This Report has been cleared for submission to the Board by Dr Karen Creed, Senior Inspector
Signed: N Kearey **Date:** 20/1/11

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

OFFICE OF CLIMATE, LICENSING & RESOURCE USE.

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	DIRECTORS	
From:	Patrick Byrne	**Environmental Licensing Programme**
Date:	20 January 2011	
RE:	Application for a Waste Water Discharge Licence from Monaghan County Council, for the agglomeration named Glaslough, Reg. No. D0347-01	

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 1,001 to 2,000.
Licence application received:	15 April 2009
Notices under Regulation 18(3)(b) issued:	31 May 2010 & 01 June 2010
Information under Regulation 18(3)(b) received:	25 June 2010 & 11 November 2010
Site notice check:	23 April 2009 (P. Morris)
Site visit:	30 November 2009 (P. Byrne and D Daly)
Submission(s) Received:	2 November 2009 Eastern Regional Fisheries Board

1. Agglomeration

This application relates to the agglomeration of Glaslough, Co. Monaghan. Glaslough is a rural village in north Monaghan, approximately 10 km north east of Monaghan Town. The agglomeration has a current population equivalent (p.e.) of c.700, based on house counts and business capacity in 2008 and is expected to increase to c.775 p.e., by 2015. The majority of the wastewater arises from domestic housing and commercial activities, including tourism. The agglomeration is served by a gravity sewer network, a pumping station and associated rising main and the effluent is treated in an Integrated Constructed Wetland (ICW).

The ICW was constructed in 2006/2007 as part of an initiative by the Department of Environment, Heritage and Local Government in treating liquid waste streams in shallow vegetated ponds towards achieving effective, social, economic and environmental waste management. It is a co-operative undertaking by Monaghan County Council, Castle Leslie Estate, Department of Environment, Heritage and Local Government and the University of Edinburgh. The ICW consists of five ponds with a combined surface area of c.3.4 hectares (ha). The ICW has a design capacity of 1,750 p.e. Extensive monitoring of the ICW has been

undertaken since installation, including monitoring of performance (final discharge and discharges between each pond) and ambient surface water and groundwater monitoring.

No pre-treatment of wastewater is provided before the wastewater enters the ICW. The wastewater collected within the agglomeration is pumped to one of two receiving ponds ('sludge ponds'), where settlement occurs before the effluent flows in sequence, by gravity, through 5 vegetated ponds, see Figure 2.0 below. The final effluent discharges, via the primary discharge point (SW1(P)) to the Mountain Water River. The performance of the ICW has been intensely monitored by Monaghan County Council since commencement of operation. Monitoring of the primary discharge, by the applicant, shows that the average BOD concentration is 5 mg/l, average suspended solids concentration is 8mg/l, average nutrient concentrations are molybdate reactive phosphate 0.09 mg/l(P), total phosphorus 0.15 mg/l, total nitrogen 2.07 mg/l and ammonia of 0.82 mg/l, based on 2009-2010 monitoring (see Table 1.0 below).

2. Discharges to waters

The primary discharge from the agglomeration (SW1(P)) discharges to the Mountain Water River. The discharge meets the emission limit values specified under the Urban Waste Water Treatment Regulations, however, the regulations do not apply to the discharge as it is less than 2,000 p.e.

The following table summarises the emissions from the primary discharge, based on monitoring by Monaghan County Council during the period of March 2009 to March 2010.

Table 1.0: Primary Discharge Effluent Monitoring Results.

	Effluent Discharged		
Parameter	**Mean**	**Maximum**	**No. of Samples**
COD (mg O_2/l)	37	101	135
BOD_5 (mg O_2/l)	5	22	130
Total Suspended Solids (mg/l)	8	34	127
Total nitrogen (mg N/l)	2.07	9.2	107
Total Phosphorus (mg P/l)	0.15	0.95	135
Ammonia (mg N/l)	0.82	8.2	139
Nitrate (mg N/l)	0.31	1.6	121
Molybdate Reactive Phosphate (MRP) (mg P/l)	0.09	0.9	134

There are no secondary discharges from the agglomeration and there are no storm water overflows identified by the applicant.

There is one emergency overflow, in the agglomeration, the emergency overflow is associated with the pumping station at the ICW. The overflow was originally designed to discharge to the Mountain Water River, upstream of the primary discharge point, however it currently discharges to pond no. 2 in the ICW. The emergency overflow, to pond no. 2, is only likely when there is a multiple pump failure (duty and assist/stand-by) or power failure. Any emergency overflow should be managed within the ICW without a significant effect on the effluent emission from the primary discharge point.

The ICW has a greater ability to accommodate variations in influent flow due to the retention provided within the ponds, compared to a conventional mechanical waste water treatment plant. The ability to accommodate increased flows, due to storm events, would be reduced somewhat if the ICW was loaded at its design capacity (1,750 p.e., design capacity v's current load of c.700 p.e.). It is not predicted that the agglomeration will reach the design capacity in the near future.

The table below provides a summary of the average daily influent flow and average daily effluent flow rates during each month from March 2009 to March 2010. The table highlights

the considerable variation in flow received and discharged from the ICW during the year. There is a reduced effluent discharge during the drier months. The very high average daily flow in November 2009 coincided with an extremely wet month. The applicant notes that during May and June 2010 there was no effluent flow from the ICW. It should be noted that the recorded flows represent all the wastewater collected within the agglomeration as there are no additional storm overflows or emergency overflows to surface water.

Table 2.0: Influent and Effluent Flows (Average daily flow-rate m^3/day)

Month	Influent	Effluent
March 2009	99.67	83.09
April 2009	130.36	76.73
May 2009	118.65	142.77
June 2009	85.10	29.90
July 2009	118.50	78.12
August 2009	137.74	119.27
September 2009	76.24	111.97
October 2009	106.71	21.98
November 2009	249.11	358.70
December 2009	112.16	307.49
January 2010	100.80	153.90
February 2010	92.79	102.39
March 2010	65.99	22.56

ICWs in general have the potential to discharge effluent to the ground and groundwater below the ponds. The ponds of ICWs are generally clay lined and therefore some effluent will infiltrate through the clay liner. The risk of infiltration is greatest where there are limited low permeability materials available to line the ponds, the in-situ soils below the ponds have a high permeability, there are preferential flow paths or karst features present.

Extensive intrusive investigations were conducted on the site prior to construction of the ICW at Glaslough. The investigations included trial holes, window sample standpipes to c.5 m, and boreholes. Calculation of the permeability of the in-situ soils was undertaken during installation of the window sample standpipes by means of a triaxial cell method. The permeability calculated was less than 1×10^{-9}. Trial hole logs record the presence of a *'blue/grey clay'* at depths of approximately 0.6m to 2.6m below ground level. The trial holes also identify a layer of *'gravel/shale ranging in size 25-100mm'* at a depth of c. 2.6 m, this layer is likely to be at a higher permeability than the blue/grey clay above, however, due to the protection of the blue/grey clay effluent is unlikely to enter the gravel/shale lens.

During construction of the ICW at Glaslough the base and sides of the ponds were constructed using in-situ low permeability clay, the aim of the construction, including compaction of the clay was to achieve a permeability of at least 1×10^{-8} m/s. A permeability of 1×10^{-8} m/s results in a maximum loss to the ground of 3,650 m^3/yr/ha, a permeability of 1×10^{-9} m/s results in a maximum loss to ground of 365 m^3/yr/ha. There are six lysimeters (L1-L6) installed 0.5 m below the base of a number of the ponds, these provide for monitoring of the quality of effluent infiltrating through the clay liner.

It is considered unlikely that a significant quantity of effluent escapes to ground from this ICW on the basis of the low permeability soils and the construction of low permeability clay liner within each pond. It is considered that effluent is unlikely to percolate vertically due to the in-situ low permeability materials. Effluent that may percolate through the clay liner and in-situ soils is likely to move laterally, towards surface waters adjoining the ICW, in the 'gravel/shale' layer identified in the trial pits rather than continuing vertically. Ambient monitoring of groundwater and surface water as described below provides for monitoring of potential losses from the ICW.

3. Receiving waters and impact

The following table summarises the main considerations in relation to the Mountain Water River downstream of the primary discharge and Groundwater below the ICW.

Table 3.0 Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Mountain Water River	EPA River Code: 03M01, WFD River Code: IE-NB-03-416
Groundwater Body:	Aughnacloy	WFD Groundwater Code: IEGBNI-NB-G-007
Amenity value	None identified by the applicant	
Resource use	None identified by the applicant	
Applicable Regulations	Surface Water Regulations [Note 1]	See below
	Urban Waste Water Treatment Regulations 2001 as amended	See below
Designations	No designations	
EPA monitoring stations	0650Br North of Glaslough 0500 Br 1.1km d/s Emyvale There are no EPA monitoring stations downstream of the primary discharge.	c.200m upstream of Primary Discharge c.5km upstream of Primary Discharge
Biological quality rating (Q value)	0650 - Q3 2004 0500 – Q3 in 2004 Q3 in 2007	Station 0650 was not monitored in 2007
WFD River status	Poor	Under the Blackwater Water Management Unit Action Plan. There is an extended deadline to achieve good status by 2021.
WFD River Risk Category	1a At Risk of not achieving good status.	
WFD Groundwater Risk Category	2a Expected to achieve good status	

Note 1: European Communities Environmental Objectives (Surface Water) Regulations 2009, S.I. No. 272 of 2009.

The receiving water for the primary discharge from the agglomeration is the Mountain Water River. The Mountain Water River is not a designated salmonid water under the European Communities (Quality of Salmonid Waters) Regulations 1988 and is not designated as a sensitive water under the Urban Waste Water Treatment Regulations 2001 as amended.

The agglomeration of Emyvale (D0346-01) and associated WWTP discharge into the Mountain Water River approximately 6.5 km upstream of the Glaslough primary discharge. The Mountain Water River is a tributary of the Ulster Blackwater which forms the border between Counties Monaghan and Armagh. The confluence between the Mountain Water and the Ulster Blackwater is c.2km downstream of the primary discharge point.

It is not expected that there will be a significant indirect discharge of effluent from the ICW to groundwater via ground. The groundwater risk category under the Water Framework Directive is 2a, expected to achieve good status.

The Mountain Water River has been biologically monitored by the Agency upstream of the primary discharge. Monitoring indicates that the river is biological Q-value 3, whereas the

target Q-value under the Phosphorus Regulations was 3-4. Chemical monitoring of the Mountain Water River, upstream of the Glaslough agglomeration, undertaken by Monaghan County Council in 2009 and 2010 (9-10 samples) indicates the mean BOD is 2.2 mg/l, Ammonia is 0.12 mg/l and MRP is 0.065 mg/l. These results indicate that the Mountain Water River currently has not achieved 'good status' in accordance with the European Communities Environmental Objectives (Surface Waters) Regulations 2009. Based on the monitoring data, upstream and downstream of the primary discharge, provided in support of the application the mean BOD, ammonia and MRP are 3mg/l, 0.48mg/l and 0.08mg/l respectively.

The Blackwater Water Management Unit Action Plan states that: *'Mountain Water River (XB_03_06, Status 2009 – Poor) considerably polluted by suspected sewage and possibly other discharges below the village of Emyvale'*. The action plan identifies that there should be *'Implementation of Performance Management System'* by 2012.

Assimilative Capacity

The Mountain Water River has a limited dry weather flow of 0.01m^3/s (based on actual flow measurements of 0.016 m^3/s (1984) and 0.018 m^3/s (1982)). The 95%ile flow in the river is also limited at 0.02 m^3/s. The 50%ile flow is 0.505m^3/s based on long term continuous OPW flow data. The calculations of assimilative capacity in Table 4.0 below are based on the 95%ile river flow.

The primary discharge rate from the ICW varies depending on the volume of influent from the agglomeration, rainfall, temperature, evaporation and plant growth. Table 2.0 above, provides the average recorded daily discharge rates from the primary discharge. The average discharge rate (March 2009 to March 2010) is 134m^3/day and the calculated 95%ile flow is 23 m^3/day.

Based on the average ICW discharge and the 50%ile flow in the Mountain Water River there are c.323 dilutions available. When the river is at 95%ile flow or dry weather flow there are limited dilutions available for the average discharge (13 and 6 dilutions respectively). However, the primary discharge from the ICW during dry periods will also be significantly reduced and may be zero (e.g. no discharge during May and June 2010). Therefore when the river is at its 95%ile or dry weather flow the discharge from the ICW would be likely to be c.23 m^3/day.

Based on Monaghan County Council monitoring of the Mountain Water River, it does not currently achieve 'good status' in accordance with the European Communities Environmental Objectives (Surface Waters) Regulations 2009. The river has very limited assimilative capacity based on the background concentrations.

Table 4.0 below presents the assimilative capacity in the Mountain Water River based on actual background concentrations in the river and also for an assumed 'notionally clean' river. The primary discharge rate used is 134 m^3/day (average of monthly daily averages, see table 2.0) and the 95%ile flow in the river is also used. It is considered that the calculations are extremely conservative as the primary discharge rate, during periods when the river is at 95%ile flow, are unlikely to be greater than 23 m^3/day (95%ile primary discharge rate).

Table 4.0 Assimilative Capacity

Parameter		Background (mg/l)	Proposed ELVs for Primary Discharge (mg/l)	Contribution from primary discharge	Predicted downstream quality	EQOs (mg/l) Note 1
BOD	**Actual Background**	2.2 Note 2	10	0.72	**2.92**	≤2.6
	Notionally Clean	0.26			0.98	
Ortho-phosphate	**Actual Background**	0.065 Note 2	0.5	0.037	**0.102**	≤0.075
	Notionally Clean	0.005			0.042	
Ammonia	**Actual Background**	0.12 Note 2	1	0.074	**0.194**	≤0.14
	Notionally Clean	0.008			0.082	

Note 1: European Communities Environmental Objectives (Surface Waters) Regulations 2009, S.I. No. 272 of 2009.

Note 2: Background water quality data for 2009/2010.

The calculations above highlight that there is limited capacity in the receiving water due to the elevated background concentrations in the river (based on Monaghan County Council monitoring during 2009/2010) and 95%ile flow in the river (0.02 m^3/sec). When a notionally clean river scenario is used there is capacity to accommodate the primary discharge.

The above assimilative capacity calculations are highly conservative due to the use of a primary discharge flow of 134 m^3/day whereas when the river is at 95%ile flow it is likely that there will be no primary discharge or it will be significantly reduced. Reducing the primary discharge flow to 23 m^3/day (95%ile flow based on Table 2.0 above) reduces the contributions of BOD, Orthophosphate and ammonia to 0.13 mg/l, 0.007 mg/l and 0.013 mg/l respectively.

The emission limit values included in the RL are as per the calculations used in Table 4.0 and emission limit values of 15 mg/l for suspended solids and 50 mg/l for COD are included. It is considered likely that the ICW will achieve higher quality effluent discharges than the emission limit values included in the RL, therefore the impact of the discharge is likely to be less than calculated above.

4. Ambient Monitoring

During installation of the ICW Monaghan County Council installed eight no. ambient groundwater monitoring points (BH1 - BH8) in the vicinity of the ponds. It is considered that monitoring of groundwater at these existing groundwater monitoring points is adequate to identify any effluent losses to groundwater. Monaghan County Council have undertaken monitoring at these points since installation of the ICW. The RL requires biannual monitoring at three of the eight ambient groundwater monitoring locations (BH1, BH2 and BH3), the frequency of monitoring may be reduced, subject to Agency agreement, based on monitoring results. Monitoring at the remaining five ambient monitoring locations shall be as required by the Agency as it is not currently deemed necessary to monitor all eight groundwater locations.

The applicant has also installed six no. lysimeters (L1 – L6) below the ICW ponds which provide for the monitoring of effluent that may percolate through the clay liner. The RL requires monitoring of the discharges from the lysimeters as required by the Agency.

The RL requires ambient monitoring of the Mountain Water River at an upstream and downstream monitoring point. The RL identifies the 'Bridge North of Glaslough' as the

upstream monitoring point as it is also an EPA monitoring station. It is not considered necessary to monitor the small stream which passes along the eastern boundary of the ICW (see Figure 2.0 below).

5. Combined Approach

The Waste Water Discharge Authorisation Regulations, 2007 (S.I. No. 684 of 2007) specify that a 'combined approach' in relation to licensing of waste water works must be taken, whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Treatment Regulations (S.I. No. 254 of 2001) as amended and the limits determined under statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the water body into which the discharge is made. The RL as drafted gives effect to the principle of the Combined Approach as defined in S.I. No. 684 of 2007.

6. Programme of Improvements

The ICW serving the Glaslough agglomeration provides appropriate treatment. There are no proposed upgrades of the treatment facility (ICW) currently serving the agglomeration. The ICW has a design capacity of 1,750p.e., whereas the current load is c.700p.e.

7. Compliance with EU Directives

In considering the application, regard was had to the requirements of Regulation 6(2) of the Waste Water (Discharge) Authorisation, Regulations, 2007 (S.I. No. 684 of 2007) notably:

Drinking Water Abstraction Regulations

There are no identified water abstraction points downstream of the discharge from the agglomeration. There is abstraction from Emy Lough which is upstream of the discharge. There is also abstraction from Glaslough Lake, however, Glaslough Lake drains to the Mountain Water River, c.1 km downstream of the primary discharge. The water abstractions are not influenced by the discharge from the agglomeration.

Sensitive Waters

There are no designated sensitive waters located in the vicinity of the waste water works or primary discharge.

Water Framework Directive [2000/60/EC]

The RL, as drafted, transposes the requirements of the Water Framework Directive. The Blackwater Water Management Unit Action Plan has designated the Mountain Water River as 'poor status'. The plan also identifies the Glaslough WWTP (ICW) as requiring the implementation of a 'performance management system'. The plan identifies that there are extended deadlines to 2021 proposed for 22 river water bodies within the Water Management Unit, including the Mountain Water River.

Those limits specified in the RL are determined with the aim of assisting towards achieving good water quality status.

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

Currently the Mountain Water River does not achieve compliance with the surface water objectives, based on monitoring upstream of the primary discharge. The emissions from the ICW serving the Glaslough agglomeration are not likely to have a significant impact on the Mountain Water River based on the emission limit values proposed in the RL and the reduced discharge rate during periods of low flow in the Mountain Water River.

Urban Waste Water Treatment Directive [91/271/EEC]

The ICW serving the Glaslough agglomeration complies with the requirements of the Urban Waste Water Treatment Directive in terms of the level of treatment provided. The RL, as

drafted, has regard to the requirements of the Urban Waste Water Treatment Directive. The emission limit values included in the RL are more stringent than those specified in the Directive. The agglomeration is less than 2,000p.e., and therefore is not directly covered by the requirements of the Urban Waste Water Treatment Directive and associated implementing national regulations.

Bathing Water Directive [2006/7/EC]

There are no identified designated bathing waters in the vicinity of the discharge from the agglomeration.

EC Freshwater Fish Directive [2006/44/EC]

There are no designated salmonid waters located in the vicinity of the discharge. The ICW achieves a high level of treatment and the primary discharge emission limits proposed in the RL are strict but considered achievable based on monitoring results.

Shellfish Waters Directive [2006/113/EC]

There are no designated shellfish waters) located in the vicinity of the discharge from the agglomeration.

Dangerous Substances Directive [2006/11/EC]

The applicant has provided sampling results for 19 dangerous substances in the primary discharge for the purposes of the licence application. 18 of the primary discharge sample results are in compliance with the Water Quality (Dangerous Substances) Regulations (S.I. No. 12 of 2001). The limit of detection for Tributylin, in the sample results provided, is above the standard specified in the Dangerous Substances Regulations. The standards specified in the Dangerous Substances Regulations are for the annual mean concentration in a water body rather than a discrete sample from a discharge. In addition the standard specified for tributylin applies in relation to tidal waters only. The measured concentrations are not considered significant.

The Blackwater Water Management Unit Action Plan states that *'No water bodies are at risk from dangerous substances'*. The RL provides for monitoring for dangerous substances as required by the Agency.

Birds Directive [79/409/EEC] & Habitats Directive [92/43/EEC]

An EIA was not undertaken for this agglomeration or associated wastewater treatment plant (ICW).

The applicant was required to assess the likelihood of significant effects of the waste water discharges from the agglomeration on relevant European sites. The applicant completed a screening in accordance with Circular L8/08 *'Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments'* issued by the Department of Environment, Heritage and Local Government. The screening concludes that the Glaslough ICW waste water treatment works will not impact on a European Site or on any National Monument and no significant effects are likely to occur.

There are no identified special protection areas (SPA) or special areas of conservation (SAC) within the vicinity of the agglomeration or discharges. Glaslough Lake, which is a proposed natural heritage area (pNHA), is located within 400 meters of the ICW. The river from Glaslough Lake is a tributary of the Mountain Water River, the point of confluence is c.1 km down gradient of the primary discharge point.

There are no discharges from the Glaslough agglomeration directly into any site designated under the E.U. Habitats or Birds Directives.

Other Directives

Condition 7.2 of the RD satisfies the requirements of the Environmental Liabilities Directive, in particular those requirements outlined in Article 3(1) and Annex III of 2004/35/EC.

8. Cross Office Liaison

Mr Donal Daly, Senior Scientific Officer with the Office of Environment Assessment accompanied me on the site visit to the ICW (November 2009). He provided valuable information in relation to the groundwater and hydro-geology aspects to this specific ICW and ICWs generally.

In addition I had regard to the Department of Environment, Heritage and Local Government published *Integrated Constructed Wetlands Guidance Document for Farmyard Soiled Water and Domestic Wastewater Applications,* November 2010.

Advice and guidance issued by the Technical Working Group (TWG) was followed in my assessment of this application. Advice and guidance issued by the TWG is prepared through a detailed cross-office co-operative process, with the concerns of all sides taken into account. The Board of the Agency has endorsed the advice and guidance issued by the TWG for use by licensing Inspectors in the assessment of wastewater discharge licence applications.

9. Site Inspection

Donal Daly, Office of Environmental Assessment, and myself visited the Glaslough ICW on the 30th November 2009. The ICW appeared to be performing well and intensive monitoring of the ICW was being undertaken by Monaghan County Council (continuous flow, composite sampling etc.). Figure 3.0 below provides an aerial photograph of the established ICW. The ICW is open to the public and visitors/guests at Castle Leslie, paths have been installed around the ponds and information boards installed.

It was noted that there is no pre-treatment of wastewater provided before the wastewater enters the ICW. Wastewater is settled in open settlement/sludge ponds (two settlement ponds on-site) prior to discharge to pond 1. The settlement/sludge ponds were considered to represent a hazard and possible should be fenced to restrict access by members of the public, however such a requirement is beyond the scope of the Waste water Discharge (Authorisation) Regulations 2007 to 2010.

10. Submissions

One submission was received on the 2nd November 2009 from the Eastern Regional Fisheries Board (ERFB). The ERFB submission includes comments under four headings, which are: Infrastructure & Operation, Monitoring, Existing Environment & Impact of the Discharge, and Programmes of Improvements.

The ERFB identifies that the applicant states that 'no pre-treatment is carried out' whereas the development approved by Monaghan County Council (Planning Ref. 05/8008) included an underground primary settlement tank. The ERFB notes that the influent is pumped directly to two sludge ponds, but the applicant provided no details in relation to the management and disposal of sludge from these ponds.

The ERFB identify that the applicant estimates that the discharge is $100m^3$/day whereas based on a p.e. of 700 the potential flow to the plant is $126m^3$/day. The ERFB believe that details of flows to, through and from the treatment works should be detailed. The ERFB note that biological sampling does not appear to be included in the application. Given that it is a pilot treatment plant the ERFB believe that frequency of monitoring should be increased and that the monitoring programme should include annual biological monitoring of the receiving water and regular analysis of groundwater.

The ERFB identify that the Mountain Water flows directly into the Ulster Blackwater at Mullyjordan, Co. Monaghan. The ERFB identify that the Q values included in the application do not tally with the information provided on the EPA website. The ERFB note that the 'risk status' of the Mountain Water is recorded as 'At Risk'. WWTPs are identified as being one of the Point Risk Sources. The ERFB suggest that the assimilative capacity calculations in the application should include comparison with the EC Environmental Objectives (Surface Waters) Regulations, 2009 and should consider ammonia.

The ERFB note that it is stated that an average 98.8% reduction in P concentration between the inlet and outlet of the plant. Given that this is a pilot plant the ERFB suggest that more detailed information is provided to support this statement. The ERFB suggest that the long term management of Phosphorus should be addressed, their concern is in relation to build up within the ICW and the potential release of same to the aquatic habitat.

The Mountain Water is a valuable resource from a fisheries perspective and therefore appropriate discharge limits and detailed monitoring should be included in the licence.

Response:

There are two sludge ponds used alternatively to allow for desludging whereas the proposal submitted to Monaghan County Council in August 2005 (Planning Ref. 05/8008) included an underground primary settlement tank. Sludge taken from either of the two sludge ponds should be considered as primary sludge and disposed of appropriately.

The applicant provided further information, including monitoring data, in support of the application in response to notices issued by the Agency under regulation 18(3)(b). The RL requires monitoring of the receiving water upstream and downstream of the discharge point, groundwater monitoring and monitoring of lysimeters installed below the ponds.

The receiving water, Q-values, River Basin Management Plans (under the Water Framework Directive) and assimilative capacities are considered earlier in this report. Additional information was provided by the applicant in response to Agency requests for further information.

Based on monitoring data provided in support of the applicant the ICW is achieving significant removal rates. The long term management of phosphorus is an issue that must be addressed, however the RL relates to the waste water discharges. Losses to ground are not considered significant due to the nature of the soils at the ICW (based on trial hole logs, borehole logs etc.) and the monitoring, including groundwater monitoring, undertaken to date. The RL includes strict emission limit values and significant ambient monitoring which are considered appropriate to protect the receiving waters.

11. Charges

The RL sets an annual charge for the agglomeration at €2,304 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

12. Recommendation

I recommend that a Final Licence be issued subject to the conditions and for the reasons as set out in the attached Recommended Licence.

Signed

Patrick Byrne

Senior Inspector

Office of Climate, Licensing and Resource Use

Figure 1.0 Glaslough Agglomeration Location:
(Direction of flow in Mountain Water River: East to West)

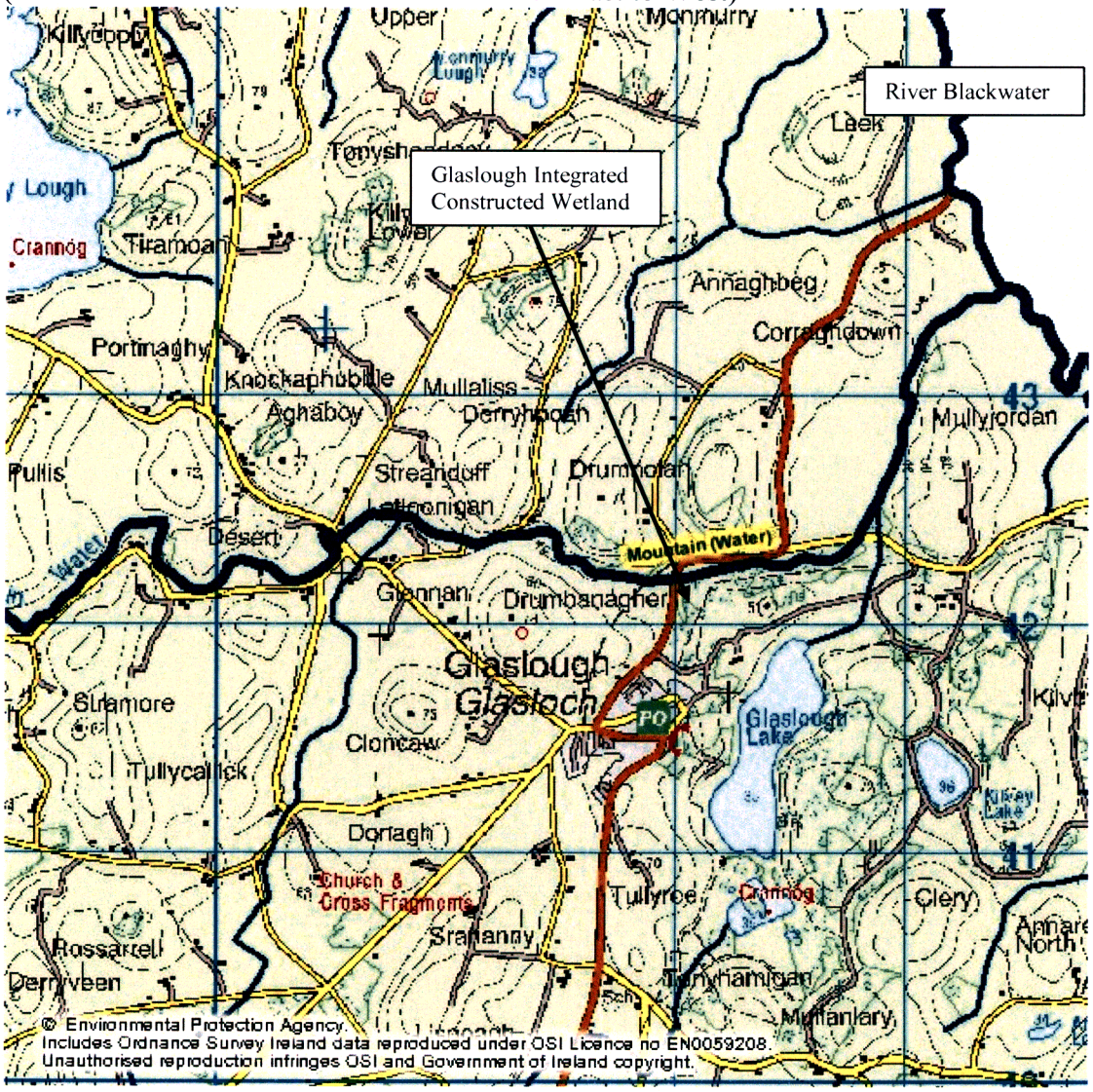

Figure 2.0 Glaslough Integrated Constructed Wetland

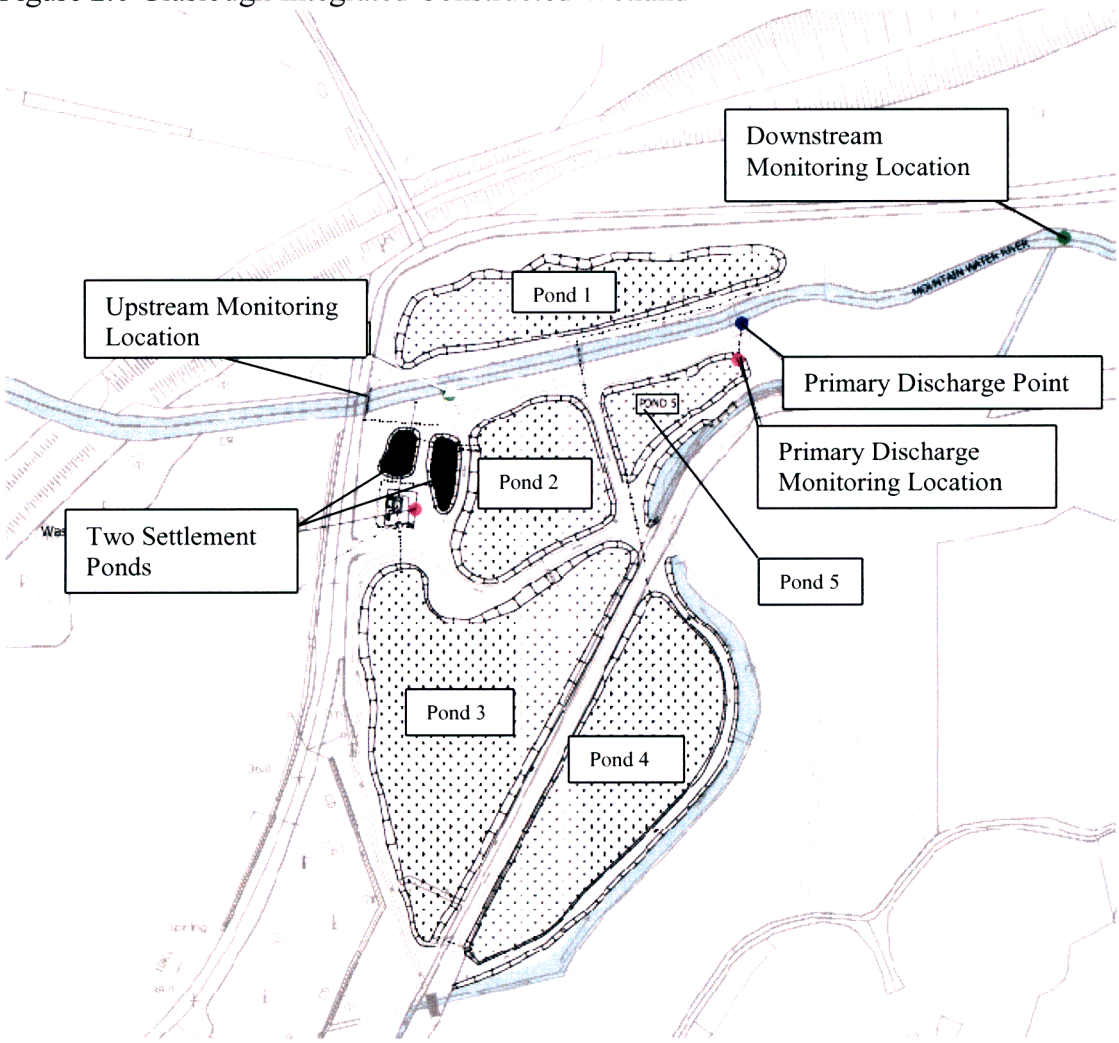

Figure 3.0 Glaslough Integrated Constructed Wetland