Comhairle Contae Mhaigh Eo

Áras an Chontae, Caisleán an Bharraigh, Contae Mhaigh Eo.
Teileafón: (094) 9024444 Facs: (094) 9023937

Do Thag. / Your Ref. D0359-01 Ár dTag. / Our Ref. WS 512

27th October 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: D0359-01 – SHRULE**

Dear Ms Wylde

Further to your letter of 16th 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

pp Paddy Mahon
Director of Services

www.mayococo.ie

Mayo County Council

Áras an Chontae, Castlebar, Co. Mayo. Tel: (094) 9024444 Fax: (094) 9023937

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MAYO COUNTY COUNCIL

SHRULE

WASTE WATER DISCHARGE LICENCE

APPLICATION

Regulation 16 Compliance Requirements

Regulation 16 Compliance Responses – October 2010

Regulation 16 Compliance Requirements

Question No. 1

Carry out an appropriate assessment of the implications of the discharge from the Shrule wastewater treatment plant for the designated site (Lough Corrib SAC, site code 000297) in view of the sites 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.

Answer No. 1

Attachment F.1, contains a copy of the "D0359-01, Appropriate Assessment Screening for Shrule Wastewater Discharge Licence Application October 2010".

The screening indicates that a full Appropriate Assessment will be required.

MAYO COUNTY COUNCIL

SHRULE

WASTE WATER DISCHARGE LICENCE

APPLICATION

Regulation 16 Compliance Requirements

ATTACHMENT F.1

Screening for Appropriate Assessment – October 2010

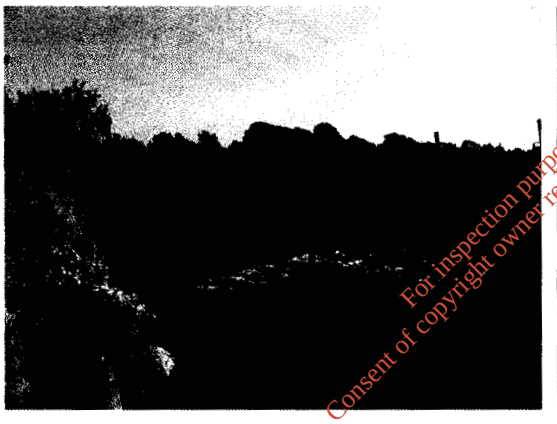
D0359-01

APPROPRIATE ASSESSMENT SCREENING

For

SHRULE WASTEWATER DISCHARGE LICENCE APPLICATION

October 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 Shrule Wastewater Treatment Plant (WWTP) & Agglomeration in compliance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007), on 19th 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 Shrule Wastewater Treatment Plant discharges into the Black River via the Primary Discharge Point, SW1 (P). The storm water overflow point, SW3, is located at the main treatment plant. Storm flows in excess of 3 times dry weather flow (DWF) will be discharged to the Black River via the same outfall pipe as the Primary Discharge Point. The Secondary Discharge Point, SW2, is located on a tributary stream from Lough Lee. This tributary stream flows into the Black River.

There are two Natura 2000 sites within 5km of the Shrule WWTP and associated discharges.

i) Lough Corrib Special Area of Conservation (SAC), Site Code 000297 and

ii) The Shrule Turlough SAC and proposed National Heritage Area (pNHA) (Site code 000525)

The Primary Discharge Point, SW1 (P) and Storm Water Overflow Point, SW3, are located within the Lough Corrib Special Area of Conservation (SAC), Site Code 000297. The Secondary Discharge Point, SW2, is located upstream of the Lough Corrib SAC. Lough Corrib itself is located approximately 14km downstream of the Primary Discharge Point.

The Shrule Turlough SAC and proposed National Heritage Area (pNHA) (Site code 000525) is located approximately 1km to the north of SW1 (P) and SW3, and 250m to the north of SW2.

None of the discharge points are located within designated shellfish production area nor are they within designated salmonid water (S.I. No. 293/1988 - European Communities (Quality of Salmonid Waters) Regulations, 1988.) The Black River is not designated as a Salmonid River nor designated sensitive under the Urban Wastewater Treatment (UWWT) Regulations.

The Black River has a Q rating of 4-5, categorised as "High Status" according to current EPA data. The water quality will have to be maintained at least at "High Status" under the requirements of the Water Framework Directive.

This report includes:

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

Purpose of Appropriate Assessment

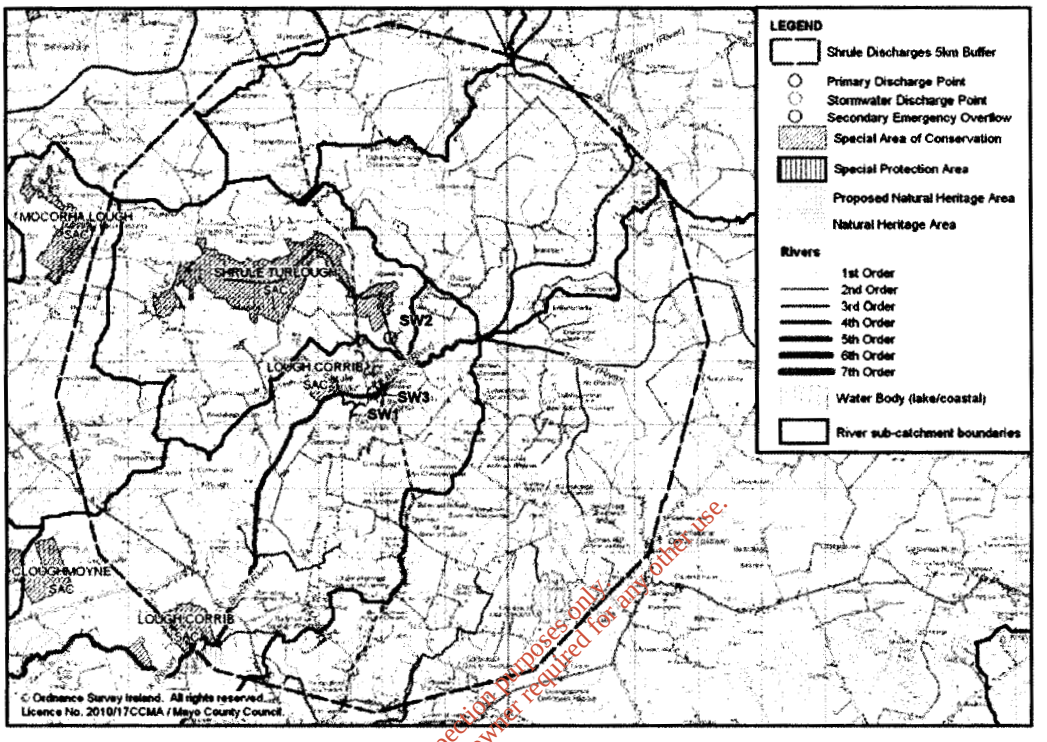
Articles 6(3) and 6(4) of the Habitat Directive 92/43/EEC require an Appropriate Assessment of plans to prevent significant adverse effects on Natura 2000 sites.

> **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 Shrule WWTP on the conservation objectives of Natura 2000 Sites - Lough Corrib SAC (Site Code 000297) and Shrule Turlough SAC and pNHA (Site code 000525).

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 – Shrule 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:

Department of Environment, Heritage and Local Government (2008) Circular L8/08. Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments.

EPA (2008) Wastewater Discharge Licensing Appropriate Assessment: Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).

EC (2000) Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

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 Shrule Wastewater Treatment Plant (WWTP) (Stage 1 of the original scheme) was built in 1989/1990 and was extended under Stage 2 in 1992 and Stage 2 completed in 2006. The WWTP has a design capacity of 600 P.E.

The WWTP consists of primary settlement, inlet works with manual screen, followed by aerobic treatment using a rotating surface aerator and secondary settlement, with activated sludge return. The raw sewage flows predominantly by gravity to the treatment works with most of the flow originating from the town centre. Where topography dictates around the town, 2 small pumping stations (PS1 and PS2) assist flow of wastewater up to the gravity network.

Treated effluent from the WWTP is discharged to the Black River through a Primary Discharge Point, SW1 (P). The scheme also includes one Secondary Discharge Point, SW2. This is an emergency overflow discharge from the PS1. This emergency overflow operates only in case of difficulties, such as power cuts, with the pumping station (See Discharge Licence Application for further details). SW2 is located on a tributary stream from Lough Lee. This tributary stream flows into the Black River. There are no records of discharge from SW2. The frequency of discharge is considered zero. There is one storm water overflow point, SW3, located at the main treatment plant. Storm flows in excess of 3 times dry weather flow (DWF) will be discharged to the Black River via the same outfall pipe as the Primary Discharge Point. (See Figure 3.1.1 below).

The WWTP is designed to treat effluent to a standard of 25mg/l BOD, 125mg/l COD and 35mg/l Suspended Solids. The Primary Discharge Point (SW1P) emits a continuous daily discharge. The average volume currently discharged from the WWTP into the Black River is estimated at 105.3 m^3/day or 0.00058 m^3/s, with loadings of 0.21 kg/d BOD and 0.84 kg/d Suspended Solids in the treated effluent. The Black River has a DWF of 11,232 m^3/day or 0.13 m^3/s.

Figure 3.1.1 – Location of Discharges from Shrule WWTP – SW1 (P), SW2 and SW3.

3.2 – Description of Natura 2000 Site

There are two Natura 2000 sites within 5 km of the WWTP and associated discharges. The Primary Discharge Point is located within Lough Corrib SAC (Site Code 000297) and the Shrule Turlough SAC (Site Code 00525) is located approximately 2 km upstream of the Primary Discharge Point.

Name: Lough Corrib SAC (Site Code 000297)

(see Appendix A for site synopsis)

Lough Corrib SAC has an area of approximately 25,334.6 Ha. The SAC has been designated for the following habitats:

Habitat code	Habitat name	% Cover (approx.)	Representivity
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	85	Excellent
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	3	Excellent
7110	Active raised bogs	1	Good
91A0	Old sessile oak woods with Ilex and Blechnum in British Isles	1	Excellent
6410	Molinia meadows on calcareous, peaty or clavey-silt-laden soils (Molinion caeruleae)	1	Good
7230	Alkaline fens	1	Excellent
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	1	Excellent
8240	Limestone pavements	1	Excellent
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)	1	Good
91D0	Bog woodland	1	Excellent
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	1	Significant
7220	Petrifying springs with tufa formation (Cratoneurion)	1	Significant
7120	Degraded raised bogs still capable of natural regeneration	1	Good
7150	Depressions on peat substrates of the Rhynchosporion	1	Excellent

The SAC has been designated for the following species:

Species code	Species name	Percentage of National Population
1095	Petromyzon marinus	>0% to 2%
1106	Salmo salar	>0% to 2%
1096	Lampetra planeri	>0% to 2%
1303	Rhinolophus hipposideros	>0% to 2%
1355	Lutra lutra	>0% to 2%
1092	Austropotamobius pallipes	>0% to 2%
1029	Margaritifera margaritifera	>0% to 2%
1833	Najas flexilis	>2%
1393	Drepanocladus vernicosus	>0% to 2%

Name: Shrule Turlough SAC (Site Code 000525)

(see Appendix A for site synopsis)

Shrule Turlough SAC (Site Code 00525) has an area of approximately 228.2Ha. The SAC has been designated for the following habitat:

Habitat code	Habitat name	% Cover (approx.)	Representivity
3180	Turloughs	93	Good

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

There have been 29 planning applications submitted within the agglomeration boundary between 2004 and present (August 2010), 20 of which were granted planning permission (Source: Mayo County Council GIS database).

Many of these planning applications were for small/single housing developments to be accommodated within the existing WWTP agglomeration. None of the remaining planning applications were for significant projects. None of these can be considered significant in their potential impact on sites of nature conservation importance, or that would have an impact 'in combination' with the Shrule WWTP and associated discharges.

There are no EPA licensed facilities within the vicinity of Shrule that would be considered 'in combination'.

There are no Mayo County Council licensed facilities within the vicinity of Shrule that would be considered 'in combination'.

There is no Local Area Plan for Shrule to be considered 'in combination'.

Conclusion: There are no projects or plans to be considered 'in combination' with the current discharge licence application.

3.4 – Assessment Criteria

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

Yes, **Lough Corrib SAC (Site Code 000297)**

3.4.2 – Will nationally protected species be directly impacted? Wildlife Acts (1976 and 2000), Flora Protection Order (S.I. 94 of 1999)?

A data search of the National Parks and Wildlife 10km survey grids (Grid Squares M24, M25, M34 and M35) was undertaken using both the National Parks website and datasets obtained from the NPWS.

Flora Protection Order Species:

The NWPS have recorded, within the adjacent 10km squares, the presence of the following fauna protected under the Flora Protection Order:

Common Name	Latin Name	Date	Number of Records
Limestone Fern	Gymnocarpium robertianum	1932-1999	4
Wood Bitter-Vetch	Vicia orobus	1932-2002	8
Wood Small-Reed	Calamagrostis epigejos	1934	1

For the purpose of this report, it is assumed that the species are still present. Impacts on these species are considered indirect. There will be no direct impact on these species as they are not recorded in proximity to Shrule WWTP and associated discharges.

Wildlife Acts Species:

The NWPS have recorded the presence within the adjacent 10km squares of the following fauna protected under the Wildlife Act:

Common Name	Latin Name	Date	Number of Records
Badger	Meles meles	1990-1991	5
Brook Lamprey	Lampetra planeri	1972	1
Common Frog	Rana temporaria	1972-2003	8
Irish Hare	Lepus timidus subsp. hibernicus	1990-2007	8
Irish Stoat	Mustela erminea subsp. hibernica	1971	1
Otter	Lutra lutra	1980-1991	7
Pine Marten	Martes martes	1989-2007	5
Viviparous Lizard	Lacerta vivipara	1972	1

For the purpose of this report, it is assumed that the species are still present.

The Brook Lamprey, Common Frog and Otter are water dependent species. Impacts on Otter and Frog are considered indirect, while impacts on Brook Lamprey are direct.

The Brook Lamprey records are from 1972 and are for the 10km grid squares M25, rather than the Black River itself.

The Common Frog records are from 1972 - 2003 and are for the 10km grid squares M24, M25 and M35 rather than the Black River itself.

The Otter records are from 1980 - 1991 and are for the 10km grid squares M24, M34 and M35. Evidence of Otters [1 count of droppings] was recorded in 1980 at the Black River, approximately 4 km downstream from the Primary Discharge Point SW1 (P).

Water pollution and discharges are considered by the NPWA to be a threat to the Otter. Otter populations in the area have the potential to be indirectly impacted from water quality impacts from the WWTP should these effect fish populations, which are an important food source for the otter. Otters, however feed on a wide range of food including sticklebacks, frogs, eels and crayfish; all of which can tolerate moderate pollution. No evidence of Otters was found in the vicinity of the Primary Discharge Point SW1 (P) during the site walk-over survey undertaken on the 11th October 2010 as part of this screening process. During the site walk over survey however, evidence of a potential food source [Sticklebacks] for Otters was observed in the vicinity of the Primary Discharge Point SW1 (P).

Water Quality in the Black River is currently classified as Q4-5 (high) according to EPA data. To maintain high water quality status under the EC Environmental Objectives (Surface Waters) Regulations 2009 (S.I.272 of 2009) in the Black River downstream of the Shrule WWTP Primary Discharge Point SW1 (P), the waste assimilative capacity (WAC) of the river at this point must not be exceeded. It was calculated that the ortho-phosphorus assimilative capacity of the Black River is 0.54 kg/day based on 95 percentile flows (see Appendix B for waste assimilative capacity calculations for key water quality parameters).

Ortho-phosphorus loading from the WWTP is calculated as 0.15 kg/day based on effluent quality collected as part of the discharge license application. Ortho-phosphorus loading from the WWTP is within the WAC of the river for ortho-phosphorus presenting minimal risk to water quality. The discharge from the WWTP is also within the WAC of the river for other key parameters (Total Ammonia, Biochemical Oxygen Demand (BOD) and Suspended Solids).

The dry weather flow (DWF) of the discharge from Shrule WWTP is only 0.4% of the DWF of the Black River. The WWTP in general does not appear to constitute a water quality risk to the Black River.

The dilution rate of the Black River is high and the discharge from the WWTP is well within the WAC of the River. This suggests that direct impact on nationally protected species that come under the Wildlife Acts (1976 & 2000) is unlikely; however, as water dependent species have been recorded downstream in close proximity to the Primary Discharge Point, SW1 (P), 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, the Primary Discharge Point, SW1 (P) and Storm Water Overflow Point, SW3, are located directly within the Lough Corrib Special Area of Conservation (SAC), Site Code 000297. The Secondary Discharge Point, SW2, is located upstream of the Lough Corrib SAC. Lough Corrib itself is located approximately 14km downstream of the Primary Discharge Point.

The Shrule Turlough SAC and proposed National Heritage Area (pNHA) (Site code 000525) is located approximately 1km to the north of SW1 (P) and SW3, and 250m to the north of SW2.

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?

No, the development is not in the surface water catchment of designated salmonid water.

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

The Shrule WWTP is located within 'benefiting lands' identified by the OPW as land that might benefit from the implementation of Arterial (Major) Drainage Schemes (under the Arterial Drainage Act 1945) and indicating areas of land subject to flooding or poor drainage.

There are 5 flood records recorded by the OPW in close proximity to the treatment plant in recent years (www.floodmaps.ie) with the nearest flood event recorded within 1km to the North of WWTP:

- OPW Photographic Record – 27th November 1999: Downstream of Shrule Village, County Galway

An additional record indicates an extensive area of flooding in the same location as the Shrule Turlough SAC, approximately 2 km to the North-West of the WWTP.

- OPW Regional Engineer's Report 29th March 1995: Land flooding in Ramolin to Ballybackagh.

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 Shrule WWTP discharges to the Black River not to the marine environment. There is no marine SAC or SPA within 3 km.

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, using the flow data submitted as part of WWDL Application, the flow of discharge is calculated as 0.4% of Black River DWF or 0.2% of Black River 95%ile flow.

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	Shrule Wastewater Treatment Plant Discharge Licence Application
4.2 - Name and location of Natura 2000 sites	Lough Corrib SAC (Site Code 000297) Shrule Turlough SAC (Site Code 000525)
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 the subsequent Appropriate Assessment Report will be forwarded to the DAU along with the EPA.

Impacts are summarized below (see Appendix C) based on the Screening Matrix of the EC Guidance (2001).

Treated effluent from Shrule Wastewater Treatment Plant is discharged to the Black River through a Primary Discharge Point SW1 (P). The Primary Discharge Point SW1 (P) is located directly within the Lough Corrib Special Area of Conservation (Site Code 000297). Shrule Turlough Special Area of Conservation (Site Code 000525) is located approximately 2km upstream of Shrule Wastewater Treatment Plant and associated discharges.

From Appendix B the dilution rate of the Black River is high and the discharge from the WWTP is well within the WAC of the River. This suggests that direct impact on the Natura 2000 sites is unlikely; however, as water dependent species have been recorded downstream in close proximity to the Primary Discharge Point, SW1 (P), sufficient uncertainty remains that no direct impact on the Natura 2000 sites will occur.

An associated discharge point, SW2, from the Shrule sewerage scheme that serves Shrule agglomeration is located approximately 1.4km upstream of the Lough Corrib SAC. There are no records of discharge from SW2. The frequency of discharge is considered zero and is unlikely to impact on the Natura 2000 sites.

The storm water overflow point, SW3, from the Shrule sewerage scheme that serves Shrule agglomeration, is located at the main treatment plant, directly within the Lough Corrib SAC. Storm flows in excess of 3 times dry weather flow (DWF) will be discharged to the Black River via the same outfall pipe as the Primary Discharge Point. The frequency of discharge is not measured and any impact on the Natura 2000 sites is unknown.

The information provided suggests that uncertainty remains as to whether significant effects are likely on the Lough Corrib SAC and Shrule Turlough SAC from the Shrule 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 Lough Corrib SAC and Shrule Turlough SAC from the Shrule Wastewater Treatment Plant. An Appropriate Assessment is required.

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

Any available data was assessed from the following websites;

- WFD Ireland,
- Western RBD,
- National Biodiversity Data Centre,
- Department of Environment Heritage and Local Government,
- 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?

Simon Talbot & Jacqueline O'Hara, Environment Technicians, 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,
- National Parks and Wildlife.

See References/Sources of report.

Level of Assessment

Desk top study, site walkover survey by Environment Technicians.

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

Water Services Capital Works Section, Mayo County Council.

REFERENCES

Department of Environment, Heritage and Local Government (2008). Circular L8/08. Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments.

European Communities (Quality of Salmonid Waters) Regulations, 1988. (S.I. No. 293 of 1988).

EC (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

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.

European Communities Environmental Objectives (Surface Waters) Regulations 2009. (S.I. No. 272 of 2009).

EPA (2008). Wastewater Discharge Licensing Appropriate Assessment: Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).

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NPWS (2008). The Status of EU Protected Habitats and Species in Ireland. Conservation Status in Ireland of Habitats and Species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC.

NPWS (Unknown). Atlantic salmon (Salmo salar L.) (1106) Conservation Status Assessment Report 1. Supporting material for the 'Main Results of the Surveillance under Article 11' for the Annex II species, (Salmo salar L.), Atlantic Salmon, in Ireland.

NPWS (2007). Margaritifera margaritifera (the freshwater pearl mussel) conservation assessment Backing Document. (1095) Conservation Status Assessment Report.

NPWS (Unknown). Background to the conservation assessments for the sea lamprey Petromyzon marinus, the river lamprey Lampetra fluviatilis and the brook lamprey Lampetra planeri in Ireland. River lamprey (Lampetra fluviatilis) (1099) / Brook lamprey (L. planeri) (1096) & Sea lamprey (Petromyzon marinus) (1095) Conservation Status Assessment Report.

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APPENDIX A – SITE SYNOPSES FOR SACS

SITE NAME: LOUGH CORRIB
SITE CODE: 000297

Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones, to the north. The surrounding lands are mostly pastoral farmland, to the south and east, and bog and heath, to the west and north. Rivers, mainly to the east of the site are included within the cSAC as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site.

This site is of major conservation importance and includes 14 habitats listed on Annex I of the E.U. Habitats Directive. Six of these are priority habitats - petrifying springs, Cladium fen, active raised bog, limestone pavement, bog woodland and orchid-rich calcareous grassland. The other annexed habitats present include hard water lakes, lowland oligotrophic lakes, floating river vegetation, alkaline fens, degraded raised bogs, Rhynchosporion vegetation, Molinia meadows and old Oak woodlands. Species present on the site that are listed on Annex II of this directive are Sea Lamprey, Brook Lamprey, Atlantic Salmon, White-clawed Crayfish, Freshwater Pearl Mussel, Otter, Lesser Horseshoe Bat, Slender Naiad and the moss Drepanocladus vernicosus.

The shallow, lime-rich waters of the southern basin the of lake support one of the most extensive beds of Stoneworts (Charophytes) in Ireland, with species such as Chara aspera, C. hispida, C. delicatula, C. contraria and C. desmacantha mixed with submerged Pondweeds (Potamogeton perfoliatus, P. gramineus and P. lucens), Shoreweed (Littorella uniflora) and Water Lobelia (Lobelia dortmanna). These Chara beds are an important source of food for waterfowl. In contrast, the northern basin contains more oligotrophic and acidic waters, without Chara species, but with Shoreweed, Water Lobelia, Pipewort (Eriocaulon septangulare), Quillwort (Isoetes lacustris), Alternate Water-milfoil (Myriophyllum alternifolium) and Slender Naiad (Najas flexilis). The last-named is listed under the Flora (Protection) Order, 1999 and is an Annex II species under the EU Habitats Directive.

Large areas of reedswamp vegetation, dominated by varying mixtures of Common Reed (Phragmites australis) and Common Club-rush (Scirpus lacustris), occur around the margins of the lake. Reedswamp usually grades into species-rich marsh vegetation characterised by Slender Sedge (Carex lasiocarpa), Water Mint (Mentha aquatica), Water Horsetail (Equisetum fluviatile) and Bog Bean (Menyanthes trifoliata). Of particular note are the extensive beds of Great Fen-sedge (Cladium mariscus) that have developed over the marly peat deposits in sheltered bays, particularly in the south-east corner of the lake. Alkaline fen vegetation is more widespread around the lake margins and includes, amongst the typically diverse range of plants, the Slender Cottongrass (Eriophorum gracile), a species protected under the Flora (Protection) Order, 1999. Wet meadows dominated by Purple Moor-grass (Molinia caerulea) occur in seasonally flooded areas close to the lake shore. These support species such as Sharp-flowered Rush (Juncus acutiflorus), Jointed Rush (J. articulatus), Carnation Sedge (Carex panicea), Devil's-bit Scabious (Succisa pratensis), Creeping Bent (Agrostis stolonifera) and Tormentil (Potentilla erecta), amongst others.

This large site contains four discrete raised bog areas and is selected for active raised bog, degraded raised bog, Rhynchosporion and bog woodland. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (Sphagnum spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, Sphagnum lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (Rhynchospora alba) and/or Brown Beak-sedge (R. fusca), and at least some of the following associated species, Bog Asphodel (Narthecium ossifragum), Sundews (Drosera spp.), Deergrass (Scirpus cespitosus) and Carnation Sedge (Carex panicea).

At Addergoole, on the eastern shores of Lough Corrib, there is an important area of western raised bog. This bog area is one of the most westerly, relatively intact raised bogs in the country. There are also other substantial areas of raised bog along various tributaries of the Corrib in east Co. Galway, namely Slieve Bog, Lough Tee Bog and Killaclogher bog. The active parts of these bogs mostly correspond to the wettest areas, where there are well developed surface features with hummocks, lawns and pools. It is in such areas that Rhynchosporian vegetation is best represented. The dominant species is the aquatic bog moss Sphagnum cuspidatum, which is usually accompanied by Bogbean (Menyanthes trifoliata), White Beak-sedge, Bog Asphodel, Bog Cotton (Eriophorum angustifolium), Bog Sedge (Carex limosa) and Great Sundew (Drosera anglica). Brown Beak-sedge, a locally rare plant of wet bog pools, has been recorded from a number of the bog areas within the site. At Addergoole a substantial bog lake or soak occurs and this is infilling with large rafts of Rhynchosporion vegetation at present. This area is associated with an important area of wet bog woodland dominated by Downy Birch (Betula pubescens).

The largest part of the uncut high bog comprises degraded raised bog. Degraded bog is dominated by a raised bog flora which tends to be rather species-poor because of disturbance and/or drying-out. The most conspicuous vascular plant species are usually Carnation Sedge (Carex panicea), Heather (Calluna vulgaris), Bog Cotton, Cross-leaved Heath (Erica tetralix), Bog Asphodel and Deergrass. Bog Rosemary (Andromeda polifolia) and Cranberry (Vaccinium oxycoccos), two species indicative of raised bog habitat, are frequent on both degraded and active areas of raised bog. Sphagnum cover is generally low within degraded areas due to a combination of drying-out and frequent burning.

Limestone pavement occurs along much of the shoreline in the lower Corrib basin and supports a rich and diverse flora, including Herb-robert (Geranium robertianum), Bloody Crane's-bill (G. sanguineum), Carline Thistle (Carlina vulgaris), Spring Gentian (Gentiana verna), Wild Thyme (Thymus praecox), Rustyback (Ceterach officinarum), Wood Sage (Teucrium scorodonia), Slender St. John's-wort (Hypericum pulchrum), Quaking-grass (Briza media) and Blue Moor-grass (Sesleria albicans). Areas of Hazel (Corylus avellana) scrub occur in association with exposed limestone pavement and these include species such as Hawthorn (Crataegus monogyna), Buckthorn (Rhamnus catharticus), Spindle (Euonymus europaeus), with occasional Juniper (Juniperus communis). Three Red Data Book species are also found in association with limestone scrub - Alder Buckthorn (Frangula alnus), Shrubby Cinquefoil (Potentilla fruticosa) and Wood Bitter-vetch (Vicia orobus); the latter is also protected under the Flora (Protection) Order, 1999.

Open areas of orchid-rich calcareous grassland are also found in association with the limestone exposures. These can support a typically rich vegetation, including many orchids such as Pyramidal Orchid (Anacamptis pyramidalis), Common Spotted-orchid (Dactylorhiza fuchsii), Early-purple Orchid (Orchis mascula), Frog Orchid (Coeloglossum viride), Fragrant Orchid (Gymnadenia conopsea), Marsh Helleborine (Epipactis palustris), Greater Butterfly-orchid (Platanthera chlorantha) and Irish Lady's tresses (Spiranthes romanzoffiana). The latter is protected under the Flora (Protection) Order, 1999.

The Hill of Doon, located in the north-western corner of the lake, is a fine example of a Sessile Oak (Quercus petraea) woodland. The understorey is dominated by Sessile Oak, Holly (Ilex aquifolium) and occasional Juniper. There are occasional Yew (Taxus baccata) and Ash (Fraxinus excelsior) and a well developed ground layer dominated by Bilberry (Vaccinium myrtillus), Hard Fern (Blechnum spicant) and Wood Rush (Luzula sylvatica). Woodland also occurs on some of the islands in the lake. The lake is rated as an internationally important site for waterfowl. Counts from 1984 to 1987 revealed a mean annual peak total of 19,994 birds. In the past a maximum peak of 38,281 birds was recorded. The lake supports internationally important numbers of Pochard (average peak 8,600) and nationally important numbers of the following species: Coot (average peak 6,756), Mute Swan (average peak 176), Tufted Duck (average peak 1,317), Cormorant (average peak 110) and Greenland White-fronted Goose (average peak 83). The latter species is listed on Annex I of Birds Directive. The Coot population is the largest in the country and populations of Tufted Duck and Pochard are second only to Lough Neagh. 30-41 breeding pairs of Common Scoter occur on the lake (1995 data) as well as breeding populations of Arctic Tern and Common Tern. Other bird species of note recorded from or close to the lake recently include Hen Harrier, Whooper Swan, Golden Plover and Kingfisher. All of these species are listed on Annex I of the E.U. Birds Directive.

Otter and Irish Hare have been recorded regularly within this site. Both of these species are listed in the Red Data Book and are legally protected by the Wildlife Act 1976. Otter is also listed on Annex II of the E.U. Habitats Directive. Lough Corrib is considered one of the best sites in the country for otter, due to the sheer size of the lake and associated rivers and streams and also the generally high quality of the habitats. Atlantic Salmon (Salmo salar) use the lake and rivers as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the E.U. Habitats Directive. Lough Corrib is also a well known fishing lake with a very good Trout (Salmo trutta) fishery. The lake has a population of Sea Lamprey (Petromyzon marinus), a scarce, though probably under-recorded species listed on Annex II of the E.U. Habitats Directive.

A population of Freshwater Pearl-mussel (Margaritifera margaritifera), a species listed on Annex II of the E.U. Habitats Directive, occurs within the site. White-clawed Crayfish (Austropotamobius pallipes), also listed on Annex II, is well distributed throughout Lough Corrib and its in-flowing rivers over limestone. A summer roost of Lesser Horseshoe Bat (Rhinolophus hipposideros), another Annex II species, occurs within the site - approximately 100 animals were recorded here in 1999.

The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localised eutrophication of the lake, and housing and boating development, which is causing the loss of native lakeshore vegetation. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning. Peat cutting threatens Addergoole Bog and already a substantial area of it has been cut away. Fishing and shooting occur in and around the lake. Introduction of exotic crayfish species or the crayfish fungal plague (Aphanomyces astaci) could have a serious impact on the native crayfish population. The bat roost is susceptible to disturbance or development.

Despite this ongoing interference however, Lough Corrib is one the best examples of a large lacustrine catchment system in Ireland, with a range of habitats and species still well represented. The lake itself is internationally important for birds and is designated as a Special Protection Area.

9.12.2005

SITE NAME: SHRULE TURLOUGH
SITE CODE: 000525

Shrule Turlough is orientated east-west in an extensive natural basin surrounded by gently undulating farmland, with slightly higher scrub-covered land to the north. Around the edges of the turlough there are scattered boulders and some limestone outcrops. It is a large, highly oligotrophic turlough, with thick marl and peat deposits.

There is no above-ground outflow from the turlough. Drainage attempts have been made by enlarging the swallow holes but the turlough still floods regularly and it seems to show little modification due to the drainage efforts. Peat cutting no longer occurs but cattle still graze on reclaimed peat margins and around the swallow holes.

It has a high level of physical and vegetational diversity, and supports the second largest number of plant communities of any turlough (18 in all). Fen vegetation is especially well-developed, with the largest extent of Great Fen-sedge (Cladium mariscus) fen and Black Bog-rush (Schoenus nigricans) fen communities found in any turlough occurring. The site also supports important stands of Tall Sedge and Yellowsedge communities. The site supports a range of plants that are quite rare in turloughs, among them Whorled Water-milfoil (Myriophyllum verticillatum), Least Bur-reed (Sparganium minimum), Greater Bladderwort (Utricularia vulgaris) and Creeping Yellow-Cress (Rorippa sylvestris).

Lough Lee, located at the southern end of the site, is surrounded by wet grassland and, at its northern side, by a mosaic of species-rich wet and dry grassland with outcropping limestone. The lough itself supports beds of Common Reed (Phragmites australis).

Shrule turlough has a small catchment area and seems to be little modified by human behaviour. The oligotrophic and peaty nature of the site makes it unusual in the general range of turloughs and gives it a very significant ecological value. In addition, the site is large and seemingly largely uninfluenced by the surrounding land uses. Its high vegetation diversity and the presence of a number of species generally rare in turloughs is of further interest.

10.4.2001

APPENDIX B – WASTE ASSIMILATIVE CAPACITY (WAC) CALCULATIONS

Dilution Rate:

No. Dilutions = Flow in receiving water (m^3/d) / WWTP discharge volume (m^3/d)
= 11232 / 105
= **106.7 (Dilution Rate for WWTP)**

WAC Calculation:

WAC (kg/d) = (Cmax-Cback) * F95 (m^3/s) * 86.4

Where: Cmax = max permissible concentration in receiving water (based on maintaining 'high status' under the EC Environmental Objectives (Surface Waters) Regulations 2009).

Cback = background (upstream) concentration (mg/l)
F95 = 95% flow in receiving river (m^3/s)

WAC for BOD = (2.2 - 1) * 0.27 * 86.4
= **28.0 kg/day BOD**
(Using 'High Status' 95%ile for Cmax and results of aSW1u sample for Cback)

WAC for Suspended Solids = (25 - 2) * 0.27 * 86.4
= **536.5 kg/day SS**
(Using Salmonid Regulations for Cmax and results of aSW1u sample for Cback)

WAC for Orthophosphate = (0.045 - 0.022) * 0.27 * 86.4
= **0.54 kg/day Orthophosphate**
(Using 'High Status' 95%ile for Cmax and results of aSW1u sample for Cback)

WAC for Ammonia = (0.09 - 0.046) * 0.27 * 86.4
= **1.02 kg/day Ammonia**
(Using 'High Status' 95%ile for Cmax and results of aSW1u sample for Cback)

Alternative WAC for Ammonia = (0.636 - 0.046) * 0.27 * 86.4
= **13.76 kg/day Ammonia**
(Using Salmonid Regulations for Cmax and results of aSW1u sample for Cback)

Loadings from WWTP:

Loading (kg/d) = {discharge concentration (mg/l) x discharge flow (m^3/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 licence application.

WWTP BOD loading = (2 * 105.3)/1000
= 0.2 kg/day BOD

(Within assimilative capacity)

WWTP SS loading = (8*105.3)/1000
= 0.8 kg/day SS

(Within assimilative capacity)

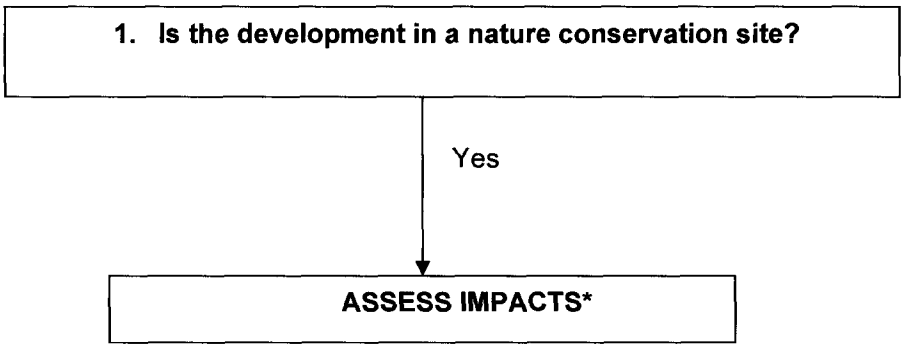
WWTP Ortho-phosphorus loading = (1.471*105.3)/1000
= 0.155 kg/day Ortho-P

(Within assimilative capacity using 95 percentile)

WWTP Ammonia loading = (0.496*105.3)/1000
= 0.052 kg/day Ammonia

(Within assimilative capacity for achieving 'high status' under Water Quality Objectives 2009, and Within assimilative capacity for Salmonid Regulations)

APPENDIX C – FLOW CHART FROM APPENDIX 1 OF CIRCULAR L8/08 FROM DOEHLG



*See Section 5 (above)