4th August 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 CERTIFICATE APPLICATION
REGISTRATION NO: A0015-01 – BUNNYCONNELLAN

Dear Dr. Creed,

Further to your letter of 7th April 2010, I enclose the required response to the query raised in the correspondence.

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
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MAYO COUNTY COUNCIL

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Question No. 1

Assess the likelihood of significant effects of the waste water discharges from the above agglomerations on the relevant European sites by referring to Circular L8/08 ' Water Services Investment and Rural Water Programmes - Protection of Natural Heritage and National Monuments' issued by the Department of Environment, Heritage and Local Government.

In particular, the flow diagram in Appendix 1 should be completed and the results of each section recorded.

Provide details of the results of this assessment within one month of the date of this notice.

If significant effects are likely then an appropriate assessment must be carried out and a report of this assessment forwarded to the Agency within one month of the date of this notice.

You are advised to provide the requested information in accordance with the 'Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. 684 of2007)' which is available at www.epa.ie/downloads/forms/lic/wwda/

Answer No. 1

Attachment F.1, contains a copy of the “A0015-01, Appropriate Assessment Screening for Bunnyconnellan Wastewater Discharge Certificate of Authorisation Application, July 2010”.

The screening indicates that a full Appropriate Assessment will not be required.
MAYO COUNTY COUNCIL

BUNNYCONNELLAN

WASTE WATER DISCHARGE

Certificate of Authorisation Application

ATTACHMENT F.1

Appropriate Assessment Screening
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 Bunnyconnellan Waste Water Treatment Plant and Agglomeration in compliance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007), in November 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 Bunnyconnellan Wastewater Treatment Plant discharges into the Srafaungal River (also referred to as the Bunnyconnellan Stream). There are 3 Natura 2000 sites located within 5km of the primary discharge point. The Ox Mountains Bogs SAC (Site Code 002006) is located 4.3km to the east and upstream of primary discharge, the River Moy SAC (Site Code 002298) is located 5km downstream of the primary discharge; and Lough Hoe Bog SAC (Site Code 000633) is located 3.7km southeast and upstream of the primary discharge point. Both the Ox Mountains Bogs SAC and Lough Hoe Bog SAC are also pNHAs.

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 Bunnyconnellan Waste Water Treatment Plant on the conservation objectives of Natura 2000 Sites - The Ox Mountains Bogs SAC/pNHA (Site Code 002006), The Lough Hoe Bog SAC/pNHA (Site Code 000633) and The River Moy SAC/pHNA (Site Code 002298).

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

Figure 1.1 - Location Map – Bunnyconnellan WWTP and associated discharges and adjacent 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 Waste Water Treatment Plant in Bunnyconnellan provides for a separate sewerage collection system catering for the village and its surroundings. The Bunnyconnellan WWTP with a capacity of 350 PE is currently being operated by Mayo County Council. Treated effluent from the plant is discharged to the Srafaungal River.

The WWTP is a package type plant called a Rotating Biological Contactor (R.B.C.) The process involved is of the Biozone type and the unit has:

- Primary Settlement
- Aerobic Treatment
- Final Settlement
- Sludge Storage

It produces a final effluent to meet the Urban Waste Water Directive.

The existing combined collection system was abandoned and the pipework was used as a storm sewer for the village centre. A new separate system was constructed. This entailed the construction of 1445m of 225 diameter concrete sewer pipes.

There are 2 No. Pumping Stations on the new Bunnyconnellan sewerage network. These pump effluent from their locations to the centre of town where it then flows by gravity to the WWTP on the Ballina Road. One pumping station is located on the Enniscrone Road and the other is located on the Attymass Road in front of the GAA pitch.

Both pumping stations have 2 No. pumps, duty and standby and the network is served by 225mm pipe work throughout.

Emissions from the WWTP are discharged to the Srafaungal River through an outfall labelled SW1 (P) (132244E, 318560N). This is the primary discharge point. There are no Secondary or Storm Water Overflows on the Bunnyconnellan Scheme. The old combined sewerage scheme network in the centre of the town acts as the storm water pipe line.

The wastewater treatment works is designed to treat the wastewater to the standards required by the Urban Wastewater Treatment Regulations i.e. BOD 25mg/l, COD 125mg/l and SS 35mg/l.

The average volume currently discharged from the municipal effluent stream of the treatment plant is estimated at 67.5m³/day (300 PE @225L/per PE day). This is equivalent to an estimated maximum discharge of 1.69kg BOD/day, 2.36kg Suspended solids.
The WWTP has a dry weather flow (DWF) of 67.5m$^3$/day or 0.00078125m$^3$/s into the Srafaungal River which has a DWF of 2220.48m$^3$/day or 0.0257m$^3$/s. The maximum volume emitted per day is 202.5m$^3$. The period of emission is 60min/hr, 24hr/day, 365 day/yr.

Emissions from the WWTP are monitored and the treatment process is adjusted to maximise the efficiency of the plant in removing any pollutants. The process is successful in removing BOD and suspended solids from the final effluent which results in a reduction of harmful emissions from the treatment works.

The Bunnyconnellan WWTP discharges into the Srafaungal River, which is not designated as salmonid (under the National Salmonid Regulations) and is not designated as nutrient sensitive under the Urban Waste Water Treatment Regulations.

**Location of Discharge From WWTP**

![Map of Location of Discharge From WWTP](image)

3.2 – Description of Natura 2000 Sites

(see Appendix A for site synopses)

The Ox Mountains Bogs SAC/pNHA (Site Code 002006) is located 4.3km to the east and upstream of the primary discharge point.

The Lough Hoe Bog SAC/pNHA (Site Code 000633) is located 3.7km southeast and upstream of the primary discharge point.

The River Moy SAC (Site Code 002298) is located 5km downstream of the primary discharge point.
The Ox Mountains Bog SAC/pNHA has an area of approximately 10570.3 ha. The SAC has been designated for the following habitats and species:

- Blanket Bog (active only) (Habitat Code 7130) – Excellent Representivity.
- Northern Atlantic wet heaths with Erica tetralix (Habitat Code 4010) – Good Representivity.
- Natural dystrophic lakes and ponds (Habitat Code 3160) - Excellent Representivity.
- Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) (Habitat Code 3110) - Good Representivity.
- Depressions on peat substrates of the Rhynchosporion (Habitat Code 7150) - Excellent Representivity.
- Vertigo geyeri (Species Code 1013) – greater than 15% of national population.

The Lough Hoe Bog SAC/pNHA has an area of approximately 3215.4 ha. The SAC has been designated for the following habitats and species:

- Blanket Bog (active only) (Habitat Code 7130) - Significant Representivity.
- Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) (Habitat Code 3110) - Good Representivity.
- Vertigo geyeri (Species Code 1013) – greater than 15% of national population.
- Austropotamobius pallipes (Species Code 1092) - greater than 2% of national population.

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 representatively;
- Degraded raised bogs still capable of natural regeneration (Habitat Code 7120) - good representatively;
- Depressions of peat substrates of the Rhynchosporion – (Habitat Code 7150) – good representatively;
- Old sessile oak woods with Ilex and Blechnum in British Isles (Habitat Code 91A0) – excellent representatively;
- 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.

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

There are no IPPC licenses or Mayo County Council water discharge licenses within 5km of the Bunnyconnellan WWTP discharge.

10 planning applications were submitted within the Agglomeration Boundary between 2004 and present (May 2010), 9 of which were granted planning permission. There were 2 housing developments, one consisting of 6 houses and the other consisting of 7 houses to be accommodated within the existing WWTP. One application was for a dwelling house and one application for an extension to a dwelling house. There was an application for an extension to the existing national school and also construction of a new 3 classroom primary school. An application was made for alterations and extensions to the existing community centre. There was an application for change of use from a storage shed to use as a funeral parlour, and an application for change of use of an existing structure to a take-away. None of these planning applications are for significant projects or plans that would impact on sites of nature conservation importance.
Bunnyconnellan Wastewater Discharge Certificate of Authorisation Application – Appropriate Assessment Screening

Bunnyconnellan is one of seventy two villages identified in the Country Settlement Strategy of the Mayo County Development Plan 2008-2014 as a focus for an appropriate level of expansion including small-scale housing development. While supporting the development of these villages, the Council will require that the design and scale of new development respects the intrinsic rural character and ethos of the existing villages.

The full development potential of the villages in partially sustaining and maintaining the rural population will depend on the provision of infrastructure. It is recognized, therefore, that in the short term, the range and scale of development that can be accommodated in some of the villages, will be constrained pending the provision of infrastructure. The Council will actively work, in full cooperation with potential developers, to provide some or all of this infrastructure on an agreed partnership basis in towns and villages where there is a local area plan adopted.

There are no objectives outlined in the Plan which may potentially impact on sites of nature conservation importance as there are no Natura 2000 sites within the Bunnyconnellan area itself.

3.4 – Assessment Criteria

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

No the Bunnyconnellan WWTP and agglomeration is not on or on the boundary of the River Moy SAC/pNHA (Site Code 002298), the Ox Mountains Bogs SAC/pNHA (Site Code 002006) or the Lough Hoe Bog SAC/pNHA (Site Code 000633).


A data search of the National Parks and Wildlife 10km survey grids (Grid Squares G22, G31, G32 and G41) of both the National Parks website and datasets obtained from the NPWS have recorded the presence of Badger (Meles meles) at 8 sites, Common Frog (Rana temporaria) at 4 sites, Common Seal (Phoca vitulina) at 1 site, Fallow Deer (Dama dama) at 1 site, Irish Hare (Lepus timidus subsp. Hibernicus) at 7 sites, Irish Stoat (Mustela erminea subsp. Hibernica) at 3 sites, Otter (Lutra lutra) at 18 sites, Pine Marten (Martes martes) at 1 site, West European Hedgehog (Erinaceus europaeus) at 1 site, Sea Lamprey (Petromyzon marinus) at 8 sites, Cladonia portentosa at 1 site, Great Burnet (Sanguisorba officinalis) at 2 sites, Hoary Whitlowgrass (Draba incana) at 1 site and Opposite-Leaved Pondweed (Groenlandia densa) at 2 sites.

White-clawed crayfish distribution is strongly determined by bedrock type, and they generally occur in areas with relatively hard, mineral-rich waters on calcareous and rapidly weathering rocks such as limestone and sandstone (Holdich, 2003; Demers et al., 2005). For NPWS/EPA records of white-clawed crayfish in County Mayo, 81% of records were located on calcareous bedrock, 13% on sandstone bedrock types, and 6% located on other non-calcareous bedrock types. The Srafaungal river catchment area is generally Calcaneous bedrock but there are no records of white-clawed crayfish in this area.

Freshwater pearl mussel prefer rivers flowing over non-calcareous rock that have little calcium and are generally low in nutrients (Moorkens, 1999; Skinner & Hastie, 2003) although this is not supported by available data in Mayo. For NPWS records of the species in County Mayo, 43% of pearl mussel records were located on sandstone bedrock, 42% were located on calcareous bedrock, with 16% located on other non-calcereous bedrock types. It is considered that the distribution of this species here is more influenced by other factors. Like the white-clawed crayfish there are no records of freshwater pearl mussel in the Srafaungal river catchment area.
The species potentially at risk from the WWTP discharges are the Otter, the Sea Lamprey, the Common Frog, the Common Seal and Opposite-Leaved Pondweed.

The presence of the otter was recorded at 2 sites in 2005. One of these sites was Behy Bridge, south of Bunnyconnellan. 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. Other recordings of the otter within the Bunnyconnellan area were in 1980.

The presence of the Sea Lamprey was recorded at 8 sites within the 10km survey grids. The majority of the recordings were on the River Moy. There was one recording of the presence of the Sea Lamprey on the Brusna River which is downstream of the Srafaungal River. Sea lamprey become evident at spawning time. Spawning has been observed in the River Moy in Ballina. Water quality and eutrophication are not considered to be highly significant in impacting on lamprey status, in general. O’Connor (2007) found lampreys in rivers with Q values as low as 2 and suggested that, if anything, lampreys seem to favour slightly elevated levels of organic material and filamentous algae. King and Lehane (unpublished data) examined lamprey ammocoete density in the context of water quality as recorded in the EPA ‘Q’ rating system and found no linkage or correlation. Both low and high density values for ammocoetes were found in a wide range of water quality types.
The common frog may have been introduced to Ireland, but, whatever its origins, it is now widespread and common throughout Ireland. In fact it is one of the most common amphibians in Europe. Frogs emerge from hibernation in early spring, returning to the same breeding pond each year in March or April to spawn. The tadpoles can take 4 - 10 weeks to develop, but occasionally tadpoles will overwinter in ponds before metamorphosing the following spring. They feed on slugs, worms, flies and other insects. Amphibians are subject to impacts in both the aquatic and the terrestrial environments. The main threats and pressures for this species relate for the most part to the reduced availability of breeding sites, or the reduced quality of the surrounding terrestrial habitats. The presence of the common frog was recorded at 4 sites within the 10km survey grids between 1973 and 2003. One of the locations wasn’t recorded. The other 3 locations were not in the Srafaungal river catchment area.

The common (harbour) seal is found widely on Irish coastlines and mainly uses inter-tidal rocky shores, sand and mud bars within sheltered bays, coves and estuaries. It is most abundant on the west coast from Donegal to West Cork. Pupping takes place in sheltered areas in June-July with moulting in August and dispersal during the autumn months. The seals feed on a variety of fish and crustaceans. Changes in fishing intensity and practices have led to reduced antagonism from the fishing industry towards the species. The seal haul-outs are an attraction for tourist boats in a number of locations in Ireland.

The main threats to the species are continued by-catch in fishing gear, occasional illegal culling, competition for prey resources with fisheries and disturbance at key breeding and moulting haul-out sites. The presence of the common seal was recorded in Killala Bay in August 2003. The Killala Bay / Moy Estuary is located 10km downstream of the primary discharge point.

Opposite-leaved pondweed which is protected under the Flora Protection Order 1999 was recorded at 2 sites within the 10km survey grids in 1939. These sites were not within the G41 10km grid which is where the WWTP is located. It is considered that the WWTP and associated discharge does not impact on this species.

The water quality of the Srafaungal river is considered to be of high status. According to European Communities Environmental Objectives (Surface Water) Regulations 2009 the general definition of high status is:

‘There are no, or only very minor, anthropogenic alterations to the values of the physico-chemical and hydromorphological quality elements for the surface water body type from those normally associated with that type under undisturbed conditions. The values of the biological quality elements for the surface water body reflect those normally associated with that type under undisturbed conditions, and show no, or only very minor, evidence of distortion’.

The Waste Assimilative Capacity (WAC) calculations were done for BOD, Suspended Solids, Orthophosphorus and Ammonia. See Appendix B.
From these calculations Orthophosphorus and Ammonia exceeded the high water quality requirements which may lead to a deterioration of the high river water quality but both BOD and Suspended Solids were within the WAC.

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?

No, there are no designated SACs or SPAs within the catchment or immediately upstream of the Bunnyconnellan WWTP and associated discharges. The Ox Mountains Bogs SAC (Site Code 002006) is located 4.3km to the east and upstream of primary discharge and Lough Hoe Bog SAC is located 3.7km southeast and upstream of the primary discharge point.
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, the development is a surface water discharge.

3.4.5 - Is the development in the surface water or groundwater catchment of salmonid waters?

The Srafaungal River is not designated as salmonid (under the National Salmonid Regulations). However it is a tributary of the River Moy which is a Salmonid river.

3.4.6 – Is the treatment plant in an active or former floodplain or flood zone of a river, lake etc.?

There is no record of flooding in the vicinity of the Bunnyconnellan WWTP. (www.floodmaps.ie)

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 Bunnyconnellan WWTP discharges to the Srafaungal 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 WWTP discharge flow as a percentage of Dry Weather Flow (DWF) of the Srafaungal River is only 3% and of the 95 percentile flow of the river is only 1.9%.

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 not required.

4. FINDINGS OF SIGNIFICANT EFFECTS REPORT MATRIX

4.1 – Name of project or plan

Bunnyconnellan Wastewater Treatment Plant Discharge Licence Application

4.2 - Name and location of Natura 2000 sites

The Ox Mountains Bogs SAC/pNHA (Site Code 002006), The Lough Hoe Bog SAC/pNHA (Site Code 000633), The River Moy SAC (Site Code 002298)

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.

Impacts are summarized below based on Figure 1: Screening Matrix of the EC Guidance (2001).

The Bunnyconnellan WWTP and associated discharges will not impact on any Natura site.

5.2 - Explain why these effects are not considered significant.

There are no Natura 2000 sites downstream of the WWTP and associated discharges that would be impacted by the sewerage scheme.

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

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.

5.4 - Response to Consultation

N/A

DATA COLLECTED TO CARRY OUT THE ASSESSMENT SCREENING

Who carried out the Appropriate Assessment Screening?

Catherine Maughan, Environmental Technician.

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

Site Visit and Desk top study.

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

The Ox Mountains Bogs (Site Code 002006)

This site comprises several upland blanket bogs situated in the Slieve Gamph, or Ox Mountain range, on the border between Counties Sligo and Mayo. The town of Tobercurry lies approximately 12 km to the south-east. Most of the underlying rock is composed of metamorphic schists and gneisses, but igneous intrusions are also found, as at the silica-rich granitic ridge to the east of Easky Lough. The site contains extensive areas of blanket bog. The dominant and most frequently occurring vascular plant species found are Heather (Calluna vulgaris), Cross-leaved Heath (Erica tetralix), Deergrass (Scirpus cespitosus), Purple Moor-grass (Molinia caerulea), Common Cottongrass (Eriophorum angustifoillum) and Hare’s-tail Cottongrass (E. vaginatum). Bog Mosses (Sphagnum spp.) such as S. papillosum and S. capillifolium occur commonly through the site and contribute significantly to the vegetation.

Another important feature of the site is the large number of dystrophic, bog pool systems that occurs. Typically, the pools support Sphagnum cuspidatum, Bog-sedge (Carex limosa) and Bogbean (Menyanthes trifoliata). White Beak-sedge (Rhyynchospora alba) occurs abundantly on pool margins. Between the pools, hummocks topped with Heather, lichens (Cladonia spp.) and the moss, Racomitrium lanuginosum occur. Quaking Sphagnum lawns occur commonly about pool systems. Several oligotrophic lakes occur on the site, the largest of which is Easky Lough. This is a stony-bottomed lake which supports aquatic vegetation typical of such lakes, i.e. Shoreweed (Littorella uniflora), Quillwort (Isoetes sp.), Bulbous Rush (Juncus bulbosus), Water Lobelia (Lobelia dortmanii), Common Spike-rush (Eleocharis palustris), Water Horsetail (Equisetum fluviatile), Sharp-flowered Rush (Juncus acutiflorus) and Bog Pondweed (Potamogeton polygonifolius), amongst others. Wet heath is fairly extensively developed on the site, particularly on the lower slopes of the north-facing side of the Ox Mountains and along the numerous stream valleys that descend from the plateau. Drier areas occur in other parts of the site; these typically have a heathy vegetation of Heather, Heath Rush (Juncus squarrosus) and Purple Moor-grass and are often grazed by sheep. The regionally scarce mosses, Sphagnum recurvum var. tenue, S. fuscum, S. imbricatum, and liverwort, Cladopodiella fluitans occur in blanket bog vegetation on the site.

During the winter months the bogs are used by a flock of Greenland White-fronted Geese (40-50 birds, occasionally up to 80, have been counted on part of the site, Easky Bog). In the summer a number of pairs of Golden Plover breed. Both these species are listed on Annex I of the EU Birds Directive and in the Irish Red Data Book.

The site is very vulnerable to fragmentation by an extension of adjacent land uses, in particular afforestation and turbary. These operations have brought about the destruction of other areas that were themselves, until very recently, valuable, intact boglands.

The Ox Mountains Bogs site is of considerable conservation significance, due primarily to the extensive, largely intact areas of blanket bog it contains. This habitat is listed, and given priority status, on Annex I of the EU habitats Directive. The value of the site is increased by the presence of good examples of several other annexed habitats, i.e. wet heath, lowland oligotrophic lakes and dystrophic lakes, and of populations of two rare and threatened bird species. Part of the site has been designated as a Statutory Nature Reserve.

20.1.1997

The Lough Hoe Bog (Site Code 000633)

This is an extensive area of undulating montane blanket bog and heath-covered rocky ridges on a lake-studded plateau in the Ox (Slieve Gamph) Mountains. The underlying geology is of granite, gneiss and schist. The northern boundary of the site encompasses Lough Talt on the Tobercurry - Ballina Road, 13 km from Tobercurry and 17 km from Ballina. The plateau top is covered by a thin layer of blanket bog with areas of shallow interconnecting pools. Hummocks are large and
are formed from the mosses Sphagnum papillosum and Racomitrium lanuginosum, and Heather (Calluna vulgaris). The pools contain Bog Moss (Sphagnum auriculatum), Common Cottongrass (Eriophorum angustifolium) and Bogbean (Menyanthes trifoliata). In the drier areas, Deergrass (Scirpus cespitosus) and Hare's-tail Cottongrass (Eriophorum vaginatum) are abundant. In places blanket bog grades into wet heath vegetation, while dry heath occurs on some of the steeper slopes and rocky outcrops. There are numerous oligotrophic (nutrient-poor) lakes found on the site. Plant species colonising these lakes include Bottle Sedge (Carex rostrata), Water Lobelia (Lobelia dortmannana), Bog Pondweed (Potamogeton polygonifolius) and rushes (Juncus bulbosus and J. effusus), amongst others. The rocky lake shores are frequently colonised by Common Yellow-sedge (Carex demissa) and Wood-rush (Luzula sp.). Floating mats of vegetation, consisting mainly of Bogbean and Bog Pondweed have developed at the ends of some lakes, while Bulrush (Typha latifolia), Common Reed (Phragmites australis), Common Club-rush (Scirpus lacustris) and Water Horsetail (Equisetum fluviatile) are the main emergent species at the lake edges.

There are three large rivers on the site, two in the south and the third to the north – the Lough Hoe River. Species commonly occurring by these rivers include Water Mint (Mentha aquatica), Selfheal (Prunella vulgaris), Bracken (Pteridium aquilinum) and Bog Pimpernel (Anagallis tenella). To the south of the river, flowing from Lough Hoe, is an area with numerous hollows, 5-10 m in diameter - these areas are dominated by Soft Rush (Juncus effusus), Star Sedge (Carex echinata), Wavy Hairgrass (Deschampsia flexuosa), Bell Heather (Erica cinerea) and Mat-grass (Nardus stricta). At the southern end of Lough Nalackagh there are areas of poorly developed inter-connecting pools, while another such pool system is found towards the northwest of the same lake. The semi-aquatic snail, Vertigo geyeri, occurs in marsh vegetation on the shore on Lough Talt. This is a very rare, glacial relict species which is known in Ireland from only a few sites. It is rare and threatened in Europe and is listed on Annex II of the EU Habitats Directive. The presence in Lough Talt of a population of White-clawed Crayfish (Austropotamobius pallipes), a species also listed on Annex II of the EU Habitats Directive is notable. Lough Talt also supports a population of the rare and threatened Red Data Book fish species, Arctic Charr, while an island in the lake formerly held a mixed colony of Common Gulls and Black-headed Gulls (46 and 280 individuals, respectively, in 1977/78). By 1992 this colony had all but disappeared, with only 4 pairs of the former species remaining. The rare and legally protected (Flora Protection Order, 1987) Oak Fern (Gymnocarpium dryopteris) has been recorded from near Lough Talt, but it has not been seen there in recent years.

Grazing by cattle and sheep, and turbary are the major land-use activities in evidence on the site. Lough Hoe Bog is particularly vulnerable to afforestation, turbary and overstocking. Despite some localised peat erosion and evidence of overstocking, most of the site is relatively intact. Lough Hoe Bog contains a large area of good quality blanket bog, a habitat that is becoming increasingly rare in Ireland. The site also contains good quality examples of oligotrophic lakes. Both of these habitats are listed on Annex II of the EU Habitats Directive. The presence of several rare species, in particular, the EU Habitats Directive Annex II-listed, Vertigo geyeri and Austropotamobius pallipes, adds to the conservation significance of the site.

27.1.1997

The River Moy SAC (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 805 sq. 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, Trimogue, Sonnagh, Mullaghanoe, Owengarve, Eighnagh 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 Kilgarriff, Gowlaua, Derrynabrock, Tawnagh Beg and Cloongoonagh. 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 hummockforming 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 the latter group is more common now than in former years. This indicates 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 seidges 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
Appendix B - WASTE ASSIMILATIVE CAPACITY (WAC) CALCULATIONS

Dilution Rate:
No. Dilutions = Flow in receiving water (m³/d) / WWTP discharge volume (m³/d) = 2220.48/67.5 = 32.9 (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 ‘high 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 = (2.2-1) * 0.04112 * 86.4 = 4.26 kg/day BOD
(Using ‘High Status’ for Cmax and results of aSW1u sample for Cback)

WAC for Suspended Solids = (25-4) * 0.04112 * 86.4 = 74.61 kg/d SS
(Using Salmonid Regulations for Cmax and results for aSW1u sample for Cback)

WAC for Ortho-phosphorus = (0.045-0.01)*0.04112 * 86.4 = 0.12 kg/d Ortho-phosphorus
(Using ‘High Status’ 95%ile for Cmax, results for aSW1u sample for Cback and 95%ile flow in receiving water)

WAC for Ammonia = (0.09-0.027) * 0.04112 * 86.4 = 0.22 kg/d Ammonia
(Using ‘High 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) (b) of the discharge license application and flows are based on dry weather flow (dwf) included in Table D.1(i)(a) of the discharge certificate of authorisation application.

WWTP BOD loading = (18*67.5)/1000 = 1.215 kg/day BOD (within WAC)
WWTP SS loading = (23*67.5)/1000 = 1.55 kg/day SS (within WAC)
WWTP Orthophosphorus loading = (2.673*67.5)/1000 = 0.18 kg/day Ortho-P (not within WAC)
WWTP Ammonia loading = (12.41*67.5)/1000 = 0.84 kg/day Ammonia (not within WAC)
Appendix C – Flow Chart from Appendix 1 of Circular L8/08 from DoEHLG.

1. Is the development in a nature conservation site.
   - NO

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)?
   - NO

4. Is the development in the surface or groundwater catchment of other water dependant Annex II species, other rare or protected species or salmonoid waters?
   - NO

No further action required