Raharney
Waste Water Agglomeration

Waste Water Discharge Certificate of Authorisation (A0069-01)

Appropriate Assessment

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1. Introduction

1.1 Background

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No 684 of 2007) Westmeath County Council submitted six Waste Water Discharge Certificate of Authorisation applications to the Environmental Protection Agency (EPA) on and before 22nd December 2009. The Raharney Agglomeration was included within the six submissions.

The following report has been produced in accordance with the EPAs correspondence of 7th April 2010 (Notice in accordance with Regulation 25(c) (ii) of the Waste Water Discharge (Authorisation) Regulations 2007) requesting Westmeath County Council to provide further information in accordance with Circular L8/08 'Water Services Investment Programmes – Protection of National Heritage and National Monuments' issued by the Department of Environment, Heritage and Local Government.

This report also includes a revised technical summary as stipulated in the original Waste Water Discharge Certificate of Authorisation application submission.

1.2 Legislation

There were a number of legalisation documents used and referenced in the writhing of this report. These are listed below with a brief summary of each.

1.2.1 Habitats Directive (92/43/EEC) (2000)

Article 6(3) and (4)of the Habitats Directive 92/43/EEC requires an appropriate assessment of land use plans with respect to ecological implications of any plan or project, whether within or outside a designated site, which does not directly relate to the management of the site but may impact upon its conservation objectives. Therefore, the purpose of this screening report is to consider whether, based on best available scientific knowledge, the plan will have potential impacts upon the conservation objectives of any Natura 2000 sites.

1.2.2 E.U. Habitats Directive

The directive recognises that habitat loss and degradation are the most serious threats to the conservation of habitats, flora and fauna. The directive establishes into law habitats or Special Areas of Conservation that are protected. The Directive was transported into Irish law through the establishment of the European Union (Natural Habitats) Regulations, 1997. The regulations in conjunction with the directive specifies the many habitats and species directly protected under the legislation

1.2.3 Waste Water Discharge (Authorisation) Regulations 2007(S.I. No. 684 of 2007)

The above regulations govern the licensing and certification/authorisation process of sewage discharges owned, managed and operated by Water Service Authorities. All Local Authorities were obligated to apply to the Environmental Protection Agency (EPA) in a staggered date sequence for a waste water discharge licence or certificate of authorisation by 22nd December 2009.

The objectives of the regulations is allow the EPA to set conditions and limits on the discharge of any waste water treatment plant operated by a Local Authority with the aim of protecting and improving surface and ground water qualities.

1.2.4 European Communities Environmental Objectives (Surface Waters) Regulations 2009.

These regulations were established with the aim of ensuring that environmental objectives originally established within the Water Framework Directive are achieved. The regulations apply to all surface water bodies and aim to improve or maintain the environmental quality standards as set out in the regulations.

1.2.5 The Water Framework Directive 2000/60/EC

The Water Framework Directive was established with the aim of providing a framework document for the protection of all waters, surface, ground and coastal. The Directive establishes a management role of water bodies based on river catchments with the ultimate aim of maintaining or restoring water quality to a "Good" status.

1.2.6 European Communities Environmental Objectives (Groundwater) Regulations 2010.

The purpose of these regulations is to establish procedures in reporting and monitoring groundwater results. To implement measures to prevent or limit the addition of pollutants to groundwater and to prevent the deterioration of groundwater body status.

1.3 Methodology

1.3.1 Initial Screening of Waste Water Agglomerations

The following appropriate screening is carriedout in accordance in the EPAs guidance note: Waste Water Discharge Licencing – Appropriate Assessment and The DoEHLG Circular L8/08 – Protection of Natural Heritage and National Monuments as requested by the EPA in its correspondence of 7th April 2010 to Westmeath County Council. In particular the screening process concentrates on the likelihood of a significant impact from the Raharney agglomeration on any European Site.

A desk top study was completed to identify the key environmental features and associated potential impacts from the waste water agglomeration upon the site and the receiving surface water. The assessment undertakes to complete the Appropriate Assessment Screening Stage 1, steps 1, 2, 3 and 4 and in conjunction with the screening flow diagram included in the circular L8/08. A pre-screening exercise using the flow diagram model shown in the circular L8/08 is firstly used to determine the necessity for potential impact assessments.

1.4 Designated Sites

The Raharney WWTP is a small treatment system that serves the Ashcroft Park Local Authority housing estate. The treatment plant is located close to the River Deel. This surface water course is a designated site and forms part of the River Boyne and River Blackwater Special Area of Conservation. The site is designated under the Council Directive 92/43/EEC on the Conservation of Natural Habitats, Wild Fauna and Flora (E.U. Habitats Directive). The site is a candidate SAC selected for alkaline fen, alluvial woodlands, both habitats listed on Annex 1. The site is also selected for Atlantic Salmon, Otter and River Lamprey listed on Annex 11 of the E.U. Habitats Directive.

Pre-Screening Questions	Response
1. Is the development in or on the boundary of a nature conservation site NHA/SAC/SPA?	**Yes.** The Raharney WWTP is situated adjacent to the River Boyne and River Blackwater SAC
2. Will nationally protected species be directly impacted? Wildlife Acts (1976 and 2000), Flora Protection order (S.I. 94 of 1999)	**No.** The existing WWTP is not sited within a site that prescribes to the hunting of bird or animal species as detailed in Schedules 4 and 5 of the Wildlife Act 1976 and any amendment of 2000. Plant species as listed and protected under the Flora Protection Order (S.I. 94 of 1999) are not affected by the existing development.
3. Is the development a surface water discharge or abstraction in the surface water catchments or immediately downstream of a nature conservation site with water dependant qualifying habitats/species?	**No.** The Raharney WWTP discharges to groundwater.
4. Is the development a groundwater discharge or abstraction in the groundwater catchment or within 5km of a nature conservation site with water dependant qualifying habitats/species.?	**Yes.** The Raharney WWTW discharges to groundwater and the site is located 320m from the River Deel which forms part of the River Boyne and River Blackwater SAC.
5. Is the development in the surface water or groundwater catchment of salmonid waters?	**Yes.** The groundwater discharge of the Raharney WWTW is sited in a catchment of the river Deel. The Deel is a tributary of the River Boyne which is designated as a salmonid water course.
6. Is the treatment plant in an active or former floodplain or zone of a river, lake, etc?	**No.** The treatment plant is not situated on an active or former food plain. No recorded flood incidents are recorded on the OPWs National Flood Hazard Mapping database.
7. Is the development a surface discharge or abstraction to or from marine waters and within 3km of a marine nature conservation site?	**No.** Discharges from the plant are not sited in or within 3km of a marine conservation site.
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 Raharney WWTP is an existing site. The WWTP and its existing discharges do not have any affect on the hydrology or on any water levels within any protected site.

As per the requirements of Appendix 1 of the DoEHLG Circular L8/08 if 'yes' is answered to any of the above questions the project must be screened for its impacts.

Raharney WWTW

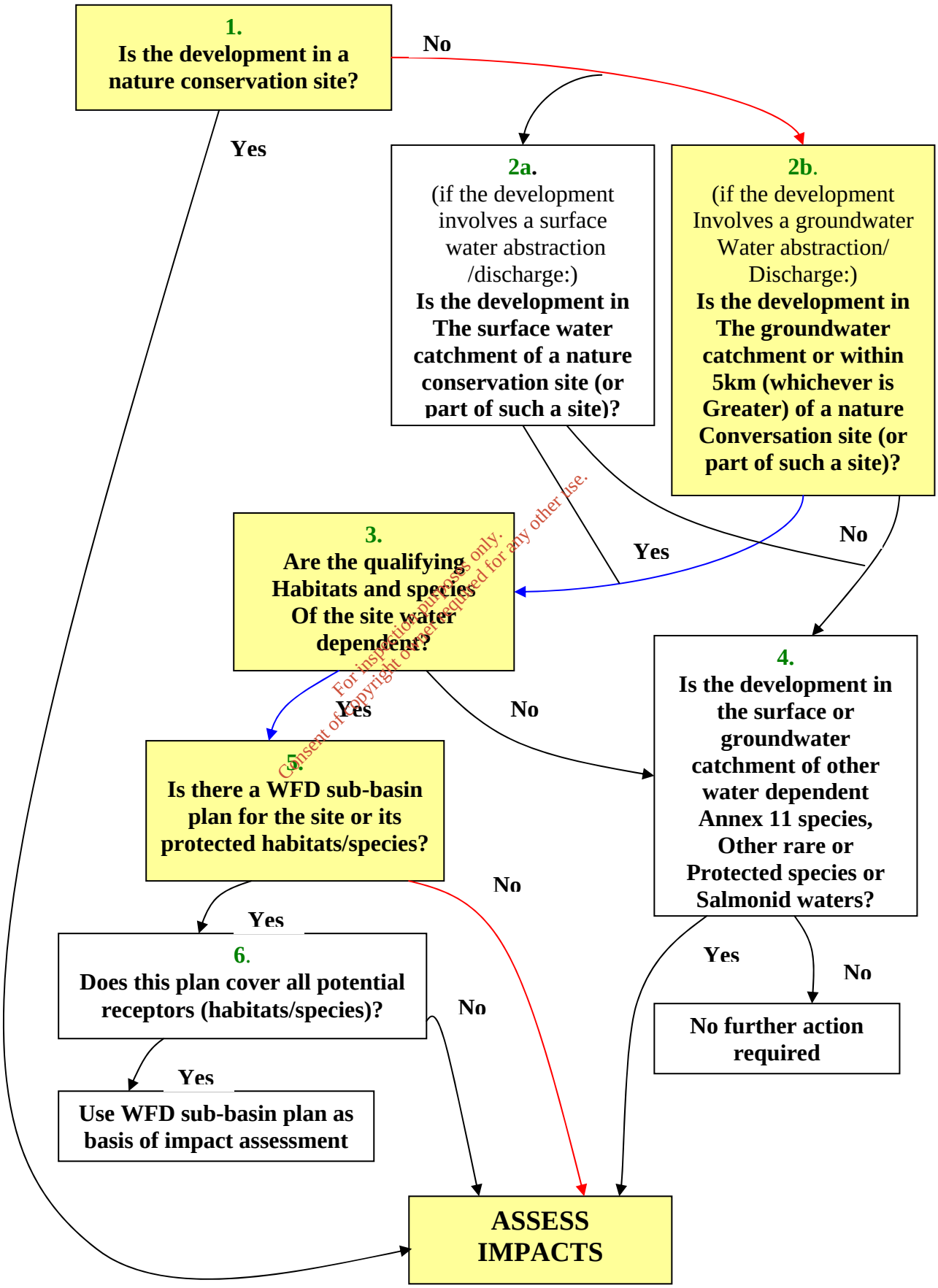


Figure 1 – Raharney WWTP Screening Flow Chart

1. Is the development in a nature conservation site?
No. The Raharney waste water treatment plant is not located within a nature conservation site.

2b. Is the development in the groundwater catchment or within 5km (whichever is greater) of a nature conservation site (or part of such a site)?
Yes. The development is located approximately 320m form the River Deel which is part of the River Boyne and Blackwater SAC.

3. Are the qualifying habitats and species of the site water dependent?
Yes, the qualifying habitats and species of the site are water dependent.

4. Is there a WFD sub-basin plan for the site or its protected habitats/species?
No there is no sub-basin plan for the site.

Conclusion: Assess impacts

2. (Stage 1): Screening

Step 1:Management of the Site

The Raharney WWTP and its discharge are not directly connected with or necessary to the management of the site.

Step 2:Project Description.

2.1 Waste Water Treatment Plant

The Raharney Waste Water Works has a design capacity of 150p.e and comprises of the following.

- A network of 150mm diameter gravity sewers within the Ashcroft Park estate.
- 2 No. Becker Blowers to provide aeration to the diffuser discs.
- 3 No. submersible pumps in order to transfer flows between tanks and forward feed to the percolation area.
- A 75mm diameter pressurised rising mains between the settlement and aeration tank and a 50mm diameter distribution main to the percolation area.
- A 45m³ primary settlement tank whose function is to remove solids and suspended solids form the waste water.
- A 45m³ sequential batch reactor tank (SBR) where the waste water is aerobically treated, settled and pumped to the percolation area.
- Percolation area.

The Waste Water Works discharges directly into ground water through the percolation area in the townland of Raharney, Co. Westmeath. The associated Waste Water Treatment Plant is also located in the townland of Raharney, Co. Westmeath.

Raharney Wastewater Treatment Plant (WWTP) is capable of providing treatment for a design load of 150 population equivalent. The WWTP comprises of primary settlement followed by aeration by fine bubble diffusers. The second chamber that houses the aeration system is programmed to allow the aeration, settlement and pumping of the waste water to occur in the one unit. The first chamber is designed to act as a primary settlement tank removing most of the solids and allowing a limited amount of anaerobic digestion to occur. The general arrangement of the Wastewater Treatment Plant is shown in Appendix B, Drawing No.1.

PLANT DESIGN CRITERIA	
Design Population Equivalent	150 PE
Design Daily flow rate	30 m^3/day
Design Daily maximum flow rate	4.6 m^3/hour
Maximum BOD_5 loading	9.0 kg
Total Capacity of Plant	90 m^3
Treated effluent Standards	BOD_5 20mg/litre Suspended solids 30mg/litre

Table 1.0

2.2 Existing Waste Water Treatment & Discharge Standards.

The Raharney WWTP is sited at the Ashcroft Park housing estate and serves this development only. The design discharge limits of the plant are 20mg/l BOD and 30mg/l suspended solids in the final effluent. Nutrient removal is provided by a percolation area which is located to the west of the treatment and settlement units.

Parameter	Average Result (April 2009 – February 2010)	UWWT Regulation Limits
BOD	205mg/l	25mg/l
Suspended Solids	161mg/l	35mg/l
COD	518mg/l	125mg/l
Total Phosphorous	11mg/l	2.0mg/l(Sensitive Areas)
Total Nitrogen	53mg/l	15mg/l(Sensitive Areas)

Table 2.0 Years 2009 and 2010

Discharges from the Raharney treatment plant prior to the percolation area are not as per the UWWTR. The plant is clearly not performing as designed. There are no available influent results for the plant however; it appears that there is little reduction in BOD, SS and COD levels. Total phosphorous and total nitrogen are also high. In recent weeks aeration times have been changed at the plant which has led to a marked improvement in results if not under the standard. It is recommended that a review of the aeration system is under taken and a review of the outlet sampling location as this may be contributing to misleading results due to the sampling tap only operating when the blower is on. This may explain the elevated BOD, suspended solids and COD readings.

Step 3:Characteristics of the Sites

3.1 General Site Description

The River Boyne and River Blackwater SAC are surface water stretches that drain large parts of Westmeath and Meath and incorporate the Deel, Stoneyford and Trembletown river courses. There are large areas of protected alkaline fen that can be found around Lough Shesk (County Meath), Freehan Lough (County Meath) and Newtown Lough (County Westmeath).

The Boyne is a nationally important water course due to its excellent game fishing. Fish species found within its waters which include Atlantic Salmon, Brown Trout and Sea Trout. The River Boyne rises close to the town of Edenderry and flows predominantly in a north-easterly direction for 120 kilometres where it enters the Irish Sea at Drogheda Town on the Louth-Meath Border.

The River Blackwater rises close to Prosperous Village in County Kildare and flows north-westerly for 25km before entering the River Boyne. The Blackwater is less noticeable for its large fish in terms of angling however both water courses are important in terms of providing habitats for Annex 11 species of the E.U. Habitats Directive. Atlantic Salmon and River Lamprey are present in both rivers while the River Boyne in particular is noted for the presence of Otter populations along its river banks.

The closest stretch of the SAC is located approximately 320m on the River Deel at a location west of the treatment plant site. At this point the river Deel flows from north to south through Raharney village and meanders for a further 13 kilometres until it flows into the main channel of the river Boyne close to Donore, County Meath.

A full site synopsis for the River Boyne and River Blackwater SAC as taken from the National Parks and Wildlife Services is included in Appendix A. Map No.1 of Appendix B summaries the location of the Raharney WWTP and its location relative to the river Deel and the designated site.

3.1.1 Annex listed Species Within the Designated Site

3.1.1. (a) Salmon

Salmon is protected under the E.U. Habitats Directive as this species is considered to be endangered and locally threatened in many parts of Europe. Salmon is still fished in Irish waters however and the fish species is regarded as a precious commodity.

Salmon require inland waters that have a very good water quality. They prefer water courses that have clean gravel beds for spawning with substantial flows.
Salmon are anadromous and spend most of their adult life at sea however fresh water spawning routes are becoming ever more important within Europe. The River Boyne is a particularly important watercourse within the River Boyne and River Blackwater SAC for Salmon spawning and migration.

3.1.1. (b) River Lamprey

Like Salmon, Lamprey require rivers that process a good water quality and gravel bed areas to spawn. River Lamprey migrate to the upper stretches of rivers to spawn and subsequently return to river estuaries. River Lamprey can be found in the main channel of the River Boyne and in some of its triturates.

3.11. (c) Otter

Otters generally occupy stretches or ranges along a river bank. Water quality usually has an indirect effect upon Otters with a decline in their food source a greater threat to their population rather than affecting the Otters themselves. Within Europe Ireland has been identified as a stronghold for the Otter species and they provide an important element of surface water habitats.

3.1.2 Annex 1 Habitat within the Designated Site

The river Boyne and river Blackwater SAC has been designated to protect a number of habitats, these include;

Alkaline Fen

Alkaline fen habitat is protected under the E.U. Habitats Directive and is listed on Annex 1 of same. Fens have experienced a decline in quality and reduction in size due to peat cultivation and drainage. The primary areas of this habitat are situated in the vicinity of Lough Shesk, Freehan Lough and Newtown Lough. These loughs are sited to the northeast of the Raharney WWTP and the river Deel. The loughs and alkaline habitat are sited on the river Stonyford catchment which also makes up part of the SAC. The Stonyford river joins the river Boyne north and downstream of the river Deel's joining with the river Boyne. The alkaline fen habitat is not directly connected to the drainage catchment at Raharney. Therefore it can be concluded that are no potential impacts form the Raharney WWTP upon any alkaline habitat.

Alluvial Woodland

Alluvial woodlands are areas of tree coverage that primary consist of alder, willow and birch. They are prone to periodic flooding due to their proximity to surface waters. This habitat is generally absent along the river Deel however areas of alluvial woodlands are found along

the main channel of the river Boyne. Most notable this habitat is found on a series of river islands located approximately 2.5 kilometres west of Drogheda town. The alluvial habitat is sited some 70 kilometres from the Raharney WWTP as the crow flies. Due to the distance of the percolation from the selected habitat it is deemed that there are no potential direct impacts from the Raharney WWTP upon the alluvial woodland.

The qualifying features of the designated area along with the main threats and impacts are listed below in Table 3.0

Qualifying Habitats/Species	Potential Threats	Impact
Alkaline Fen	Burning, drainage, grazing, and dumping	Reduction in fen size. Destruction of flora and fauna
Alluvial Woodland	Drainage, tree removal.	Reduction in habitat area.
Otter, Golden Plover, Whooper Swan and Greenland White Fronted Goose	Use of pesticides, fertilisers, hunting, water pollution and drainage.	Decline in numbers. Loss of wintering habitats and reduction in food sources. Decline in water quality

Table 3.0 - Qualifying habitats and species of the river Boyne and river Blackwater SAC and associated threats and impacts

3.2 Westmeath County Council Water Quality Monitoring

Westmeath County Council currently monitors the effluent discharge from the aeration treatment unit at the Raharney plant. Samples are taken prior to their discharge to the percolation area and there are no groundwater monitoring associated with the treatment plant. Currently there are no monitoring samples taken by Westmeath County Council on the river Deel at Raharney due to all discharges from the plant going to groundwater.

The only existing surface water quality monitoring associated with the river Deel at Raharney is carriedout by the Environmental Protection Agency. Samples are taken at stn 0300, Raharney bridge. Current results indicate that the river quality is of moderate status.

3.3 In Combination Effects – Other Plans or Projects.

In line with E.U. and EPA guidance on appropriate assessments it is required to identify any possible cumulative or in combination impacts of the discharge with other plans or developments on the river Boyne and river Blackwater SAC.

Table 4.0 considers any existing plans or projects that may impact upon the designated site, river Boyne and river Blackwater SAC.

Table 4.0 – Potential Impacts upon the designated Site

Name of Plan/Project	Key Policies/Issues/Objectivities Directly Related to Lough Derravaragh SPA/NHA	Impact on the river Boyne and river Blackwater SAC and the qualifying features of the designated area.
Land Use Plans		
Westmeath County Development Plan	**Water Quality and Groundwater Protection** **P-EH1** It is the policy of the Council to support the implementation of the Water Framework Directive and the Shannon & Eastern District River Basin Management Plans for the County. **P-EH2** The Council will take steps to ensure the quality of surface and ground waters and will implement the overriding principle that 'the polluter pays' in respect of breaches of environmental laws. **Natural Heritage** **O-EH2** To protect, manage and enhance the natural heritage, biodiversity, landscape and environment of County Westmeath in recognition of its importance as a non-renewable resource, unique identifier and character of the county and as a natural resource asset. **O-EH3** It is a key objective to ensure as far as possible that development does not impact adversely on wildlife habitats and species. In the interests of sustainability, biodiversity should be conserved for the benefit of future generations. **O-EH4** The "polluter pays" and the "precautionary principles" are integral components of planning policies for environment and heritage. If uncertainty exists regarding the potential impact of a proposed development full account will be taken of the precautionary principle and the proposed development will be resisted unless or until its effects are more clearly understood. **Special Protected Areas (SPA) and Special Areas of Conservation (SAC)** **P-EH7** To protect and conserve wild bird species and their habitats, especially rare or vulnerable species and regularly occurring migratory species. **P-EH8** To protect and conserve proposed candidate Special Areas of Conservation. **P-EH9** To protect plant, animal, species and habitats which have been identified by the Habitats	Positive Impact

	Directive, Birds Directive, Wildlife Act (1976) and (Amendment Act) 2000, and the Flora Protection Order S.I No. 94 of 1999.	
	P-EH10 To require appropriate environmental assessment such as EIA (Environmental Impact Assessment) or ecological appraisal for developments not directly connected with or necessary to the management of a European site, or a proposed European Site and which are likely to have significant effects on the site individually or cumulatively. **P-EH11** To consult with appropriate prescribed bodies and Government agencies when assessing development proposals affecting designated sites of European importance. **Wetlands and Watercourses** **P-EH22** The Council shall ensure that the County's floodplains, wetlands and watercourses are retained for their biodiversity and flood protection values. **O-EH36** To consult Fisheries Board and the National Parks and Wildlife Service on any development proposal concerning riparian areas and watercourses and to take account of the requirements for the protection of fisheries habitat during construction and development works at river sites. **O-EH37** To maintain good ecological status of wetlands and watercourses in support of the provisions of the Water Framework Directive and Ramsar Convention. **Water Quality** **P-EH40** The Council shall seek through development management to maintain appropriate buffer zones around the River Deel and the Stonyford River and their associated maintain the integrity and water quality of these riparian ecosystems.	Positive Impact
Conservation Management Plans		
NPWS Conservation Management Plans	There is currently no completed conservation management plan for the River Boyne and River Blackwater SAC	Negative Impact
Eastern River Basin District Management Plan	This River Basin Management Plan for the Eastern River Basin District, covering the period 2009 to 2015, aims to protect all waters within the district and, where necessary, improve waters and achieve sustainable water use. Waters include rivers, canals, lakes, reservoirs, groundwater's, protected areas (including wetlands and other water-dependent ecosystems), estuaries (transitional) and coastal waters.	Positive Impact
IPPC Licences.	There are no IPPC licences granted in the immediate vicinity of the designated site. The closet IPPC	Potentially a negative impact if

	grant located close to Raharney is associated with pig farming. IPPC P0874-01 is located south of the treatment plant and north of the Royal canal.	conditions of any IPPC upstream are not met. No impact if conditions are adhered to.
Urban Waste Water Discharges	The Raharney WWTP is the only plant >10pe that discharges to ground waters close to the designated site. The village area and the surrounding single houses are served by septic tanks and small package systems.	Potentially a negative impact if conditions of any certificate are not met. No impact if conditions are adhered to.
Unsewered waste Water Discharges	The introduction of the Code of Practice (wastewater treatment and disposal systems serving single houses) has introduced guidance on the provision and maintenance of wastewater treatment for single houses.	No impact if CoP is adhered to. Potentially a negative impact if CoP is not followed during and after installation.

4. Step 4: Assessment of Significance

4.1 DoEHLG Circular L8/08 Screening - Protection of Natural Heritage

The assessment of the likelihood of significant effects methodology used in accessing the Raharney Waste Water Treatment Plant (WWTP) is in accordance with the Department of the Environment, Heritage and Local Governments Circular L8/08, Water Services Investment and Rural Water Programmes – Protection of National Heritage and National Monuments.

Within the circular initial screening in accordance with Appendix 1(national heritage).

Appendix 1 Screening (Heritage)

Appendix 1 of Circular L8/08 prescribes 8 questions and a screening flow diagram (see Figure 1, page 13) that is used to determine if a new development requires screening for potential impacts to habitats, flora or fauna. The 8 checklist questions are dealt with below.

4.2.1 Screening Questions

1. **Is the development in or on the boundary of a nature conservation site (NHA/SAC/SPA?)**

Yes, the Raharney (within 500m) Waste Water Treatment Plant (WWTP) is situated on the boundary of a nature conservation site.

2. **Will nationally protected species be directly impacted? (Flora Protection Order (S.I. 94 OF 1999)?**

No. The existing WWTP is not sited within designated area or within a site that prescribes to the hunting of bird or animal species as detailed in Schedules 4 and 5 of the Wildlife Act 1976 and any amendment of 2000. Plant species as listed and protected under the Flora Protection Order (S.I. 94 of 1999) are not affected by the existing development.

3. **Is the development a surface water discharge or abstraction in the surface water catchments or immediately downstream of a nature conservation site with water dependant qualifying habitats/species?**

The Raharney WWTP discharges to ground water.

4. **Is the development a groundwater discharge or abstraction in the groundwater catchment or within 5km of a nature conservation site with water dependant qualifying habitats/species.?**

Yes. The existing development is located within a 5km radius of a nature conservation site.

5. **Is the development in the surface water or groundwater catchment of salmonid waters?**

Yes. The Raharney WWTP is sited within the groundwater catchment of the River Deel. The Deel forms part of the River Boyne and River Blackwater SAC. The main channel of the River Boyne is designated as salmonid waters under S.I. No. 293/1988: European Communities (Quality of Salmonid Waters) Regulations, 1988.

6. **Is the treatment plant in an active or former floodplain or zone of a river, lake, etc?**

No. The treatment plant is not situated on an active or former food plain. No recorded flood incidents are recorded on the OPWs National Flood Hazard Mapping database.

7. **Is the development a surface discharge or abstraction to or from marine waters and within 3km of a marine nature conservation site?**

No. Discharges from the plant are not sited in or within 3km of a marine conservation site.

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?**

The Raharney WWTP is an existing site. The WWTP and its discharges do not have any affect on the hydrology or on any water levels within any protected site.

5. Conclusion

Following the above screening it is deemed that any potential impacts from the Raharney WWTP upon the River Boyne and River Blackwater SAC should be assessed further.

(Stage 2): Appropriate Assessment

Information Required

The River Boyne and River Blackwater SAC has already been described in general in Section 3.1 of this report. This site is selected for alkaline fen and alluvial woodlands both of which are listed on Annex 1 of the E.U. Habitats Directive. Under the Directive the site is also designated due to the following species occurring within the site, Atlantic Salmon, River Lamprey and Otter. The main conservation objectives of the site are aimed at the protection and development of the above habitats and protected species.

The Raharney WWTP was constructed to a local authority housing estate that is constructed close to the treatment plant site. The plant is sited approximately 320m to the west of the River Deel. Effluent is discharged to groundwater through a percolation area located just east of the treatment tanks. The site is bounded to the south by agricultural lands ad to its north housing development The river Deel is popular as a fishing water watercourse. The river Deel is a tributary of the River Boyne and both rivers form part of a special area of conservation.

Qualifying Interests

The River Boyne and Blackwater (River Deel) is designated as a SAC due to areas of alluvial woodland, alkaline fen and protected fish and otter species that occur within the site.

River Boyne and River Blackwater SAC - Conservation Objectives

Currently there is no NPWS management plan for the site. In the absence of detailed objectives Westmeath County Council has analysed similar designated areas and existing management plans. These objectives have been attributed to the River Boyne and River Blackwater SAC.

Objective 1: To maintain and enhance the protected species for which the site has been designated under the E.U. Habitats Directive.

Objective 2: To maintain and enhance the extent, species richness and biodiversity of the site.

Objective 3: Top maintain and enhance the Annex 1 habitat for which the site has been designated as a NHA an SPA.

Objective 4: To initiate and maintain effective liaison between NPWS, relevant authorities, landowners and any other interested parties regarding the conservation of the site.

The key objective in relation to the Raharney WWTP is to maintain treated effluent discharge standards from the plant. Existing ground and lake water quality must be maintained and improved under the Water Framework Directive. Best practice and continuous monitoring is therefore a priority requirement is minimising any potential risk to water quality.

Existing Discharge and Water Quality
Monitoring of the Raharney WWTP is carriedout every quarter due to financial constraints. There are no composite samplers located at the works and all samples are taken from a sample tap location or using the grad method.

Currently samples taken at the treatment plant appear to show that there is inadequate treatment taking place in the aeration tank. A new diffused aeration system was installed in the SBR unit in October 2009. The addition of the new system has improved the effluent quality however it is clear that aeration times and rest period within the SBR require to be adjusted to improve discharge quality. The results taken are pre the percolation area and there are no results available for treated wastewater post the percolation process. There are also no influent results available and therefore a minimum percentage reduction cannot be calculated.

There are no monitoring results available for groundwater quality close to the discharge area as there are no sampling boreholes present.

River Deel Water Quality
The closest surface water course to the Raharney agglomeration is the River Deel. The Deel forms part of the River Boyne and River Blackwater SAC and is a tributary of the River Boyne. Westmeath County Council does not monitor the surface water quality of the Deel however there is a number of EPA monitoring stations on the water course. Upstream and 5 km upstream at Cummer Bridge sampling results shows the water quality as moderate. This quality rating is also achieved at three sampling locations sited downstream of the agglomeration at Raharney Bridge, Inan Bridge and a bridge close to the joining with the river Boyne close to Killyon, Co. Meath. There is no improvement or deterioration in the Deels water quality until the river Boyne where a water quality of Good status was recorded at Inchmore Bridge. All results were taken in 2009.

Without adequate groundwater results upstream and downstream of the percolation area it is difficult to ascertain impacts to the existing groundwater and surface water quality. It can however be concluded that the Raharney WWTP discharge is currently not affecting the river water quality within the River Boyne and River Blackwater SAC.

It is recommended that groundwater locations are established close to the treatment plant to monitor upstream and downstream ground water quality.

Screening Matrix for Appropriate Assessment Impacts

Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the River Boyne and River Blackwater SAC.

- If the WWTP does not continue to conform to the relevant discharge standards it may in combination with activities outside the boundary of the discharge licence agglomeration (septic tanks, agricultural activity, other discharges etc.) lead to an increase nutrient level in the receiving ground water aquifer which lies in the Boyne river catchment.

Describe any likely direct, indirect or secondary impacts of the project on the River Boyne and River Blackwater SAC by virtue of:

- Size and Scale
Given the overall size of the Raharney agglomeration, this application does not have a significant impact (direct, indirect or secondary in nature) on the site in this regard.

- Land-Take
There will not be a significant impact (direct, indirect or secondary in nature) on the River Boyne and River Blackwater SAC.

- Distance from Natura 2000 site or key features of the site
The Raharney WWTP discharge point is sited on the boundary of the designated area giving rise to the potential impact to water quality if discharge standards are not maintained.

- Resource Requirements
There will be no requirement for water or any other resources to be taken from the designated site for the continued functioning of the Raharney WWTP and associated discharge. As a result there will not be a significant impact (direct, indirect or secondary in nature) on the site in this regard.

- Emissions
The water quality of the River Boyne and River Blackwater SAC does not currently meet the requirements of the European Communities Environmental Objectives (Surface Waters) Regulations 2009 for good water quality status. Current water quality results within the SAC indicate that the Raharney plant is not contributing to a direct deterioration of river quality. There are no plans to increase the size of the existing treatment plant thus the potential of increasing wastewater loading to the plant and a greater treat of pollution to surface water is curtailed.

- Excavation Requirements
No excavation is anticipated. As a result there will not be a significant impact (direct, indirect or secondary in nature) on the River Boyne and River Blackwater SAC in this regard.

- Transportation Requirements
There will not be a significant impact (direct, indirect or secondary in nature) upon the designated site.

Describe any likely changes to the site arising as a result of the following:
- Reduction of Habitat
There will not be a significant impact (direct, indirect or secondary in nature) upon the River Boyne and River Blackwater SAC arising in a reduction of habitat

- Disturbance or reduction to Key Species
There will not be a significant impact (direct, indirect or secondary in nature) upon the River Boyne and River Blackwater SAC arising in a disturbance or reduction in numbers to key species.

- Habitat or Species Fragmentation
There will not be a significant impact (direct, indirect or secondary in nature) on the River Boyne and River Blackwater SAC in this regard.

- Changes in key indicators of conservation value
The water quality of the River Deel and surrounding ground water can be considered a key indicator of conservation value. Currently there are no monitoring boreholes on the groundwater aquifer within the Raharney agglomeration. Discharges from the Raharney WWTP are not in line with the Urban Waste Water Treatment Regulations however upon assessing the sampling point used by Westmeath County Council at the treatment plant there is a question mark over its sampling location due to the sampling tap only working when the aeration system is in on, pumping the sample directly from the treatment tank.

Surface water quality in the river Deel is currently classified as that of moderate status, with a Q rating of 3-4. Current EPOA monitoring stations located at Raharney Bridge, Cummer Bridge (upstream) and Inan Bridge (downstream) indicate that a water quality of moderate status is even throughout the river Deel. The content existing water quality both upstream and downstream and at Raharney village show that the existing plant is not having an effect on the surface water quality within the River Boyne and River Blackwater SAC.

- Climate change
There will not be a significant impact (direct, indirect or secondary in nature) on the River Boyne and River Blackwater SAC in this regard.

Describe any likely impacts on the designated site, the River Boyne and River Blackwater SAC as a whole in terms of:
- Interference with key relationships that define the structure and function of the site
It is not likely that there will be any significant impacts resulting from the Raharney Wastewater Discharge of Authorisation Certificate on any key relationships that define the structure and function of the protected site.

Provide Indicators of significance as a result of the identification of effects set out above in terms of:
- Loss
No loss is expected.
- Fragmentation
No fragmentation is expected.
- Disruption
No disruption is expected.
- Disturbance
No disturbance is expected.
- Change to key elements of the site
Continued surface water quality monitoring will be used as an indicator of significance to changes within the site.

The Appropriate Assessment process has concluded that no significant effects are likely on the qualifying features of the River Boyne and River Blackwater SAC resulting from Raharney WWTP discharge either alone or in combination with other plans and projects.

Summary and Mitigation Measures
The AA assessment has been completed for the Raharney WWTP discharge relative to the River Boyne and River Blackwater SAC.

Current discharges are not having a negative impact on the qualifying features of the River Boyne and River Blackwater SAC either alone or in combination with other plans or projects.

In order to ensure that that the current situation is maintained it is proposed to implement the following measures:

-Relocate the effluent sampling point form the aeration tank to post treatment and pre percolation.

-Assess aeration times and duration at the WWTP. Install additional DO probes.

- Monitor the water the ground water quality status on a monthly basis at the existing WWTP upstream and downstream of the discharge point.

- Prepare a management procedure for the operation of the WWTP during times of prolonged power loss, and Good working practices,
-Adequate site supervision and security

-Construction staff will be briefed to ensure that environmental issues are taken into consideration and those guidelines and codes of practice such as CIRIA C502 Environmental Good Practice on Site (www.ciria.org) are followed

-Development of working methods to protect areas of importance

-Programming to minimise environmental disturbance

-Pollution Prevention Control Measures, and

-Emergency response plans.

Appendix A

Site Synopsis

Site Name: River Boyne and River Blackwater
Site Code: 002299

This site comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath and smaller areas of Cavan and Louth. The underlying geology is Carboniferous Limestone for the most part with areas of Upper, Lower and Middle well represented. In the vicinity of Kells Silurian Quartzite is present while close to Trim are Carboniferous Shales and Sandstones. There are many large towns adjacent to but not within the site. Towns both small and large, include Slane, Navan, Kells, Trim, Athboy and Ballivor.

The site is a candidate SAC selected for alkaline fen and alluvial woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Atlantic Salmon, Otter and River Lamprey.

The main areas of alkaline fen are concentrated in the vicinity of Lough Shesk, Freehan Lough and Newtown Lough. The hummocky nature of the local terrain produces frequent springs and seepages which are rich in lime. A series of base-rich marshes have developed in the poorly-drained hollows, generally linked with these three lakes. Open water is usually fringed by Bulrush (*Typha latifolia*), Common Club-rush (*Scirpus lacustris*) or Common Reed (*Phragmites australis*) and this last species also extends shorewards where a dense stand of Great Fen Sedge or Saw Sedge (*Cladium mariscus*) frequently occurs. This in turn grades into a sedge and grass community (*Carex* spp., *Molinia caerulea*) or one dominated by the Black Bogrush (*Schoenus nigricans*). An alternative direction for the aquatic/terrestrial transition to take is through a floating layer of vegetation. This is normally based on Bogbean (*Menyanthes trifoliata*) and Marsh cinquefoil (*Potentilla palustris*). Other species gradually become established on this cover, especially plants tolerant of low nutrient status e.g. bog mosses (*Sphagnum* spp.). Diversity of plant and animal life is high in the fen and the flora, includes many rarities. The plants of interest include Narrow-leaved Marsh Orchid (*Dactylorhiza traunsteineri*), Fen Bedstraw (*Galium uliginosum*), Cowbane (*Cicuta virosa*), Frogbit (*Hydrocharis morsus-ranae*) and Least Bur-reed (*Sparganium minimum*). These species tend to be restricted in their distribution in Ireland. Also notable is the abundance of aquatic Stoneworts (*Chara* spp) which are characteristic of calcareous wetlands.

The rare plant, Round-leaved Wintergreen (*Pyrola rotundifolia*) occurs around Newtown Lough. This species is listed in the Red Data Book and is protected under the Flora Protection Order, 1999, and this site is its only occurrence in Co. Meath. Wet woodland fringes many stretches of the Boyne. The Boyne River Islands are a small chain of three islands situated 2.5 km west of Drogheda. The islands were formed by the build up of alluvial sediment in this part of the river where water movement is sluggish. All of the islands are covered by dense thickets of wet, Willow (*Salix* spp.) woodland, with the following species occurring: Osier (*S. viminalis*), Crack Willow (*S. fragilis*), White Willow (*S. alba*), Purple Willow (*Salix purpurea*) and Grey Willow (*S. cinerea*). A small area of Alder (*Alnus glutinosa*) woodland is found on soft ground at the edge of the canal in the north-western section of the islands. Along other stretches of the rivers of the site Grey Willow scrub and pockets of wet woodland dominated by Alder have become established, particularly at the river edge of mature deciduous woodland. Ash (*Fraxinus excelsior*) and Birch (*Betula pubescens*) are

common in the latter and the ground flora is typical of wet woodland with Meadowsweet (*Filipendula ulmaria*), Angelica (*Angelica sylvestris*), Yellow Iris, Horsetail (*Equisetum* spp.) and occasional tussocks of Greater Tussocksedge (*Carex paniculata*).

The dominant habitat along the edges of the river is freshwater marsh - the following plant species occur commonly here: Yellow Flag (*Iris pseudacorus*), Creeping Bent (*Agrostis stolonifera*), Canary Reed-grass (*Phalaris arundinacea*), Marsh Bedstraw (Galium palustre), Water Mint (*Mentha aquatica*) and Water Forget-me-not (*Myosotis scorpioides*). In the wetter areas of the marsh Common Meadow-rue (*Thalictrum flavum*) is found. In the vicinity of Dowth, Fen Bedstraw (*Galium uliginosum*), a scarce species mainly confined to marshy areas in the midlands, is common in this vegetation. Swamp Meadow-grass (*Poa palustris*) is an introduced plant which has spread into the wild (naturalised) along the Boyne approximately 5 km south-west of Slane. It is a rare species which is listed in the Red Data Book and has been recorded among freshwater marsh vegetation on the banks of the Boyne in this site. The only other record for this species in the Republic is from a site in Co. Monaghan. The secondary habitat associated with the marsh is wet grassland and species such as Tall Fescue (*Festuca arundinacea*), Silverweed (*Potentilla anserina*), Creeping Buttercup (*Ranunculus repens*), Meadowsweet (*Filipendula ulmaria*) and Meadow Vetchling (*Lathyrus pratensis*) are well represented. Strawberry Clover (*Trifolium fragiferum*), a plant generally restricted to coastal locations in Ireland, has been recorded from wet grassland vegetation at Trim. At Rossnaree river bank on the River Boyne, is Round-Fruited Rush (*Juncus compressus*) found in alluvial pasture, which is generally periodically flooded during the winter months. This rare plant is only found in three counties in Ireland.

Along much of the Boyne and along tributary stretches are areas of mature deciduous woodland on the steeper slopes above the floodplain marsh or wet woodland vegetation. Many of these are planted in origin. However the steeper areas of King Williams Glen and Townley Hall wood have been left unmanaged and now have a more natural character. East of Curley Hole the woodland has a natural appearance with few conifers. Broad-leaved species include Oak (*Quercus* spp.), Ash (*Fraxinus excelsior*), Willows, Hazel (*Corylus avellana*), Sycamore (*Acer pseudoplatanus*), Holly (*Ilex aquifolium*), Horse chestnut (*Aesculus* sp.) and the shrubs Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Elder (*Sambucus nigra*). South-west of Slane and in Dowth, the addition of some more exotic tree species such as Wych Elm (*Ulmus glabra*), Beech (*Fagus sylvatica*), and occasionally Lime (*Tilia cordata*), are seen. Coniferous trees, Larch (*Larix* sp.) and Scots Pine (*Pinus sylvestris*) also occur. The woodland ground flora includes Barren Strawberry (*Potentilla sterilis*), Enchanter's Nightshade (*Circaea lutetiana*) and Ground-ivy (*Glechoma hederacea*), along with a range of ferns. Variation occurs in the composition of the canopy, for example, in wet patches alongside the river, White Willow and Alder form the canopy.

Other habitats present along the Boyne and Blackwater include lowland dry grassland, improved grassland, reedswamp, weedy wasteground areas, scrub, hedge, drainage ditches and canal. In the vicinity of Lough Shesk, the dry slopes of the morainic hummocks support grassland vegetation which, in some places, is partially colonised by Gorse (*Ulex europaeus*) scrub. Those grasslands which remain unimproved for pasture are species-rich with Common Knapweed (*Centaurea nigra*), Creeping Thistle (*Cirsium arvense*) and Ribwort Plantain (*Plantago lanceolata*) commonly present. Fringing the canal alongside the Boyne south-west of Slane, are Reed Sweet-grass (*Glyceria maxima*), Great Willowherb (*Epilobium hirsutum*) and Meadowsweet.

The Boyne and its tributaries is one of Ireland's premier game fisheries and it offers a wide range of angling from fishing for spring salmon and grilse to seatrout fishing and extensive

brown trout fishing. Atlantic Salmon (*Salmo salar*) use the tributaries and headwaters as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. Atlantic Salmon run the Boyne almost every month of the year. The Boyne is most important as it represents an eastern river which holds large three-sea-winter fish from 20 –30 lb. These fish generally arrive in February with smaller spring fish (10 lb) arriving in April/May. The grilse come in July, water permitting. The river gets a further run of fish in late August and this run would appear to last well after the fishing season. The salmon fishing season lasts from 1st March to 30th September.

The Blackwater is a medium sized limestone river which is still recovering from the effects of the arterial drainage scheme of the 70's. Salmon stocks have not recovered to the numbers pre drainage. The Deel, Riverstown, Stoneyford and Tremblestown Rivers are all spring fed with a continuous high volume of water. They are difficult to fish in that some are overgrown while others have been affected by drainage with the resulting high banks.

The site is also important for the populations of two other species listed on Annex II of the E.U. Habitats Directive, namely River Lamprey (*Lampetra fluviatilis*) which is present in the lower reaches of the Boyne River while the Otter (*Lutra lutra*) can be found throughout the site. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. Common Frog, another Red Data Book species, also occurs within the site. All of these animals with the addition of the Stoat and Red Squirrel, which also occur within the site, are protected under the Wildlife Act.
Whooper Swans winter regularly at several locations along the Boyne and Blackwater Rivers. Parts of these areas are within the cSAC site. Known sites are at Newgrange (c. 20 in recent winters), near Slane (20+ in recent winters), Wilkinstown (several records of 100+) and River Blackwater from Kells to Navan (104 at Kells in winter 1996/97, 182 at Headfort in winter 1997/98, 200-300 in winter 1999/00). The available information indicates that there is a regular wintering population of Whooper Swans based along the Boyne and Blackwater River valleys. The birds use a range of feeding sites but roosting sites are not well known. The population is substantial, certainly of national, and at times international, importance. Numbers are probably in the low hundreds.

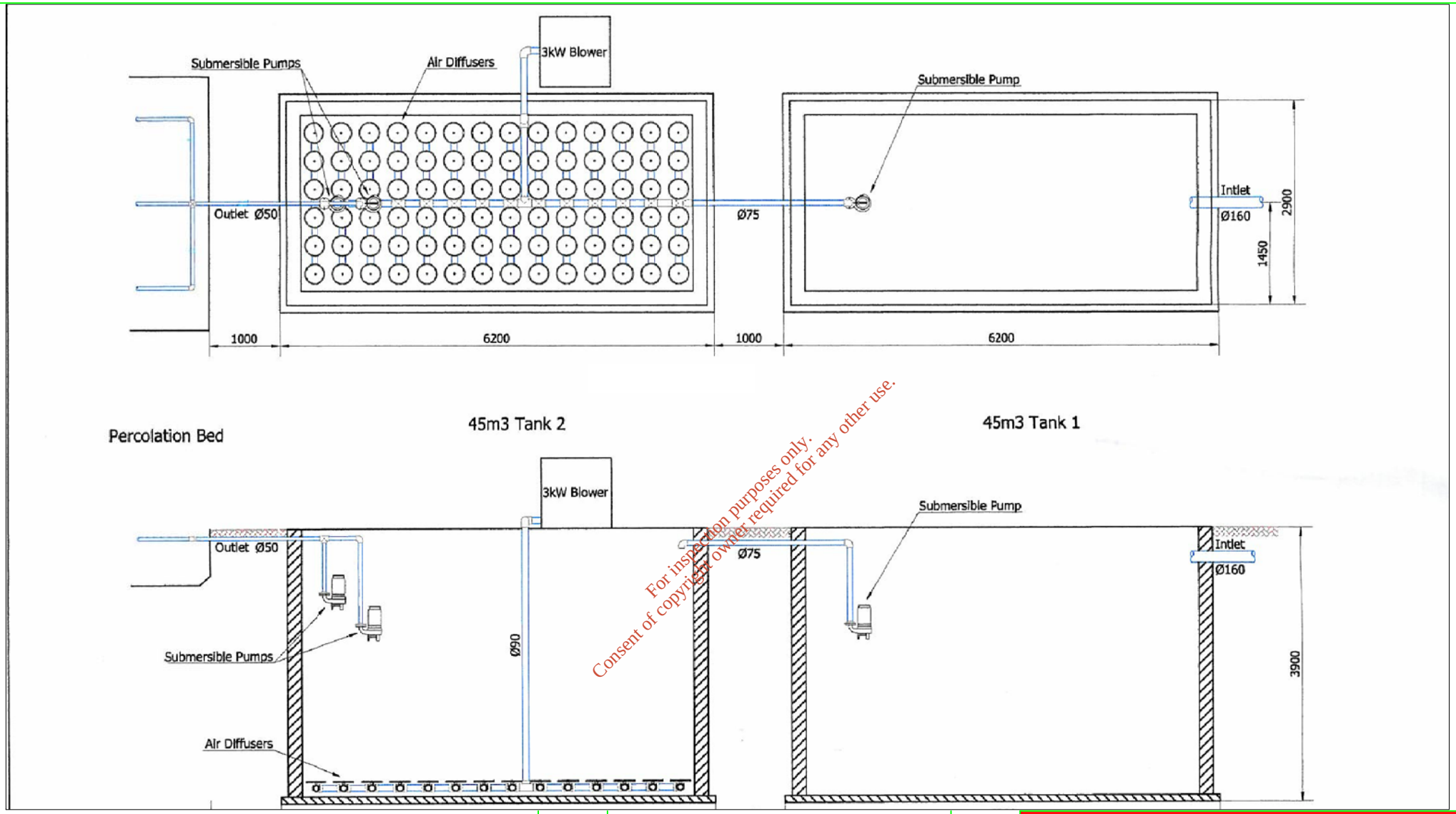
Intensive agriculture is the main landuse along the site. Much of the grassland is in very large fields and is improved. Silage harvesting is carried out. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the lakes. In the more extensive agricultural areas sheep grazing is carried out.

Fishing is a main tourist attraction on the Boyne and Blackwater and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The Eastern Regional Fishery Board have erected fencing along selected stretches of the river as part of their salmonid enhancement programme. Parts of the river system have been arterially dredged. In 1969 an arterial dredging scheme commenced and disrupted angling for 18 years. The dredging altered the character of the river completely and resulted in many cases in leaving very high banks. The main channel from Drogheda upstream to Navan was left untouched, as were a few stretches on the Blackwater. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to salmonid habitat in the area. Drainage of the adjacent river systems also impacts on the many small wetland areas throughout the site. The River Boyne is a designated Salmonid Water under the EU Freshwater Fish Directive.

The site supports populations of several species listed on Annex II of the EU Habitats Directive, and habitats listed on Annex I of this directive, as well as examples of other important habitats. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.

Appendix B

Drawings



REVISION	DESCRIPTION	DATE

WESTMEATH COUNTY COUNCIL

PROJECT

Raharney WWTP WWDC of Authorisation

DRAWING TITLE

Raharney WWTP Plan & Elevation

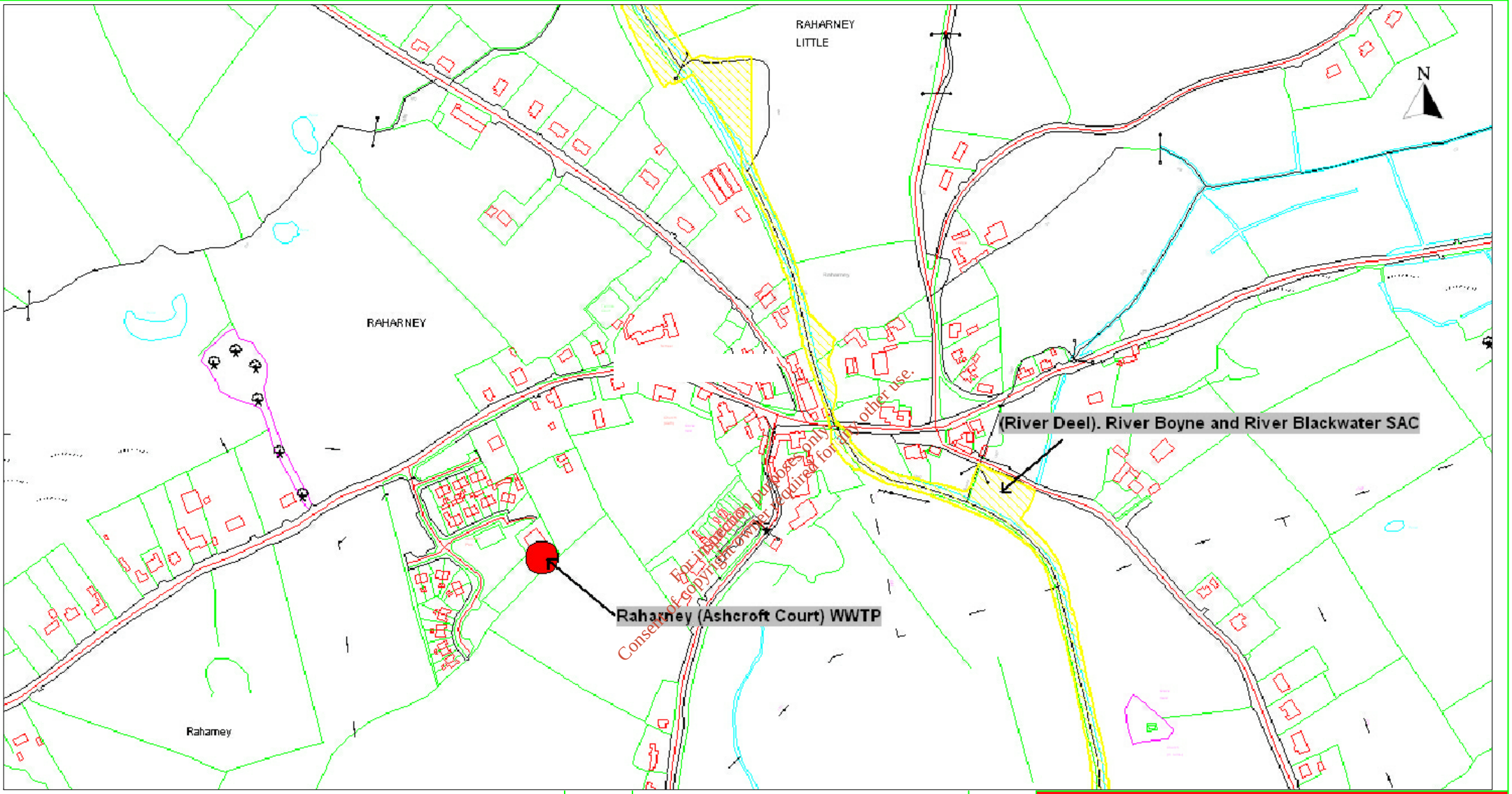
SURVEYED
DRAWN
CHECKED AF
APPROVED MC

SCALE NTS
DATE 10/10/2010
DATUM Malin

DRAWING NO.
Drawing No.1

DESIGN DEPARTMENT
COUNTY BUILDINGS
MULLINGAR. TEL (044) 32000

FILE NAME & DIRECTORY
Map 1



SAC Boundary

REVISION	DESCRIPTION	DATE

WESTMEATH COUNTY COUNCIL

PROJECT

Raharney WWTP WWDC of Authorisation

DRAWING TITLE

River Boyne & River Blackwater SAC (River Deel)

SURVEYED		SCALE	NTS
DRAWN	AF	DATE	10/10/2010
CHECKED	AF		
APPROVED	MC	DATUM	Malin

DRAWING NO. Map No.1

DESIGN DEPARTMENT
COUNTY BUILDINGS
MULLINGAR. TEL (044) 32000

FILE NAME & DIRECTORY
Map 1

Raharney WWDC of Authorisation

Revised Non-Technical Report

Westmeath County Council is applied to the Environmental Protection Agency for a Waste Water Discharge Certificate of Authorisation for the Waste Water Works at Raharney, Co. Westmeath serving the Ashcroft Park housing estate. The Waste Water Works comprises a gravity sewer network within the estate; flows are subsequently diverted to a primary settlement tank waste water in the settlement tank is subsequently pumped to an SBR unit which provides aerobic treatment and settlement of the biomass. The plant is designed to produce a treated effluent to comply with the following standards: BOD_5 20mg/litre and Suspended Solids 30mg/litre. The plant discharges directly to groundwater through a percolation area.

The primary discharge from the Waste Water Works is directly to groundwater in the townland of Raharney, Co. Westmeath. The associated Waste Water Treatment Plant is also located in the townland of Raharney, Co. Westmeath. The plant and the discharge point are located approximately 320m from the River Deel. There are no storm water overflows associated with the pipe network.

The River Deel is the nearest surface water course to the Raharney WWTP and agglomeration. The Deel forms part of the River Boyne and River Blackwater Special Area of Conservation (SAC). The River Boyne and River Blackwater SAC comprise the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. The main channels of the River Boyne and River Blackwater provide important habitats for Annex listed species under the Habitats Directive. Atlantic Salmon, River Lamprey and Otter can be found within the designated site. Alluvial woodland and Alkaline Fen are two Annex 1 habitats that can also be found along the stretches of the SAC.

This designated site is important in terms of supporting a variety of wildlife and in the conservation of Annex 1 and Annex 11 species under the E.U. Habitats Directive. Following appropriate assessment screening in accordance with Waste Water Discharge Licencing – Appropriate Assessment and The DoEHLG Circular L8/08 – Protection of Natural Heritage and National Monuments it was deemed that there is no negative impact upon the designated site.

Westmeath County Council carryout sampling and monitor effluent discharged from the waste water treatment plant. The council also monitors the biological process, final effluent and sludge generated at the plant. It is recommended that aeration times at the plant are reviewed to improve discharge effluent quality to the percolation area.