit from the implementation of Arterial (Major) Drainage Schemes and indicate areas of land subject to flooding or poor drainage.

3.4.7 – Is the development of a surface discharge or abstraction to or from marine waters and within 3km of a marine nature conservation site?
No, the Belcarra WWTP discharges to the Manulla River, not to the marine environment. There is no marine SAC or SPA within 3km downstream of the WWTP.
3.4.8 – Will the project in combination with other projects (existing and proposed) or changes to such projects affect the hydrology or water levels of sites of nature conservation interest or the habitats of protected species?

No, the average flow recorded in the Manulla River at Belcarra is 3695.76 m$^3$/day during dry weather flow and 6345.22 m$^3$/day during 95% weather flow. Therefore Belcarra WWTP discharge flow as a percentage of Dry Weather Flow (DWF) of the Castlebar River is only 2.27% and of the 95 percentile flow of the river is only 1.42%.

A review of all planning applications in the agglomeration since 2004 (Source: Mayo County Council GIS database), shows no major development has been proposed that would affect the hydrology or water levels of sites of nature conservation interest or the habitats of protected species.

3.4.9 - Conclusion:

It is considered that an Appropriate Assessment is required.

4. FINDINGS OF SIGNIFICANT EFFECTS REPORT MATRIX

4.1 – Name of project or plan

Belcarra Wastewater Treatment Plant Discharge License Application

4.2 - Name and location of Natura 2000 sites

River Moy SAC (Site Code 002298)
Ballinafad SAC/pNHA (Site Code 002081)
Carrowmore Lough Shore pNHA (Site Code 001492)
Lough Beg, Carrowmore pNHA (Site Code 001528)

4.3 - Description of the project or plan

As 3.1 above.

4.4 - Is the project or plan directly connected with or necessary to the management of the site (provide details)?

No

4.5 - Are there other projects or plans that together with the project or plan being assessed could affect the site (provide details)?

No
5. – THE ASSESSMENT OF SIGNIFICANCE OF EFFECTS

5.1 - Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site.

L8/08 states that if the screening process under section 3 above is to “Assess Impacts” then the project must be referred to the DEHLG Development Applications Unit (DAU). This Screening and Appropriate Assessment Report will be forwarded to the DAU along with the EPA.

The Belcarra Wastewater Treatment Plant discharges to the Manulla River, which is located within the River Moy Special Area of Conservation (Site Code 002298).

From Appendix B The dilution rate of the Manulla River is not very high (dilution rate = 44). The discharges from the wastewater treatment plant are well within the WAC of the river with the exception of Total Ammonia. This suggests that direct impact on nationally protected species that come under the Wildlife Acts (1976 & 2000) is possible, and as there is water dependent species (Freshwater Crayfish) located downstream in close proximity to the WWTP discharge point sufficient uncertainty remains that no direct impact on nationally protected species will occur.

Flooding has not been recorded in the area of the WWTP and discharge point (www.floodmaps.ie) but the WWTP is located within ‘benefiting lands’ and a ‘drainage district’ so sufficient uncertainty remains that no direct impact on the Natura 2000 site from the WWTP should a flood occur.

The information provided suggests that uncertainty remains as to whether significant effects are likely on the Natura 2000 site from the discharge from Belcarra Wastewater Treatment Plant. An Appropriate Assessment is required.

5.2 - Explain why these effects are not considered significant.

The information provided in 5.1 suggests that uncertainty remains as to whether significant effects are likely on the Natura 2000 site from the discharge from Belcarra WWTP.

5.3 - List of Agencies Consulted: Provide contact name and telephone or e-mail address:

1. Naomi Kingston/ Rebecca Jeffrey, National Parks and Wildlife Service, e-mail: Naomi.Kingston@environ.ie, natureconservation@environ.ie

2. David Harrington, North Western Fisheries Board.

Any available data was assessed from the following websites, WFD Ireland, Western RBD, National Biodiversity Data Centre, Department of Environment Heritage and Local Government, North Western Fisheries Board, EPA and National Parks and Wildlife.

5.4 - Response to Consultation

All available data has been made available by the NPWS for the purpose of this and any other assessments within County Mayo.
DATA COLLECTED TO CARRY OUT THE ASSESSMENT SCREENING

Who carried out the Appropriate Assessment Screening?

Ronan Mc Donnell, Ballina WWTP Manager, Mayo County Council

Sources of data

Any available data was assessed from the following websites, WFD Ireland, Western RBD, National Biodiversity Data Centre, Department of Environment Heritage and Local Government, and National Parks and Wildlife. See References/Sources of report.

Level of Assessment

Desk top study, site walkover survey.

Where can the full results of the Assessment Screening be accessed and viewed?

Water Services Capital Works Section, Mayo County Council.
References


- EC (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

- Guidance document on Article 6(4) of the ‘Habitats Directive’ 92/43/EEC.


- Mayo County Development Plan 2008-2014


- European Communities Environmental Objectives (Surface Waters) Regulations 2009.
APPENDIX A – SITE SYNOPSES FOR SACS

SITE SYNOPSIS
SITE NAME: RIVER MOY
SITE CODE: 002298
This site comprises almost the entire freshwater element of the Moy and its tributaries including both Loughs Conn and Cullin. The system drains a catchment area of 805sq. km. Most of the site is in Co. Mayo though parts are in west Sligo and north Roscommon. Apart from the Moy itself, other rivers included within the site are the Deel, Bar Deela, Castlehill, Addergoole, Clydagh and Manulla on the west side and the Glenree, Yellow, Strade, Gweestion, Sonnagh, Mullaghanoe, Owengarve, Eignagh and Owenaher on the east side. The underlying geology is Carboniferous Limestone for the most part though Carboniferous Sandstone is present at the extreme west of the site with Dalradian Quartzites and schists at the south west. Some of the tributaries at the east, the south of Lough Conn and all Lough Cullin are underlain by granite. There are many towns adjacent to but not within the site. These include Ballina, Crossmolina, Foxford, Swinford, Kiltimagh and Charlestown.

The site is a candidate SAC selected for alluvial wet woodlands and raised bog, both priority habitats on Annex I of the E.U. Habitats Directive. The site is also a candidate SAC selected for old oak woodlands, degraded raised bog and Rhynchosporion, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Atlantic Salmon, Otter, Sea and Brook Lamprey and White-clawed Crayfish.

On the slopes and rising ground around the southern shores of Loughs Conn and Cullin, Oak woodlands are seen. Sessile Oak (Quercus petraea) is the dominant tree with an understorey of Holly (Ilex aquifolium), Hazel (Corylus avellana) and Birch (Betula pubescens) with some Ash (Fraxinus excelsior). Additional species are associated with the lakeshore such as the whitebeam (Sorbus rupicola), Aspen (Populus tremula), Silver Birch (B. pendula) and the shrubs Guelder Rose (Viburnum opulus), Buckthorn (Rhamnus catharticus) and Spindle Tree (Euonymus europaeus). The ground flora is usually composed of Bilberry (Vaccinium myrtillus), Wood Rush (Luzula sylvatica), Wood Sorrel (Oxalis acetosella), Buckler Ferns (Dryopteris aemula and D. dilatata), Hard Fern (Blechnum spicant), Cow-wheat (Melampyrum spp.) and Bracken (Pteridium aquilinum). The rare Narrow-leaved Helleborine (Cephalanthera longifolia), protected under the Flora Protection Order, 1999, occurs in association with the woodlands. Also found in these woodlands is the snail (Acanthinula lamellata), associated with old natural woodlands.

On higher ground adjacent to the woodlands is blanket bog with scattered shrubs and trees on the drier areas. The rocky knolls often bear Juniper (Juniperus communis) or Gorse (Ulex europaeus), with some unusual rare herb species such as Intermediate Wintergreen (Pyrola media) and Lesser Twayblade (Listera cordata).

Within the site are a number of raised bogs including those at Kilgariff, Gowlaun, Derrynabrock, Tawnaghbeg and Clooonoonagh. These are examples of raised bogs at the north-western edge of the spectrum and possesses many of the species typical of such in Ireland, including an abundance of Bog Asphodel (Narthecium ossifragum), Carnation Sedge (Carex panicea) and the moss Campylopus atrovirens. Some of the bogs include significant areas of active raised bog habitat. Well developed pool and hummock systems with quaking mats of bog mosses (Sphagnum spp.), Bog Asphodel (Narthecium ossifragum) and White Beaked-sedge (Rhynchospora alba) are present. Many of the pools contain a diversity of plant species, including Bogbean (Menyanthes trifoliata), the bog moss Sphagnum cuspidatum, Campylopus atrovirens, Common Cottongrass (Eriophorum angustifolium), Great Sundew (Drosera anglica) and occasional Lesser Bladderwort (Utricularia minor). Several of the hummock forming mosses (Sphagnum fuscum and S. imbricatum) which occur here are quite rare in this region and add to the scientific interest of the bogs within the overall site.
Depressions on the bogs, pool edges and erosion channels, where the vegetation is dominated by White Beaked-sedge (Rhynchospora alba) comprise the habitat Rhynchosporion. Associated species in this habitat at the site include Bog Asphodel, Sundews, Deergrass (Scirpus cespitosus) and Carnation Sedge.

Degraded raised bog is present where the hydrology of the uncut bogs, has been affected by peat cutting and other land use activities in the surrounding area such as afforestation and associated drainage and also by the Moy arterial drainage. Species typical of the active raised bog habitat are still present but the relative abundance of them is different. A typical example of the degraded habitat, where drying has occurred at the edge of the high bog, contains an abundance and more uniform cover of Ling Heather (Calluna vulgaris), Carnation Sedge, Deergrass and sometimes Bogmyrtle (Myrica gale). Occurring in association with the uncut high bog are areas of wet regenerating cutover bog with species such as Common Cottongrass, bog mosses and Sundew, while on the drier areas, the vegetation is mostly dominated by Purple Moor-grass (Molinia caerulea). Natural regeneration with peat-forming capability will be possible over time with some restorative measures.

The open water of Loughs Conn and Cullin is moderately hard with relatively low colour and good transparency. The phytoplankton of the lake is dominated by diatoms and blue-green algae and there is evidence that nutrient inflow is occurring. Arctic Charr (Salvelinus alpinus) appear to have disappeared from the lake over the same period of time. The changes in Lough Conn appear to represent an early phase in the eutrophication process. Stoneworts still present include Chara aspera, C. delicatula and Nitella cf. opaca. Other plants found in the shallower portions are the pondweeds. Where there is a peat influence Intermediate Bladderwort (Utricularia intermedia) is characteristic while Water Lobelia (Lobelia dortmanna) often grows in sand. Narrow reedbeds and patches of Yellow Water-lily (Nuphar lutea) occur in some of the bays.

Drainage of the Moy in the 60s lowered the level of the lakes, exposing wide areas of stony shoreline and wet grassland, which are liable to flooding in winter. This increased the habitat diversity of the shoreline and created a number of marginal wetlands, including fens and marshes. Plant species of note in the lake-margin include Heath Cudweed (Omalotheca sylvatica), Great Burnet (Sanguisorba officinalis) and Irish Lady’s-tresses (Spiranthes romanzoffiana). These three species are listed on the Irish Red Data list and are protected under the Flora Protection Order 1999.

Other habitats present within the site include wet grassland dominated by Rushes (Juncus spp.) grading into species-rich marsh in which sedges are common. Among the other species found in this habitat are Yellow Iris (Iris pseudacorus), Water Mint (Mentha aquatica), Purple Loosestrife (Lythrum salicaria) and Soft Rush (Juncus effusus).

Grey Willow (Salix cinerea) scrub and pockets of wet woodland dominated by Alder (Alnus glutinosa) have become established in places throughout the site. 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 Tussock-sedge (Carex paniculata).

Small pockets of conifer plantation, close to the lakes and along the strip both sides of the rivers, are included in the site.
The Moy system is one of Ireland’s premier salmon waters and it also encompasses two of Ireland’s best lake trout fisheries in Loughs Conn and Cullin. Although the Atlantic Salmon (Salmo salar) 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. The Moy is a most productive catchment in salmon terms and this can be attributed to its being a fingered system with a multiplicity of 1st to 5th order tributaries which are large enough to support salmonids < 2 years of age while at the same time being too small to support significant adult trout numbers and are therefore highly productive in salmonid nursery terms.

Salmon run the Moy every month of the year. Both multi-sea-winter fish and grilse are present. The salmon fishing season is 1st February to 30th September. The peak of the spring fishing is in April and the grilse begin running in early May. The average weight of the spring fish is 9 lb and the grilse range from about 3-7 lb. In general spring fish are found more frequently in the rivers at the western extent of the Moy system.

The Arctic Char (Salvelinus alpinus), an interesting relict species from the last ice age, which is listed as threatened in the Irish Red Data Book has been recorded from Lough Conn and in only a few other lakes in Ireland. The latest reports suggest that it may now have disappeared from the site.

The site is also important for the presence of three other species listed on Annex II of the E.U. Habitats Directive, namely Sea Lamprey (Petromyzon marinus), Otter (Lutra lutra) and White-clawed Crayfish (Austropotamobius pallipes). The Sea Lamprey is regularly encountered in the lower stretches of the river around Ballina, while the otter and crayfish are widespread throughout the system. 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, Irish Hare and Daubenton’s Bat. Common Frog, another Red Data Book species, also occurs within the site.

Loughs Conn and Cullin support important concentrations of wintering waterfowl and both are designated Special Protection Areas. A nationally important population of the Annex I species Greenland White-fronted Geese (average 113 over 6 winters 1994/95 to 1999/00) is centred on Lough Conn. Whooper Swans also occur (numbers range between 25 to 50), along with nationally important populations of Tufted Duck 635, Goldeneye 189 and Coot 464. A range of other species occur on the lakes in regionally important concentrations, notably Wigeon 303, teal 154, Mallard 225, Pochard 182, Lapwing (>1,000) and Curlew 464. Golden Plover also frequent the lakes, with numbers ranging between 700 and 1,000.

Loughs Conn and Cullin are one of the few breeding sites for Common Scoter in Ireland. Breeding has occurred on Lough Conn since about the 1940s when about 20-30 pairs were known. A census in 1983 recorded 29 pairs. Breeding was first proved on Lough Cullin in 1983 when 24 pairs were recorded. In 1995, 24-26 pairs were recorded at Lough Conn and 5 pairs at Lough Cullin. The latest survey in 1999 gives a total of 30 birds for both lakes, comprising only 5 pairs, 18 unpaired males and 2 unpaired females. The reason for the decline is not known but may be due to predation by mink, possible changes in food supply and/or redistribution to other sites. The Common Scoter is a Red listed species.

Agriculture, with particular emphasis on grazing, is the main landuse along the Moy. Much of the grassland is unimproved but improved grassland and silage are also present. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the large lakes. Fishing is a main tourist attraction on the Moy and there are a large number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The North Western Regional Fishery Board have erected fencing along selected stretches of the river as part of their salmonid enhancement programme. Other aspects of tourism are concentrated around Loughs Conn and Cullin.
Afforestation has occurred in the past around the shores of Loughs Conn and Cullin. The coniferous trees are due for harvesting shortly. It is proposed to replant with native tree species in this area. Forestry is also present along many of the tributaries and in particular along the headwaters of the Deel. Forestry poses a threat in that sedimentation and acidification occurs. Sedimentation can cover the gravel beds resulting in a loss of suitable spawning grounds. The Moy has been arterially dredged in the 60s. Water levels have been reduced since that time. This is particularly evident along the shores of Loughs Conn and Cullin and in the canal-like appearance of some river stretches. 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.

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. The presence of a fine example of broad-leaved woodland in this part of the country increases the overall habitat diversity and adds to the ecological value of the site as does the presence of the range of nationally rare and Red Data Book plant and animal species.

16.05.2005

SITE SYNOPSIS
SITE NAME: BALLINAFAD
SITE CODE: 002081

This site is located approximately 10 km south-west of Castlebar in County Mayo. It is a breeding site for the Lesser Horseshoe Bat (Rhinolophus hipposideros), a species listed on Annex II of the EU Habitats Directive. This site is a large building which was formerly used as an agricultural college. The bats use the roof space which they access through roof hatches. In September 1998, 40 bats were counted at the site. The small population size recorded here is probably attributable to the fact that this is the most northerly site known for the species in Ireland, and hence Europe, rather than to any deficiency in the roosting site. The building is occupied, but only certain sectors of it are currently in use and maintained.

The surrounding wood provides suitable foraging habitat within a small radius of the day roost site which is of paramount importance to this species which avoids flying across open spaces. Although the number of bats at this site is relatively low, the site is important as it is the most northerly point in Europe where this species is known to occur.

11.1.2000
APPENDIX B

WASTE ASSIMILATIVE CAPACITY (WAC) CALCULATIONS

Dilution Rate:
No. Dilutions = Flow in receiving water (m³/d) / WWTP discharge volume (m³/d) = 3965.76 / 90 = 44 (Dilution Rate for WWTP)

WAC Calculation:
WAC (kg/d) = (Cmax-Cback) * F95 (m³/s) * 86.4

Where Cmax = max permissible concentration in receiving water
(based on achieving ‘good status’ under the EC Environmental Objectives (Surface Waters) Regulations 2009).

Cback = background (upstream) concentration (mg/l)

F95 = 95% flow in receiving river (m³/s)

WAC for BOD = (2.6-1) * 0.07344 * 86.4 = 10.4 kg/day BOD
(Using ‘Good Status’ for Cmax and results of aSW1u sample for Cback)

WAC for Suspended Solids = (25-2) * 0.07344 * 86.4 = 145.9 kg/d SS
(Using Salmonid Regulations for Cmax and results for aSW1u sample for Cback)

WAC for Ortho-phosphorus = (0.075-0.039) * 0.07344 * 86.4 = 0.228 kg/d Ortho-Phosphorus
(Using ‘Good Status’ 95%ile for Cmax, results for aSW1u sample for Cback and 95%ile flow in receiving water)

WAC for Ammonia = (0.14-0.006) * 0.07344 * 86.4 = 0.85 kg/d Ammonia
(Using ‘Good Status’ for Cmax and results for aSW1u sample for Cback)

Loadings from WWTP:

Loading (kg/d) = {discharge concentration (mg/l) x discharge flow (m³/d)} / 1000

Where discharge concentrations are based on maximum concentrations provided in Table D.1 (i) of the discharge license application and flows are based on Dry Weather Flow (DWF) included in Section C.1.2 of the discharge license application.

WWTP BOD loading (within WAC) = (68*90)/1000 = 6.12 kg/day BOD

WWTP SS loading (within WAC) = (106*90)/1000 = 9.54 kg/day SS

WWTP Ortho-phosphorus loading (within WAC) = (1.509*90)/1000 = 0.136 kg/day Ortho-P

WWTP Ammonia loading (outside WAC) = (17.358*90)/1000 = 1.56 kg/day Ammonia
Appendix C

Flow Chart from Appendix 1 of Circular L8/08 from DoEHLG.

1. Is the development in a nature conservation site.
   YES

2a. (If the development involves a surface water discharge:) Is the development in a surface water catchment of a nature conservation site (or part of such a site)?
   YES

4. Is the development in the surface or groundwater catchment of other water dependant Annex II species, other rare or protected species or salmonid waters?
   YES

Assessment Requirement