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Environmental Protection Agency,
Office of Climate change and resource Unit,
Licensing Unit,
P.O. Box 3000,
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Co. Wexford.

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19th June 2009

Re: Waste Water Discharge Licence Application for the Agglomeration of Killavullen

Dear Sir / Madam,

Please find enclosed Cork County Council's Waste Water Discharge Licence Application for the agglomeration of Killavullen.

The following documentation is enclosed:

- 1 Nr. signed original in hardcopy
- 1 Nr. copy in hardcopy
- 2 Nr. CD-ROM with all documentation in electronic searchable PDF
- 1 Nr. CD-ROM with AutoCAD, Excel Data, Table D.2 and Table E.3

The content of the electronic files is a true copy of the original hardcopy.

Payment of €10,000 Licence Fee is by Electronic means.

Signed:

Frank Cronin
Senior Engineer – Water Services



This is a draft document and is subject to revision.



Waste Water Discharge Licence Application Form

EPA Ref. N^o:

(Office use only)

Environmental Protection Agency

PO Box 3000, Johnstown Castle Estate, Co. Wexford

Lo Call: 1890 335599 Telephone: 053-9160600 Fax: 053-9160699

Web: www.epa.ie Email: info@epa.ie

Tracking Amendments to Draft Application Form

Version No.	Date	Amendment since previous version	Reason
V. 1.	11/10/07	N/A	
V. 2.	18/10/07	Inclusion of a Note 1 superscript for Orthophosphate in Tables D.1(i)(b) & D.1(ii)(b).	To highlight the requirement for filtered samples in measurement of O-Phosphate for waste water discharges.
V.3.	13/11/07	Amend wording of Section F.2 to include 'abstraction'. Amend wording of Checklist in Annex to reflect wording of Regulation 16(5) of S.I. No. 684 of 2007. Inclusion of unique point code for each point of discharge and storm water overflow.	To accurately reflect the information required To accurately reflect the Regulations and to obtain the application documentation in appropriate format. To aid in cross-referencing of application documentation.
V.4	18/04/08	Inclusion of requirement to provide name of agglomeration to which the application relates. Amend wording of Section B.7. (iii) to reflect the title of Water Services Authority. Addition of new Section B.9 (ii) in order to obtain information on developments yet to contribute to the waste water works. Addition of sub-sections C.1.1 & C.1.2 in order to clarify information required for Storm water overflow and pumping stations within the works. Amend Section D.1 to include a requirement for monitoring data for influent	To accurately determine the agglomeration to be licensed. To accurately reflect the Water Services Act, 2007. To obtain accurate population equivalent figures for the agglomeration. To obtain accurate information on design and spill frequency from these structures. To acquire information on the population loading onto the plant and to provide information on performance rates within

		to waste water treatment plants, where available. Amend wording of Section E.1 to request information on composite sampling/flow monitoring provisions.	the plant. To acquire accurate information on the sampling and monitoring provisions for discharges from the works.
V.5	07/07/2008	Amend wording of B.7 (iii) to include reference to Water Services Authorities. Amend Section G.1 to include Shellfish Waters Directive.	To accurately reflect the Water Services Act, 2007 requirements.
V.6	26/08/2007	Amendments to Section D to reflect new web based reporting. Amended requirements for reporting on discharges under E.1 Waste Water Discharge Frequency and Quantities. Amendment to Section F.1 to specify the type of monitoring and reporting required for the background environment. Removal of Annexes to application form.	To clarify the reporting requirements. To streamline reporting requirements. To clarify the reporting requirements for ambient monitoring. To reflect the new web based reporting requirements.

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Environmental Protection Agency
Application for a Waste Water Discharge Licence
Waste Water Discharge (Authorisation) Regulations 2007.

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ABOUT THIS APPLICATION FORM

This form is for the purpose of making an application for a Waste Water Discharge Licence under the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007) or for the review of an existing Waste Water Discharge licence.

The Application Form **must** be completed in accordance with the instructions and guidance provided in the *Waste Water Discharge Licensing Application Guidance Note*. The Guidance Note gives an overview of Waste Water Licensing, outlines the licence application process (including the number of copies required) and specifies the information to be submitted as part of the application. The Guidance Note and application form are available to download from the Licensing page of the EPA's website at www.epa.ie.

A valid application for a Waste Water Discharge Licence must contain the information prescribed in the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). Regulation 16 of the Regulations sets out the statutory requirements for information to accompany a licence application. The application form is designed in such a way as to set out these questions in a structured manner and not necessarily in the order presented in the Regulations. In order to ensure a legally valid application in respect of Regulation 16 requirements, please complete the Regulation 16 Checklist provided in Annex 2.

This Application Form does not purport to be and should not be considered a legal interpretation of the provisions and requirements of the Waste Water Discharge (Authorisation) Regulations, 2007. While every effort has been made to ensure the accuracy of the material contained in the Application Form, the EPA assumes no responsibility and gives no guarantee, or warranty concerning the accuracy, completeness or up-to-date nature of the information provided herein and does not accept any liability whatsoever arising from any errors or omissions.

Should there be any contradiction between the information requirements set out in the Application Form and any clarifying explanation contained in the accompanying Guidance Note, then the requirements in this Application Form shall take precedence.

PROCEDURES

The procedure for making and processing of applications for waste water discharge licences, and for the processing of reviews of such licences, appear in the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007) and is summarised below. The application fees that shall accompany an application are listed in the Third Schedule to the Regulations.

Prior to submitting an application the applicant must publish in a newspaper circulating in the area, and erect at the point nearest to the waste water treatment plant concerned or, if no such plant exists, at a location nearest the primary discharge point, a notice of intention to apply. An applicant, not being the local authority in whose functional area the relevant waste water discharge, or discharges, to which the relevant application relates, takes place or is to take place, must also notify the relevant Local Authority, in writing, of their intention to apply.

An application for a licence must be submitted on the appropriate form (available from the Agency) with the correct fee, and should contain relevant supporting documentation as attachments. The application should be based on responses to the form and include supporting written text and the appropriate use of tables and drawings. Where point source emissions occur, a system of unique reference numbers should be used to denote each discharge point. These should be simple, logical, and traceable throughout the application.

The application form is divided into a number of sections of related information. The purpose of these divisions is to facilitate both the applicant and the Agency in the provision of the information and its assessment. **Please adhere to the format as set out in the application form and clearly number each section and associated attachment, if applicable, accordingly.** Attachments should be clearly numbered, titled and paginated and must contain the required information as set out in the application form. Additional attachments may be included to supply any further information supporting the application. Any references made should be supported by a bibliography.

All questions should be answered. Where information is requested in the application form, which is not relevant to the particular application, the words "not applicable" should be clearly written on the form. The abbreviation "N/A" should not be used.

Additional information may need to be submitted beyond that which is explicitly requested on this form. Any references made should be supported by a bibliography. The Agency may request further information if it considers that its provision is material to the assessment of the application. Advice should be sought from the Agency where there is doubt about the type of information required or the level of detail.

Information supplied in this application, including supporting documentation will be put on public display and be open to inspection by any person.

Applicants should be aware that a contravention of the conditions of a waste water discharge licence is an offence under the Waste Water Discharge (Authorisation) Regulations, 2007.

The provision of information in an application for a waste water discharge licence which is false or misleading is an offence under Regulation 35 of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).

Note: Drawings. The following guidelines are included to assist applicants:

- *All drawings submitted should be titled and dated.*
- *All drawings should have a unique reference number and should be signed by a clearly identifiable person.*
- *All drawings should indicate a scale and the direction of north.*
- *All drawings should, generally, be to a scale of between 1:20 to 1:500, depending upon the degree of detail needed to be shown and the size of the facility. Drawings delineating the boundary can be to a smaller scale of between 1:1000 to 1:10560, but must clearly and accurately present the required level of detail. Drawings showing the waste water treatment plant location, if such a plant exists, can be to a scale of between 1:50 000 to 1:126 720. All drawings should, however, be A3 or less and of an appropriate scale such that they are clearly legible. Provide legends on all drawings and maps as appropriate.*
- *In exceptional circumstances, where A3 is considered inadequate, a larger size may be requested by the Agency.*

It should be noted that it will not be possible to process or determine the application until the required documents have been provided in sufficient detail and to a satisfactory standard.

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SECTION A: NON-TECHNICAL SUMMARY

Advice on completing this section is provided in the accompanying Guidance Note.

A non-technical summary of the application is to be included here. The summary should identify all environmental impacts of significance associated with the discharge of waste water associated with the waste water works. This description should also indicate the hours during which the waste water works is supervised or manned and days per week of this supervision.

The following information must be included in the non-technical summary:

A description of:

- the waste water works and the activities carried out therein,
- the sources of emissions from the waste water works,
- the nature and quantities of foreseeable emissions from the waste water works into the receiving aqueous environment as well as identification of significant effects of the emissions on the environment,
- the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the waste water works,
- further measures planned to comply with the general principle of the basic obligations of the operator, i.e., that no significant pollution is caused;
- measures planned to monitor emissions into the environment.

Supporting information should form **Attachment N° A.1**

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SECTION A: NON-TECHNICAL SUMMARY

Killavullen is a village on the south-eastern side of Mallow, 44km from Cork City and 20 km from Fermoy. It is a predominately rural agricultural village, and other than a few minor developments has not experienced any major housing developments during the recent years.

The Waste Water Works and the Activities Carried Out Therein

The wastewater in Killavullen is collected in a partially combined foul and separate foul sewerage drainage network. The wastewater from the village gravitates to the wastewater treatment plant.

Killavullen WWTP is designed for a Population Equivalent (PE) of 1,000, which was commissioned in late 1999. Activated Sludge is the process employed at the Killavullen waste water treatment plant.

Influent initially gravitates into a grit trap, which is followed by an inline muncher. From here the influent enters the inlet sump, from where the influent is pumped to a steel circular aeration tank. The effluent then flows into the settling tank with rotating half bridge scrapper. The solids settle while the supernatant flows over the weir and discharges via V-notch Box to the river. Sludge may be returned from the settling tank to the aeration tank and excess sludge is removed from the settling tank as required to the Sludge Holding Tank.

In the event of high storm flows effluent may bypass the plant at the inlet manhole. During normal storm periods, effluent overflows at the sump to the storm holding tank, which gravitates back to the sump after the sump level reduces. In the event of the storm exceeding 6DWF, storm effluent discharges from the storm holding tank via the outlet pipe work.

Currently the WWTP is receiving DWF's in the order of 140m³/d. Based average hydraulic load of 200l/d/p, the PE equates to approximately 700.

Killavullen WWTP is operated by Cork County Council. The plant is operated by a caretaker who duties also involves the maintenance of a number of other small WWTP's in the area. The caretaker is on duty from 8.00am to 5.30pm Monday – Saturday.

The sources of emissions from the waste water works

The pollution load for the **Killavullen** agglomeration arises from the following areas:

- Domestic population
- Commercial premises
- School & crèches
- Infiltration

The sewerage from all commercial premises is collected via the public sewer and treated in conjunction with the domestic waste at the WWTP.

Currently the WWTP is receiving DWF's in the order of 140m³/d.

The nature and quantities of foreseeable emissions from the waste water works into the receiving aqueous environment as well as identification of significant effects of the emissions on the environment

The final effluent is discharged to the River Ross, which is adjacent to the wastewater treatment plant site. The maximum DWF from the WWTP is in the order of 140m³/d.

The proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the waste water works

Technology

The WWTP has a sufficient number of standby pumps, automatic sample facilities, etc is provided to ensure continuation of the wastewater treatment.

The treatment works consists of the following elements:

- Inlet Works
- Forward Feed Sump
- Aeration Tank
- Settling Tank
- Sludge Holding Tank
- Storm Tank
- Outfall to River Ross

Techniques

The new WWTP shall be operated and managed in accordance with the Performance Management System, developed by the Water Service National Training Group (WSMTG).

Further measures planned to comply with the general principle of the basic obligations of the operator, i.e., that no significant pollution is caused

There are no planned measures to be undertaken at this plant other than general operating and maintenance duties.

Measures planned to monitor emissions into the environment

The Cork County Council Environmental Laboratory carries out sampling of the influent and effluent biannually. Sampling, Monitoring and analysis of the wastewater sludge is also undertaken by the Environmental Laboratory.

The Cork County Council Environmental Department located in Annabella takes samples from the River Bride upstream and downstream of the wastewater treatment plant approximately 2 times per year. Samples of the influent and effluent are also taken at these times.

The EU Water Framework Directive Monitoring Programme is to be fully operational by the year 2012. This monitoring programme was prepared by the EPA to meet the requirements of the EU Water Framework Directive (2000/60/EC) and National Regulations implementing the Water Framework Directive (S.I. No. 722 of 2003) and National Regulations implementing the Nitrates Directive (S.I. No. 788 of 2005).

List of Attachments include the following:

- Location Map Scale 1:50,000
- Site Location Map of WWTP
- Site Layout of WWTP

Attachment A1 Map 1
Attachment A1 Map 2
Attachment A1 Map 3

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SECTION B: GENERAL

Advice on completing this section is provided in the accompanying Guidance Note.

B.1 Agglomeration Details

Name of Agglomeration:	Killavullen & Environs
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Applicant's Details

Name and Address for Correspondence

Only application documentation submitted by the applicant and by the nominated person will be deemed to have come from the applicant.

Provide a drawing detailing the agglomeration to which the licence application relates. It should have the boundary of the agglomeration to which the licence application relates clearly marked in red ink.

Name*:	Cork County Council
Address:	Northern Division
	Annabella
	Mallow
	Co. Cork
Tel:	022 21123
Fax:	022 21983
e-mail:	Frank.cronin@corkcoco.ie

*This should be the name of the water services authority in whose ownership or control the waste water works is vested.

*Where an application is being submitted on behalf of more than one water services authority the details provided in Section B.1 shall be that of the lead water services authority.

Name*:	Frank Cronin
Address:	Northern Division
	Annabella
	Mallow
	Co. Cork
Tel:	022 21123
Fax:	022 21983
e-mail:	Frank.cronin@corkcoco.ie

*This should be the name of person nominated by the water services authority for the purposes of the application.

Co-Applicant's Details

Name*:	Not Applicable
Address:	Not Applicable
Tel:	Not Applicable
Fax:	Not Applicable
e-mail:	Not Applicable

*This should be the name of a water services authority, other than the lead authority, where multiple authorities are the subject of a waste water discharge (authorisation) licence application.

Design, Build & Operate Contractor Details

Name*:	Not Applicable
Address:	Not Applicable
Tel:	Not Applicable
Fax:	Not Applicable
e-mail:	Not Applicable

*Where a design, build & operate contract is in place for the waste water works, or any part thereof, the details of the contractor should be provided.

Attachment B.1 should contain appropriately scaled drawings / maps ($\leq A3$) of the agglomeration served by the waste water works showing the boundary clearly marked in red ink. These drawings / maps should also be provided as geo-referenced digital drawing files (e.g., ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. These drawings should be provided to the Agency on a separate CD-Rom containing sections B.2, B.3, B.4, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
	√	

B.2 Location of Associated Waste Water Treatment Plant(s)

Give the location of the waste water treatment plant associated with the waste water works, if such a plant or plants exists.

Name*:	Pat Walsh
Address:	Killavullen
	Ballymacmoy
	Killavullen
	Mallow
	Co. Cork
Grid ref (6E, 6N)	164897E, 099521N
Level of Treatment	Secondary
Primary Telephone:	022-30400
Fax:	022-21983
e-mail:	Pat.walsh@corkcoco.ie

*This should be the name of the person responsible for the supervision of the waste water treatment plant.

Attachment B.2 should contain appropriately scaled drawings / maps ($\leq A3$) of the site boundary and overall site plan, including labelled discharge, monitoring and sampling points. These drawings / maps should also be provided as geo-referenced digital drawing files (e.g., ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. These drawings should be provided to the Agency on a separate CD-Rom containing sections B.1, B.3, B.4, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No

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B.3 Location of Primary Discharge Point

Give the location of the primary discharge point, as defined in the Waste Water Discharge (Authorisation) Regulation, associated with the waste water works.

Type of Discharge	225mm diameter outfall pipe from wastewater treatment plant. Open pipe
Unique Point Code	SW - 01 KILL
Location	WWTP site Ballymacmoy, Killavullen
Grid ref (6E, 6N)	164919E, 099521N

Attachment B.3 should contain appropriately scaled drawings / maps ($\leq A3$) of the discharge point, including labelled monitoring and sampling points associated with the discharge point. These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing the drawings and tabular data requested in sections B.1, B.2, B.4, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
	√	

B.4 Location of Secondary Discharge Point(s)

Give the location of **all** secondary discharge point(s) associated with the waste water works. Please refer to Guidance Note for information on Secondary discharge points.

Type of Discharge	Not Applicable
Unique Point Code	Not Applicable
Location	Not Applicable
Grid ref (6E, 6N)	Not Applicable

Attachment B.4 should contain appropriately scaled drawings / maps ($\leq A3$) of the discharge point(s), including labelled monitoring and sampling points associated with the discharge point(s). These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
		√

B.5 Location of Storm Water Overflow Point(s)

Give the location of **all** storm water overflow point(s) associated with the waste water works.

Type of Discharge	300mm diameter outfall pipe from wastewater treatment plant. Open pipe
Unique Point Code	SW-02 KILL
Location	Adjacent to WWTP site Ballymacmoy, Killavullen
Grid ref (6E, 6N)	164900E 099503N

Attachment B.5 should contain appropriately scaled drawings / maps ($\leq A3$) of storm water overflow point(s) associated with the waste water works, including labelled monitoring and sampling points associated with the discharge point(s). These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
		√

B.6 Planning Authority

Give the name of the planning authority, or authorities, in whose functional area the discharge or discharges take place or are proposed to take place.

Name:	Cork County Council
Address:	Planning Department
	County Hall
	Carriagrohane Road
	Cork
Tel:	021 4276891
Fax:	021 4867007
e-mail:	Planninginfo@corkcoc.ie

Planning Permission relating to the waste water works which is the subject of this application:- (tick as appropriate)

<i>has been obtained</i>		<i>is being processed</i>	
<i>is not yet applied for</i>		<i>is not required</i>	√

Local Authority Planning File Reference N^o:	Not Applicable
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Attachment B.6 should contain **the most recent** planning permission, including a copy of **all** conditions, and where an EIS was required, copies of any such EIS and any certification associated with the EIS, should also be enclosed.

Where planning permission is not required for the development, provide reasons, relevant correspondence, etc.

Attachment included	Yes	No
		√

B.7 Other Authorities

B.7 (i) Shannon Free Airport Development Company (SFADCo.) area

The applicant should tick the appropriate box below to identify whether the discharge or discharges are located within the Shannon Free Airport Development Company (SFADCo.) area.

Attachment B.7(i) should contain details of any or all discharges located within the SFADCo. area.

Within the SFADCo Area	Yes	No
		√

B.7 (ii) Health Services Executive Region

The applicant should indicate the **Health Services Executive Region** where the discharge or discharges are or will be located.

Name:	Health Service Executive
Address:	North Cork Area Headquarters
	Gouldhill
	Mallow, Co. Cork
Tel:	022 30200
Fax:	022 30211
e-mail:	Gerry.oconnor.ie

B.7 (iii) Other Relevant Water Services Authorities

Regulation 13 of the Waste Water Discharge (Authorisation) Regulations, 2007 requires all applicants, not being the water services authority in whose functional area the relevant waste water discharge or discharges, to which the relevant application relates, takes place or is to take place, to notify the relevant water services authority of the said application.

Name:	Not Applicable
Address:	Not Applicable
Tel:	Not Applicable
Fax:	Not Applicable
e-mail:	Not Applicable

Relevant Authority Notified	Yes	No
		√

Attachment B.7(iii) should contain a copy of the notice issued to the relevant local authority.

Attachment included	Yes	No
		√

B.8 Notices and Advertisements

Regulations 10 and 11 of the Waste Water Discharge (Authorisation) Regulations, 2007 require all applicants to advertise the application in a newspaper and by way of a site notice. See *Guidance Note*.

Attachment B.8 should contain a copy of the site notice and an appropriately scaled drawing ($\leq A3$) showing its location. **The original application must include the original page of the newspaper in which the advertisement was placed.** The relevant page of the newspaper containing the advertisement should be included with the original and two copies of the application.

Attachment included	Yes	No

B.9 (i) Population Equivalent of Agglomeration

TABLE B.9.1 POPULATION EQUIVALENT OF AGGLOMERATION

The population equivalent (p.e.) of the agglomeration to be, or being, served by the waste water works should be provided and the period in which the population equivalent data was compiled should be indicated.

Population Equivalent	900
Data Compiled (Year)	2008
Method	Hydraulic Flow

B.9 (ii) Pending Development

Where planning permission has been granted for development(s), but development has not been commenced or completed to date, within the boundary of the agglomeration and this development is being, or is to be, served by the waste water works provide the following information;

- information on the calculated population equivalent (p.e.) to be contributed to the waste water works as a result of those planning permissions granted,
- the percentage of the projected p.e. to be contributed by the non-domestic activities, and
- the ability of the waste water works to accommodate this extra hydraulic and organic loading without posing an environmental risk to the receiving water habitat.

Current population equivalent being treated at Killavullen is 700 based on flow data. Therefore this WWTP is operating below its design capacity of 1,000 PE.

All developments with granted planning permission and all developments under construction have been included in the agglomeration. The additional PE due to the granted planning permissions is estimated at 290. There are currently no planning permissions granted in relation to non domestic activities.

B.9 (iii) FEES

State the relevant Class of waste water discharge as per Column 1 of the Second Schedule, and the appropriate fee as per Columns 2 or 3 of the Third Schedule of the Waste Water Discharges (Authorisation) Regulations 2007, S.I. No. 684 of 2007.

Class of waste water discharge	Fee (in €)
	€15,000

Appropriate Fee Included	Yes	No
	√	

B.10 Capital Investment Programme

State whether a programme of works has been prioritised for the development of infrastructure to appropriately collect, convey, treat and discharge waste water from the relevant agglomeration. If a programme of works has been prioritised provide details on funding, (local or national), allocated to the capital project. Provide details on the extent and type of work to be undertaken and the likely timeframes for this work to be completed.

There is no upgrade works planned to be undertaken at Castletownroche WWTP under any Capital Works Programme at this period in time.

Attachment B.10 should contain the most recent development programme, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

Attachment included	Yes	No
		√

B.11 Significant Correspondence

Provide a summary of any correspondence resulting from a Section 63 notice issued by the Agency in relation to the waste water works under the Environmental Protection Agency Acts, 1992 and 2003, as amended by Section 13 of Protection of the Environment Act, 2003.

Attachment B.11 should contain a summary of any relevant correspondence issued in relation to a Section 63 notice.

Attachment included	Yes	No
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B.12 Foreshore Act Licences.

Provide a copy of the most recent Foreshore Act licence issued in relation to discharges from the waste water works issued under the Foreshore Act 1933.

Attachment B.12 should contain the most recent licence issued under the Foreshore Act 1933, including a copy of **all** conditions attached to the licence and any monitoring returns for the previous 12-month period, if applicable.

Attachment included	Yes	No
		√

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SECTION C: INFRASTRUCTURE & OPERATION

Advice on completing this section is provided in the accompanying Guidance Note.

C.1 Operational Information Requirements

Provide a description of the plant, process and design capacity for the areas of the waste water works where discharges occur, to include a copy of such plans, drawings or maps, (site plans and location maps, process flow diagrams), and such other particulars, reports and supporting documentation as are necessary to describe all aspects of the area of the waste water works discharging to the aquatic environment. Maps and drawings must be no larger than A3 size.

C.1.1 Storm Water Overflows

For each storm water overflow within the waste water works the following information shall be submitted:

- An assessment to determine compliance with the criteria for storm water overflows, as set out in the DoEHLG *'Procedures and Criteria in Relation to Storm Water Overflows'*, 1995 and any other guidance as may be specified by the Agency, and
- Identify whether any of the storm water overflows are to be decommissioned, and identify a date by which these overflows will cease, if applicable.

C.1.2 Pumping Stations

For each pump station operating within the waste water works, provide details of the following:

- Number of duty and standby pumps at each pump station;
- The measures taken in the event of power failure;
- Details of storage capacity at each pump station;
- Frequency and duration of activation of emergency overflow to receiving waters. Clarify the location where such discharges enter the receiving waters.

General Description of the WWTP

The WWTP at Killavullen is based on the activated sludge process using diffused aerators. The plant is sized to a 1,000 population equivalent at 3DWF, however the PE that is being catered for is in the order of 900.

The treatment works includes the following:

- Inlet Works
- Aeration Tank
- Settlement Tanks
- Sludge Holding Tank
- Storm Holding Tank
- Flow Measurement & Automatic Sampler
- Outfall to Awbeg River

The plant operates as follows:

1. The incoming sewerage gravities from the village agglomeration via a 225mm concrete sewerage network to a manhole at the WWTP site. A

high level storm overflow system is located at this manhole. In the event of the sump being unable to the storm loading, the storm volumes backs up the line to the inlet manhole at which point the storm overflows directly to the storm holding tank..

2. From this manhole the incoming effluent enters the Grit Trap followed by an inline Muncher. The influent then enters the Inlet Sump which consists of 2 Nr submersible forward feed pumps complete with auto coupling, guide rails and lifting chains. The submersible pumps are controlled by an ultrasonic level sensor and are capable of delivering 3DWF at 5m total head.
3. Storm effluent in excess of 3 DWF overflows the inlet sump into an underground storm holding tank, with a sloped floor. Storm flows overflow the sump and when the storm abates, storm effluent in the tank, returns to the sump via gravity by the flap valve in the inlet sump. In the event of the storm flows exceeding the capacity of the storm holding tank, the effluent overflows via the outlet pipe.

2 nr Submersible effluent pump type Homa series

Mains Voltage	=	400V / 3 / 50
Cable length	=	10m
Volume	=	2.8m ³ /h
Isolation class	=	F(155 deg)

Pump with cast iron impeller. Pump and motor housing made in cast iron, shaft made by chrome steel. Sealing between pump & motor by 2 mechanical seals (silicon-carbide & carbon-graphite)

Accessories:

- 2 Nr Auto coupling DN100 with outlet flange and foundation bolts, pump coupling flange DN and slide rail fixing brackets.
 - 2 Nr Outlet elbows 90 dg DN100
 - 2 nr Non return valves (NRV) and Sluice Valve (S.V)
 - uPVC Pipework
4. From the inlet sump, the sewerage is forwarded to the Aeration Tank. The over ground glass enamelled Steel Aeration Tank has dimensions of 9390mm in diameter and 4200mm in height. The diffused aeration pipework system placed in the bottom of the tank is operated by 2 Nr Air Blowers. The return activated sludge (RAS) is returned via 90mm Sludge Line to the Aeration Tank from the Clarifier. Following aeration the effluent overflows the outlet baffle and gravitates to the Settlement Tank.

Accessories:

- 1 Nr Access ladder to platform
5. Effluent arrives via an 150mm diameter pipe to the Glass enamelled steel hopper bottomed tank with rotating half bridge scrapper. The diameter of the tank is 5.2m, with height of 2.8m. Returned Activated Sludge is pumped back to the Aeration Tank or alternatively Waste Activated Sludge (WAS) is Pumped via 90mm pipework to the adjacent

Sludge Holding Tank. Following Settlement the effluent overflows the weir and discharges via the Flow Measurement Chamber and Automatic Sampling point to the outlet pipe.

6. The Concrete Sludge Holding Tank is a 8.5 x 3.2 x 2.1m high tank with storage capacity of 45m³. The Sludge Holding Tank has a capacity for 3 – 4 weeks of sludge storage. Supernatant from the tank is returned via the decant pipework to the Inlet Sump, while Sludge for removal is decanted via the Bauer Connection at the bottom of the Tank.
7. The treated effluent is discharged to the Awbeg River which runs adjacent to the WWTP Site. The effluent is discharged via 225mm concrete pipework.

Pumping Stations

There are no pumping stations located within the agglomeration of Killavullen.

Attachment C.1 should contain supporting documentation with regard to the plant and process capacity, systems, storm water overflows, emergency overflows, etc., including flow diagrams of each with any relevant additional information. These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, D.2, E.3 and F.2.

Attachment included	Yes	No
	√	

C.2 Outfall Design and Construction

Provide details on the primary discharge point & secondary discharge points and storm overflows to include reference, location, design criteria and construction detail.

Primary Discharge Point SW-01, Killavullen

Type of Discharge	225mm diameter outfall pipe from wastewater treatment plant. Open pipe
Unique Point Code	SW - 01 KILL
Location	WWTP site Ballymacmoy, Killavullen
Grid ref (6E, 6N)	164919E, 099521N

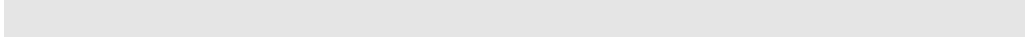
The outfall pipe from Killavullen WWTP exits the treatment plant site and heads in a southerly direction to the Ross River for a distance of approximately 3m.

Type of Discharge	300mm diameter outfall pipe from wastewater treatment plant. Open pipe
Unique Point Code	SW-02 KILL
Location	Adjacent to WWTP site Ballymacmoy, Killavullen
Grid ref (6E, 6N)	164900E 099503N

The emergency overflow at the manhole at the entrance to the plant, is routed in an easterly direction to the Ross River for a distance of approximately 30m.

Attachment C.2 should contain any supporting documentation on the design and construction of any and all discharge outfalls, including stormwater overflows, from the waste water works.

Attachment included	Yes	No
		√



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SECTION D: DISCHARGES TO THE AQUATIC ENVIRONMENT

Advice on completing this section is provided in the accompanying Guidance Note.

Give particulars of the source, location, nature, composition, quantity, level and rate of discharges arising from the agglomeration and, where relevant, the period or periods during which such emissions are made or are to be made.

Details of all discharges of waste water from the agglomeration should be submitted via the following web based link: http://78.137.160.73/epa_wwd_licensing/. The applicant should address in particular all discharge points where the substances outlined in Tables D.1(i), (b) & (c) and D.1(ii), (b) & (c) of Annex 1 are emitted.

Where it is considered that any of the substances listed in Annex X of the Water Framework Directive (2000/60/EC) or any of the Relevant Pollutants listed in Annex VIII of the Water Framework Directive (2000/60/EC) are being discharged from the waste water works or are seen to be present in the receiving water environment downstream of a discharge from the works (as a result of any monitoring programme, e.g., under the Water Framework Directive Programme of Measures) the applicant shall screen the discharge for the relevant substance.

D.1 Discharges to Surface Waters

Details of all discharges of waste water from the agglomeration should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables D.1(i)(a), (b) & (c), should be completed for the primary discharge point from the agglomeration and Tables D.1(ii)(a), (b) & (c) should be completed for each secondary discharge point, where relevant. Table D.1(iii)(a) should be completed for each storm water overflow. Individual Tables must be completed for each discharge point.

Where monitoring information is available for the influent to the plant this data should also be provided in response to Section D.1.

Supporting information should form **Attachment D.1**

Attachment included	Yes	No

D.2 Tabular Data on Discharge Points

Applicants should submit the following information for each discharge point:

Table D.2:

PT_CD	PT_TYPE	LA_NAME	RWB_TYPE	RWB_NAME	DESIGNATION	EASTING	NORTHING
SW01-KILL	Primary	Cork County Council	River	Ross	U/S of Salmonid River	164919	099521
SW01-KILL	Storm Water Overflow	Cork County Council	River	Ross	U/S of Salmonid River	164900	099503

An individual record (i.e. row) is required for each discharge point. Acceptable file formats include Excel, Access or other upon agreement with the Agency. A standard Excel template can be downloaded from the EPA website at www.epa.ie. This data should be submitted to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, C.1, E.3 and F.2.

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SECTION E: MONITORING

Advice on completing this section is provided in the accompanying Guidance Note.

E.1 Waste Water Discharge Frequency and Quantities – Existing & Proposed

Provide an estimation of the quantity of waste water likely to be emitted in relation to all primary and secondary discharge points applied for. This information should be included in Table E.1(i) via the following web based link: http://78.137.160.73/epa_wwd_licensing/.

Provide an estimation of the quantity of waste water likely to be emitted in relation to all storm water overflows within the agglomeration applied for. This information should be included in Table E.1(ii) via the following web based link: http://78.137.160.73/epa_wwd_licensing/.

Indicate if composite sampling or continuous flow monitoring is in place on the primary or any other discharge points. Detail any plans and timescales for the provision of composite sampling and continuous flow meters.

E.2. Monitoring and Sampling Points

Programmes for environmental monitoring should be submitted as part of the application. These programmes should be provided as Attachment E.2.

Reference should be made to, provision of sampling points and safe means of access, sampling methods, analytical and quality control procedures, including equipment calibration, equipment maintenance and data recording/reporting procedures to be carried out in order to ensure accurate and reliable monitoring.

In determining the sampling programme to be carried out, the variability of the emission and its effect on the receiving environment should be considered.

Lab Sampling and testing is done in accordance with 'Sampling Methods for examination of water and wastewater' 18th edition 1992.

Details of any accreditation or certification of analysis should be included.

Attachment E.2 should contain any supporting information.

Attachment included	Yes	No
		√

E.3. Tabular data on Monitoring and Sampling Points

Applicants should submit the following information for each monitoring and sampling point:

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
SW01	Primary	Sampling	164919	099521	No
aSW01u	u/s	Sampling	164893	099427	No
aSW01d	d/s	sampling	165179	099631	No

An individual record (i.e., row) is required for each monitoring and sampling point. Acceptable file formats include Excel, Access or other upon agreement with the Agency. A standard Excel template can be downloaded from the EPA website at www.epa.ie. This data should be submitted to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, C.1, D.2 and F.2.

E.4 Sampling Data

Regulation 16(1)(h) of the Waste Water Discharge (Authorisation) Regulations 2007 requires all applicants in the case of an existing waste water treatment plant to specify the sampling data pertaining to the discharge based on the samples taken in the 12 months preceding the making of the application.

Regulation 16(1)(l) of the regulations requires applicants to give details of compliance with any applicable monitoring requirements and treatment standards.

Attachment E.4 should contain any supporting information.

Attachment included	Yes	No
	√	

SECTION F: EXISTING ENVIRONMENT & IMPACT OF THE DISCHARGE(S)

Advice on completing this section is provided in the accompanying Guidance Note.

Detailed information is required to enable the Agency to assess the existing receiving environment. This section requires the provision of information on the ambient environmental conditions within the receiving water(s) upstream and downstream of any discharge(s).

Where development is proposed to be carried out, being development which is of a class for the time being specified under Article 24 (First Schedule) of the Environmental Impact Assessment Regulations, the information on the state of the existing environment should be addressed in the EIS. **In such cases, it will suffice for the purposes of this section to provide adequate cross-references to the relevant sections in the EIS.**

F.1. Assessment of Impact on Receiving Surface or Ground Water

- Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.
- Details of all monitoring of the receiving water should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables F.1(i)(a) & (b) should be completed for the primary discharge point. Surface water monitoring locations upstream and downstream of the discharge point shall be screened for those substances listed in Tables F.1(i)(a) & (b). Monitoring of surface water shall be carried out at not less than two points, one upstream from the discharge location and one downstream.
- For discharges from secondary discharge points Tables F.1(ii)(a) & (b) should be completed. Furthermore, provide summary details and an assessment of the impacts of any existing or proposed emissions on the surface water or ground (aquifers, soils, sub-soils and rock environment), including any impact on environmental media other than those into which the emissions are to be made.
- Provide details of the extent and type of ground emissions at the works. For larger discharges to groundwaters, e.g., from Integrated Constructed Wetlands, large scale percolation areas, etc., a comprehensive report must be completed which should include, inter alia, topography, meteorological data, water quality, geology, hydrology, and hydrogeology. The latter must in particular present the aquifer classification and vulnerability. The Geological Survey of Ireland Groundwater Protection Scheme Dept of the Environment and Local Government, Geological Survey of Ireland, EPA (1999) methodology should be used for any such classification. This report should also identify all surface water bodies and water wells that may be at risk as a result of the ground discharge.
- Describe the existing environment in terms of water quality with particular reference to environmental quality standards or other

legislative standards. Submit a copy of the most recent water quality management plan or catchment management plan in place for the receiving water body. Give details of any designation under any Council Directive or Regulations that apply in relation to the receiving water.

- Provide a statement as to whether or not emissions of main polluting substances (as defined in the *Dangerous Substances Regulations S.I. No. 12 of 2001*) to water are likely to impair the environment.
- In circumstances where water abstraction points exist downstream of any discharge describe measures to be undertaken to ensure that discharges from the waste water works will not have a significant effect on faecal coliform, salmonella and protozoan pathogen numbers, e.g., *Cryptosporidium* and *Giardia*, in the receiving water environment.
- Indicate whether or not emissions from the agglomeration or any plant, methods, processes, operating procedures or other factors which affect such emissions are likely to have a significant effect on –
 - (a) a site (until the adoption, in respect of the site, of a decision by the European Commission under Article 21 of Council Directive 92/43/EEC for the purposes of the third paragraph of Article 4(2) of that Directive) –
 - (i) notified for the purposes of Regulation 4 of the Natural Habitats Regulations, subject to any amendments made to it by virtue of Regulation 5 of those Regulations,
 - (ii) details of which have been transmitted to the Commission in accordance with Regulation 5(4) of the Natural Habitats Regulations, or
 - (iii) added by virtue of Regulation 6 of the Natural Habitats Regulations to the list transmitted to the Commission in accordance with Regulation 5(4) of those Regulations,
 - (b) a site adopted by the European Commission as a site of Community importance for the purposes of Article 4(2) of Council Directive 92/43/EEC¹ in accordance with the procedures laid down in Article 21 of that Directive,
 - (c) a special area of conservation within the meaning of the Natural Habitats Regulations, or
 - (d) an area classified pursuant to Article 4(1) or 4(2) of Council Directive 79/409/EEC²;

¹Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ No. L 206, 22.07.1992)

²Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (OJ No. L 103, 25.4.1979)

- Describe, where appropriate, measures for minimising pollution over long distances or in the territory of other states.
- This section should also contain full details of any modelling of discharges from the agglomeration. Full details of the assessment and any other relevant information on the receiving environment should be submitted as **Attachment F.1**.

The plant is performing satisfactorily at present and operating within the requirements of the following legislation. There are no improvements planned at present for the Killavullan Wastewater Treatment Plant.

Water Quality Standards

The Water Framework Directive (WFD) aims to establish an integrated approach to water protection, improvement and sustainable use. In order to achieve the requirements of the WFD, Ireland has been divided into a number of River Basin Districts or management units. The South Western River Basin District (SWRBD) comprises substantially the counties of Cork and Kerry, all of Cork City, and also parts of counties Limerick, South Tipperary and Waterford.

The Ross River is included in the SWRBD. The overall objectives of the SWRBD project include the following:

- Strengthen compliance with EU Directives and national legislation
- Collect and analyse information to determine water quality and identify possible threats to water status
- Prevent further deterioration and protect/enhance water quality
- Develop a programme of measures to address all significant pressures and sources of impact on aquatic ecosystems and groundwater
- Encourage and facilitate public participation including the maintenance of a project website
- Promote sustainable water use

In order to achieve these objectives the following project tasks have been identified:

- Identify pressures on water bodies and assess risk of not achieving compliance with the Water Framework Directive
- Prepare a Characterisation Report
- Identify Heavily Modified (HMWB) and Artificial Water Bodies (AWB)
- Establish risk to waters from Hazardous Substances
- Establish data management system and GIS
- Prepare programme of measures
- Review of monitoring needs
- Design monitoring programme
- Prepare River Basin Management Strategy
- Assist public participation in the project
- Prepare printed reports
- Assist capacity building

The SWRBD has proposed water quality standards for the Ross River under a water quality / catchments management plan. This waterbody has been given Moderate status due to its location in a *Margaritifera margaritifera* catchment. Note also this is located in a *Margaritifera margaritifera* (freshwater pearl mussel) which is a protected area and for such sites the water quality standards that need to be achieved will be higher than for other areas as these are a species of high conservation importance.

The River Basin Management System currently being developed will include a programme of measures and a River Basin Management Strategy, designed to achieve at least good status for all waters by 2015, and to maintain high status where it exists. Therefore discharges from Killavullen Wastewater Treatment Plant cannot cause deterioration in good water quality under the Water Framework Directive at present.

The Ross River is not a designated Shellfish area under the Shellfish Waters Regulations, S.I.200 of 1994. The River Blackwater, into which the Ross River flows, is also not designated under these regulations.

The Ross River is not designated a Salmonid Water under Salmonid Water Regulations, S.I. 293 of 1988, however the River Blackwater which the Ross River joins, is designated Salmonid Water under Salmonid Water Regulations, S.I. 293 of 1988.

The Ross River is not designated a Bathing Water under the Bathing Water Regulations, S.I. 178 of 1998 as amended.

The Ross River is not a designated Sensitive Area under the Urban Wastewater Treatment Regulations 2001 (S.I. 254 of 2001). The River Blackwater downstream of Mallow Railway to Ballyduff Bridge is a designated Sensitive Area. This is located approximately 600m downstream of the discharge point.

Water is not abstracted from the River Ross.

Areas of Conservation

The Department of the Environment, Heritage and Local Government is responsible for the designation of conservation sites in Ireland. It is required under European law and national laws to conserve habitats and species, through designation of conservation areas under Special Areas of Conservation, Natural Heritage Areas and Special Protected Areas.

Special Areas of Conservation

Candidate Special Areas of Conservation (cSACs) are protected under the European Union (EU) Habitats Directive (92/43/EEC), as implemented in Ireland by the European Communities (Natural Habitats) Regulations, 1997.

The Blackwater River cSAC (Site Code: 002170) is very large, extending from the tidal estuary of the river at Youghal Co. Cork to the upper tributaries and their flood plains, in Cos. Cork Kerry, Limerick, Tipperary and Waterford, including the Awbeg River is a designated Special Area of Conservation.

The cSAC is designated on the basis of the presence of a large number of EU Habitats Directive Annex 1 habitats and Annex 2 species. Many of these are estuarine habitats and species found only in the lower reaches of the River Blackwater, however a number may be present in the Awbeg River section of the cSAC including, for example the Annex 1 habitats, 'alluvial wet woodlands', 'floating river vegetation', and 'old oak woodlands'; and the Annex 2 species sea lamprey, river lamprey, brook lamprey, Atlantic salmon, freshwater pearl-mussel and otter.

The Blackwater River Site Synopsis is included in this attachment.

Natural Heritage Areas

The Awbeg River does not flow through a Proposed Natural Heritage Areas (NHA). Natural Heritage Areas are the basic designation for wildlife. An NHA is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection.

Under the Wildlife Amendment Act 2000, NHAs are legally protected from damage from the date they are formally proposed for designation.

Special Protected Areas

Special Protection Areas (SPAs) are designated in order to safeguard certain habitats pursuant to EU Directive requirements. The EU Birds Directive (79/409/EEC) requires designation of SPAs for listed rare and vulnerable species, migratory species and wetlands.

No designated special protected areas are located along the River Ross. There are areas of the River Blackwater that are designated SPAs, however these are located downstream of Fermoy and therefore greater than 2km from all discharge points.

Receiving Water Quality Requirement

Water Quality analysis data for the River Ross was obtained from Cork County Council. The EPA also takes samples from a number of locations along the River Ross. These stations are the following:

- Bridge North of Toormore – upstream of Killavullen WWTP discharge point by approximately 4.7km
- 0.3km u/s Blackwater River Confluence –downstream of Killvullen WWTP discharge point by approximately 0.3km

Table F1-1: Biological Quality Rating for River Ross – Downstream of Discharge

Sampling Location	EPA Biological Quality Rating (Q values)			
	1995 -1997	2001 – 2003	2006	Target
Bridge NW of Ballywalter House	4	4-5	4	4
Kilcummer Bridge	4	4	3-4	4

The Royal Commission in its report on Water Quality Guidelines recommends that "in all circumstances effluent discharges which are calculated to raise the BOD of the receiving water, outside the mixing zone, by more than 1 mg/l should be discouraged". The average existing background level for BOD is estimated at 1mg/l. Therefore the receiving water limiting value for BOD for this river is 2mg/l.

The standard water quality requirements for dangerous substances are based on the Water Quality (Dangerous Substances) Regulations 2001.

Hence, the principal receiving water quality requirements are given in Table 3 below: -

Table F1-2: Receiving Water Quality Limiting Values

Parameter	Water Quality Standard (mg/l)
Chromium	30
Copper	30
Lead	10

Nickel	50
Zinc	100

Based on Hardness of receiving waters >100mg/l CaCO₃

Effluent Standards

The treated effluent quality requirements shown in the table below are determined with respect to the EC Urban Wastewater Directive, given effect in Irish Law by S.I.254 of 2001.

Table F1-3: Minimum Effluent Standards based on S.I.254 of 2001 and Recorded Effluent Concentrations

Parameter	Effluent Standards (mg/l)	Actual Concentrations* (mg/l)
Biological Oxygen Demand (BOD)	25	31.7
Suspended Solids (SS)	35	45.8

*Actual Concentration is the average effluent concentrations recorded at the outlet of the WWTP by Cork County Council Wastewater Laboratory during the period Oct '07 to April '09

From Table 4 above, it is evident that treated effluent from the Killavullen wastewater treatment plant strays some what with the quality of effluent standards set out in the above legislation.

Assimilative Capacity of the Receiving Water

a) **Mass Balance Equation for Orthophosphate:**

Median flow of River = 0.44 m³/sec
 Median oPO₄-P in River (upstream) = 0.05 mg/L

Average volume of discharge = 0.0025 m³/sec
 Median value for oPO₄-P in discharge = 3.335 mg/L

$$C_{\text{final}} = \frac{(.44 \times 0.05) + (0.0025 \times 3.335)}{0.44 + 0.0025}$$

$$C_{\text{final}} = 0.068\text{mg/L oPO}_4\text{-P}$$

The increase in Orthophosphate due to the discharge of Killavullen WWTP is 18 µg/L.

b) **Mass Balance Equation for BOD:**

Flow of River (95%) = 0.07 m³/sec
 Average BOD in River (upstream) = 2 mg/L

Average volume of discharge = 0.0025 m³/sec
 Average BOD in discharge = 31.7 mg/L

$$C_{\text{final}} = \frac{(0.07 \times 2.0) + (0.0025 \times 31.7)}{0.07 + 0.0025}$$

$C_{\text{final}} = 3.02 \text{ mg/L BOD}$

The increase in BOD due to the discharge of Killavullen WWTP is 1.02 mg/L.

c) **Mass Balance Equation for Suspended Solids:**

Flow of River (95%) = 0.07 m³/sec
 Average Suspended Solids in River (upstream) = 3 mg/L

Average volume of discharge = 0.0025 m³/sec
 Average Suspended Solids in discharge = 45.8 mg/L

$$C_{\text{final}} = \frac{(0.07 \times 3) + (0.0025 \times 45.8)}{0.07 + 0.0025}$$

$C_{\text{final}} = 4.48 \text{ mg/L Suspended Solids}$

The increase in Suspended Solids due to the discharge of Killavullen WWTP is 1.48 mg/L.

d) **Mass Balance Equation for Total Phosphate:**

50% Median flow of River = 0.44m³/sec
 Median TPO₄-P in River (upstream) = 0.05 mg/L

Average volume of discharge = 0.0025 m³/sec
 Median TPO₄-P in discharge = 3.77 mg/L

$$C_{\text{final}} = \frac{(0.44 \times 0.05) + (0.0025 \times 3.77)}{0.44 + 0.0025}$$

$C_{\text{final}} = 0.07 \text{ mg/L TPO}_4\text{-P}$

The increase in Total Phosphate due to the discharge of Killavullen WWTP is 20 $\mu\text{g/L}$.

e) **Mass Balance Equation for Total Nitrogen:**

Flow of River (95%) = 0.44 m^3/sec
Average Total Nitrogen in River (upstream) = 2.37 mg/L

Average volume of discharge = 0.0025 m^3/sec
Average Total Nitrogen in discharge = 29.3 mg/L

$$C_{\text{final}} = \frac{(0.44 \times 2.37) + (0.0025 \times 29.3)}{0.44 + 0.0025}$$

$C_{\text{final}} = 4.01 \text{ mg/L Total Nitrogen}$

The increase in Total Nitrogen due to the discharge of Killavullen WWTP is 1.64 mg/L .

f) **Mass Balance Equation for Sulphate:**

Flow of River (95%) = 0.07 m^3/sec
Average Sulphate in River (upstream) = 30 mg/L

Average volume of discharge = 0.0025 m^3/sec
Average Sulphate of discharge = 19.28 mg/L

Average Sulphate in River (downstream) = 30 mg/L

$$C_{\text{final}} = \frac{(0.07 \times 30) + (0.0025 \times 19.28)}{0.07 + 0.0025}$$

$C_{\text{final}} = 29.36 \text{ mg/L Sulphate}$

g) **Mass Balance Equation for Ammonia-N:**

Flow of River (95%) = 0.07 m^3/sec
Average Ammonia-N in River (upstream) = 0.1 mg/L

Average volume of discharge = 0.0025 m^3/sec
Average Ammonia-N in discharge = 13.95 mg/L

Average Ammonia-N in River (downstream) = 0.07 mg/L

$$C_{\text{final}} = \frac{(0.07 \times 0.1) + (0.0025 \times 13.95)}{0.07 + 0.0025}$$

$C_{\text{final}} = 0.58$ mg/L Ammonia

The increase in Ammonia due to the discharge of Killavullen WWTP is 0.48 mg/L.

Assimilative Capacity Calculations were not performed for the following parameters, as the substances were below the limit of detection in the upstream samples, in the discharge samples and in the downstream samples:

- (a) Chromium
- (b) Copper
- (c) Lead
- (d) Nickel
- (e) Cadmium
- (f) Barium
- (g) Boron
- (h) Zinc
- (i) Fluoride

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Discharges in proximity of Wastewater Works

Water quality analysis data presented in Tables 4 & 5 below was recorded by Cork County Council wastewater laboratory and covers a sampling period in Jan 2009.

Table F1-4: Upstream Water Quality

Parameter	Upstream Monitoring Station		
	08/01/09	21/01/09	28/01/09
Ph	7.7	7.6	7.6
BOD	2	2	1
SS	1	1	3
Ammonia	0.05	0.05	0.1
Ortho-Phosphate	<0.05	<0.05	<0.05

Table F1-5: Downstream Water Quality

Parameter	Downstream Monitoring Station		
	08/01/09	21/01/09	28/01/09
Ph	7.5	7.5	7.6
BOD	2	2	1
SS	1	4	4
Ammonia	0.07	0.05	0.1
Ortho-Phosphate	<0.06	<0.05	<0.05

The data in the above tables confirms the wastewater discharge has little effect on the overall river quality given adequate flow in the river and dispersion time.

Appropriate Assessments

The development is in the surface water catchment of the River Blackwater, SAC 002170. In accordance with EPA Circular L8/08 Appendix 1, the project must be screened for its impacts. However, due to financial constraints, Cork County Council does not have the resources for the foreseeable future to assess the impacts in accordance with the EPA document, 'Waste Water discharge Licence – Appropriate Assessment'.

Attachment included	Yes	No
	√	

F.2 Tabular Data on Drinking Water Abstraction Point(s)

Applicants should submit the following information for each downstream or downgradient drinking water abstraction point. The zone of contribution for the abstraction point should be delineated and any potential risks from the waste water discharge to the water quality at that abstraction point identified.

ABS_CD	AGG_SERVED	ABS_VOL	PT_CD	DIS_DS	EASTING	NORTHING	VERIFIED
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Note: Attach any risk assessment that may have been carried out in relation to the abstraction point(s) listed.

An individual record (i.e. row) is required for each abstraction point. Acceptable file formats include Excel, Access or other upon agreement with the Agency. A standard Excel template can be downloaded from the EPA website at www.epa.ie. This data should be submitted to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, C.1, D.2 and E.3.

There are no drinking water abstraction points downstream or downgradient of the discharge point.

Attachment F.2 should contain any supporting information.

SECTION G: PROGRAMMES OF IMPROVEMENTS

Advice on completing this section is provided in the accompanying Guidance Note.

G.1 Compliance with Council Directives

Provide details on a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the;

- Dangerous Substances Directive 2006/11/EC,
- Water Framework Directive 2000/60/EC,
- Birds Directive 79/409/EEC,
- Groundwater Directives 80/68/EEC & 2006/118/EC,
- Drinking Water Directives 80/778/EEC,
- Urban Waste Water Treatment Directive 91/271/EEC,
- Habitats Directive 92/43/EEC,
- Environmental Liabilities Directive 2004/35/EC,
- Bathing Water Directive 76/160/EEC, and
- Shellfish Waters Directive (79/923/EEC).

The plant is operating satisfactory at present and is operating within the requirements of the relevant legislation, outlined above.

Water Framework Directive 2000/60/EC

The Water Framework Directive (WFD) aims to establish an integrated approach to water protection, improvement and sustainable use. In order to achieve the requirements of the WFD, Ireland has been divided into a number of River Basin Districts or management units. The South Western River Basin District (SWRBD) comprises substantially the counties of Cork and Kerry, all of Cork City, and also parts of counties Limerick, South Tipperary and Waterford.

The overall objectives of the South Western River Basin District project include the following:

- Strengthen compliance with EU Directives and national legislation
- Collect and analyse information to determine water quality and identify possible threats to water status
- Prevent further deterioration and protect/enhance water quality
- Develop a programme of measures to address all significant pressures and sources of impact on aquatic ecosystems and groundwater
- Encourage and facilitate public participation including the maintenance of a project website
- Promote sustainable water use

In order to achieve these objectives the following project tasks have been identified:

- Identify pressures on water bodies and assess risk of not achieving compliance with the Water Framework Directive
- Prepare a Characterisation Report
- Identify Heavily Modified (HMWB) and Artificial Water Bodies (AWB)

- Establish risk to waters from Hazardous Substances
- Establish data management system and GIS
- Prepare programme of measures
- Review of monitoring needs
- Design monitoring programme
- Prepare River Basin Management Strategy
- Assist public participation in the project
- Prepare printed reports
- Assist capacity building

The EPA also takes samples from one location along the River Ross downstream (d/s) of the WWTP (prior to confluence of the River Ross with the River Blackwater). These are located at the following:

- 0.3km u/s Blackwater River Confluence

Table G1-1: Upstream Water Quality

Parameter	Upstream Monitoring Station		
	08/01/09	21/01/09	28/01/09
Ph	7.7	7.6	7.6
BOD	2	2	1
SS	1	1	3
Ammonia	0.05	0.05	0.1
Ortho-Phosphate	<0.05	<0.05	<0.05

Table G1-2: Downstream Water Quality

Parameter	Downstream Monitoring Station		
	08/01/09	21/01/09	28/01/09
Ph	7.5	7.5	7.6
BOD	2	2	1
SS	1	4	4
Ammonia	0.07	0.05	0.1
Ortho-Phosphate	<0.06	<0.05	<0.05

The data in the above tables confirms the wastewater discharge has little effect on the overall river quality given adequate flow in the river and dispersion time.

Birds Directive 79/409/EEC

Special Protection Areas (SPAs) are designated in order to safeguard certain habitats pursuant to EU Directive requirements. The EU Birds Directive (79/409/EEC) requires designation of SPAs for listed rare and vulnerable species, migratory species and wetlands.

No designated special protected areas are located along the River Ross. There are areas of the River Blackwater which are designated SPAs however these are located downstream of Fermoy and therefore, greater than 2km from all discharge points.

Groundwater Directives 2006/118/EC

The Groundwater Directive 2006/118/EC has been developed in response to the requirements of Article 17 of the Water Framework Directive: Strategies to prevent and control pollution to groundwater. Groundwater Quality standards are to be established by the end of 2008.

Killavullen PWS Nr 1 & 2 are the closest PWS that utilise ground water for medium sized water supplies. These supply water to Killavullen village and hinterland.

With the proper mitigation measures in place the operation of the wastewater treatment plant does not have any significant negative impacts on the existing groundwater.

Drinking Water Directives 80/778/EEC

There are no areas along the River Ross or River Blackwater downstream of Killavullen WWTP designated for the abstraction of water intended for human consumption.

Urban Waste Water Treatment Directive 91/271/EEC

The Urban Wastewater Treatment Regulations (S.I. 254 of 2001) gives effect to provisions of the Urban Wastewater Treatment Directive (91/271/EEC). The 2001 Irish Regulations cover the various requirements in relation to the collection and treatment of urban wastewater.

Article 4(1)(c) states that "In the case of urban wastewater entering collecting systems, a sanitary authority shall provide treatment plants, which provide for secondary treatment or an equivalent treatment by 31 December 2005 in respect of all discharges to freshwaters and estuaries from agglomerations with a population equivalent of between 2,000 and 10,000."

Killavullen Wastewater Treatment Plant was commissioned in 2000 and was designed to treat effluent to a 25/35ppm standard.

The Second Schedule (Part 1) of the 2001 Regulations states that effluent should be treated to the following standards.

Table G1-3: Minimum Effluent Standards based on SI 254 of 2001

Parameter	Conc. (mg/l)	Minimum Percentage of Reduction
Biochemical Oxygen Demand (BOD)	25	70 - 90
Chemical Oxygen Demand (COD)	125	75
Suspended Solids	35	90

The aeration and clarifying plant at the Killavullen wastewater treatment plant is treating effluent to a high standard. Efficiencies of BOD, COD and SS removal for the plant is typically in excess of 85%. The effect of the discharges on the quality of the receiving waters is assessed in Attachment F1.

The Third Schedule of the 2001 Regulations gives a list of Sensitive areas.

Article 4(2)(a) states that all discharges into Sensitive Areas require more stringent treatment than secondary treatment. The River Ross is not a designated Sensitive Area. The River Blackwater downstream of Mallow Railway Bridge to Ballyduff Bridge is designated a Sensitive Area. This is approximately 600m downstream of the discharge point for Killavullen WWTP.

The Fifth Schedule of the 2001 Regulations gives a methodology for monitoring the final effluent from the wastewater treatment plant. Item 3 states "The minimum annual number of samples shall be determined according to the size of the treatment plant and be collected at regular intervals during the year." For a PE of between 2000-9999 4 samples should be taken each year. Cork County Council wastewater laboratory carries out regular testing at the outlet of the treatment plant.

Shellfish Directive 79/923/EEC

The River Ross is not a designated Shellfish Area under the Shellfish Waters Regulations, S.I. 200 of 1994. The River Blackwater, into which the River Ross flows is also not designated under these regulations.

Habitats Directive 92/43/EEC

Candidate Special Areas of Conservation (cSACs) are protected under the European Union (EU) Habitats Directive (92/43/EEC) as implemented in Ireland by the European Communities (Natural Habitats) Regulations, 1997.

The Blackwater River cSAC (Site Code: 002170) is very large, extending from the tidal estuary of the river at Youghal Co. Cork to the upper tributaries and their flood plains, in Cos. Cork Kerry, Limerick, Tipperary and Waterford.

The cSAC is designated on the basis of the presence of a large number of EU Habitats Directive Annex 1 habitats and Annex 2 species.

The Blackwater River Site Synopsis is included in this attachment.

Environmental Liabilities Directive 2004/35/EC

The Environmental Liability Directive is about preventing and remedying environmental damage. It aims to hold operators whose activities have caused environmental damage financially liable for remedying this damage, and it aims to hold those whose activities have caused an imminent threat of environmental damage liable for taking preventive actions.

Cork County Council Wastewater Laboratory carries out monitoring of the effluent from the wastewater treatment plant on a regular basis.

Failure to meet the specified treated effluent standards may result in final penalties to Cork County Council. As a result, the risk of environmental pollution from the treatment plant may be reduced.

Bathing Water Directive 76/160/EEC

The River Ross is not designated a Bathing Water under the Bathing Water Regulations, S.I. 178 of 1998 as amended.

Dangerous Substances Directive 2006/11/EC

The level of dangerous substances in both the effluent discharged from Killavullen wastewater treatment plant and the river itself is significantly lower than the concentration limits set in the directive.

Attachment G.1 should contain the most recent programme of improvements, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

Attachment included	Yes	No
		√

G.2 Compliance with Water Quality Standards for Phosphorus Regulations (S.I. No. 258 of 1998).

Provide details on a programme of improvements, including any water quality management plans or catchment management plans in place, to ensure that improvements of water quality required under the Water Quality Standards for Phosphorous Regulations (S.I. No. 258 of 1998) are being achieved. Provide details of any specific measures adopted for waste water works specified in Phosphorus Measures Implementation reports and the progress to date of those measures. Provide details highlighting any waste water works that have been identified as the principal sources of pollution under the P regulations.

Receiving Water Quality Requirement based on Phosphorus Regulations 2008

The effluent arising from the WWTP is discharge to the River Ross, which flows adjacent to the WWTP site boundary. The River Ross is a tributary of the Blackwater River (Munster).

The EPA have two number stations on the River Ross, upstream the Q value is 4, while downstream of the River the Q value is 4.

Effluent Standards

The treated effluent quality requirements are determined with respect to the EC Urban Wastewater Directive, given effect in Irish Law by S.I.254 of 2001. The wastewater treatment processes should reduce nutrients in the final effluent. The minimum effluent standard based on S.I.254 of 2001 for Phosphorus in wastewater effluent is 2mg/l.

As a natural consequence of secondary treatment, there will be an uptake of phosphorous for biomass synthesis at the wastewater treatment plant in Killavullen This is evident from Tables 3 &4 below showing the uptake of phosphorus through the wastewater treatment plant.

Table G2-3: Phosphorus Levels in Influent to WWTP

Parameter	Inlet Monitoring Station	
	21/1/09	28/1/09
Ortho-Phosphate	1.8	3.58

Table G2-4: Phosphorus Levels in Effluent from WWTP

Parameter	Outlet Monitoring Station	
	21/1/09	28/1/09
Ortho-Phosphate	1	1.96

Attachment G.2 should contain the most recent programme of improvements and any associated documentation requested under Section G.3 of the application.

Attachment included	Yes	No
		√

G.3 Impact Mitigation

Provide details on a programme of improvements to ensure that discharges from the agglomeration will not result in significant environmental pollution.

The WWTP was upgraded in 2000 to 1,000PE plant, there are currently no plans to upgrade the WWTP or carry out any improvements.

Attachment G.3 should contain the most recent programme of improvements, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

Attachment included	Yes	No
		√

G.4 Storm Water Overflow

Provide details on a programme of improvements to ensure that discharges other than the primary and secondary discharges comply with the definition of 'storm water overflow' as per Regulation 3 of the Waste Water Discharge (Authorisation) Regulations, 2007.

There are no overflows within the agglomeration other than those from the storm water overflow.

Attachment G.4 should contain the most recent programme of improvements, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

Attachment included	Yes	No
		√

SECTION H: DECLARATION

Declaration

I hereby make application for a waste water discharge licence/revised licence, pursuant to the provisions of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).

I certify that the information given in this application is truthful, accurate and complete.

I give consent to the EPA to copy this application for its own use and to make it available for inspection and copying by the public, both in the form of paper files available for inspection at EPA and local authority offices, and via the EPA's website.

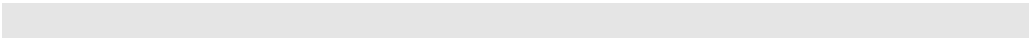
This consent relates to this application itself and to any further information or submission, whether provided by me as Applicant, any person acting on the Applicant's behalf, or any other person.

Signed by : _____ **Date :** _____
(on behalf of the organisation)

Print signature name: _____

Position in organisation: _____

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SECTION I: JOINT DECLARATION

Joint Declaration ^{Note1}

I hereby make application for a waste water discharge licence/revised licence, pursuant to the provisions of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).

I certify that the information given in this application is truthful, accurate and complete.

I give consent to the EPA to copy this application for its own use and to make it available for inspection and copying by the public, both in the form of paper files available for inspection at EPA and local authority offices, and via the EPA's website.

This consent relates to this application itself and to any further information or submission whether provided by me as Applicant, any person acting on the Applicant's behalf, or any other person.

Lead Authority

Signed by : _____ **Date :** _____
(on behalf of the organisation)

Print signature name: _____

Position in organisation: _____

Co-Applicants

Signed by : _____ **Date :** _____
(on behalf of the organisation)

Print signature name: _____

Position in organisation: _____

Signed by : _____ **Date :** _____
(on behalf of the organisation)

Print signature name: _____

Position in organisation: _____

Note 1: In the case of an application being lodged on behalf of more than a single water services authority the following declaration must be signed by all applicants.

SECTION H: DECLARATION

Declaration

I hereby make application for a waste water discharge licence/revised licence, pursuant to the provisions of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).

I certify that the information given in this application is truthful, accurate and complete.

I give consent to the EPA to copy this application for its own use and to make it available for inspection and copying by the public, both in the form of paper files available for inspection at EPA and local authority offices, and via the EPA's website.

This consent relates to this application itself and to any further information or submission, whether provided by me as Applicant, any person acting on the Applicant's behalf, or any other person.

Signed by : _____
(on behalf of the organisation)

Date : 16th June 2009.

Print signature name: T. STRITCH

Position in organisation: DIRECTOR OF SERVICES

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ANNEX 1: TABLES / ATTACHMENT

Attachment	Description
A1 Map 1	1:50,000 Location Map
A1 Map 2	Site Location of WWTP
A1 Map 3	Wastewater Treatment Plant – Site Layout
B1 Map 4	Agglomeration
B2 Map 5	Layout of Waste Water Treatment Plant
B3 Map 6	Location of Primary Discharge Point SW01 KILL
B3 Map 7	Location of Sampling Points
B4	Not Applicable
B5 Map 8	Location of Storm Water Overflow Point SW02 KILL
B6	Not Applicable
B7	Not Applicable
B8 Map 9	Location of Site Notice
B8	Notice & Advertisement
B10	WSIP Programme
B 11	Not Applicable
B 12	Not Applicable
C1 Map 10	Layout Wastewater Treatment Plant
C1 Drg 1	Schematic of Wastewater Treatment Plant
C2	Not Applicable
D1	Not Applicable
Section D2	Discharge Points
E2	Not Applicable
Section E3	Monitoring & Sampling Points
E4	Sampling Results
F1	Draft River basin Management Plan for the SWRBD SAC Blackwater River Site Synopsis
F2	Not Applicable
G1	SAC Blackwater River Site Synopsis
G2	Not Applicable
G3	Not Applicable
G4	Not Applicable

Agglomeration details

Leading Local Authority	Cork County Council
Co-Applicants	
Agglomeration	Killavullen
Population Equivalent	990
Level of Treatment	Secondary
Treatment plant address	Killavullen WWTP, Ballymacmoy, Killavullen, Co. Cork
Grid Ref (12 digits, 6E, 6N)	164897 / 099521
EPA Reference No:	

Contact details

Contact Name:	Frank Cronin
Contact Address:	Water Services Section Cork County Council Northern Division Anabella Mallow Co. Cork
Contact Number:	022-21723
Contact Fax:	022-21983
Contact Email:	Frank.cronin@corkcoco.ie

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Table D.1(i)(a): EMISSIONS TO SURFACE/GROUND WATERS (Primary Discharge Point)

Discharge Point Code: SW-1

Local Authority Ref No:	SW-01 KILL	
Source of Emission:	Killavullen Wastewater Treatment Plant	
Location:	Ballymacmoy, Killavullen, Mallow, Co. Cork	
Grid Ref (12 digits, 6E, 6N)	164915 / 099521	
Name of Receiving waters:	Ross	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	u/s of Salmonid River	
Flow Rate in Receiving Waters:	0.035	m ³ .sec ⁻¹ Dry Weather Flow
	0.07	m ³ .sec ⁻¹ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)		

Emission Details:

(i) Volume emitted			
Normal/day	220 m ³	Maximum/day	660 m ³
Maximum rate/hour	27.5 m ³	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.0025 m ³ /sec		

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Table D.1(i)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Primary Discharge Point)

Discharge Point Code: SW-1

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
pH	pH	Grab	= 9	
Temperature	°C	Grab	= 30	
Electrical Conductivity (@ 25°C)	µS/cm	Grab	= 1000	
Suspended Solids	mg/l	Grab	= 35	23.1
Ammonia (as N)	mg/l	Grab	= 0	0
Biochemical Oxygen Demand	mg/l	Grab	= 25	16.5
Chemical Oxygen Demand	mg/l	Grab	= 125	82.5
Total Nitrogen (as N)	mg/l	Grab	= 35	23
Nitrite (as N)	mg/l	Grab	= 0	0
Nitrate (as N)	mg/l	Grab	= 0	0
Total Phosphorous (as P)	mg/l	Grab	= 8	5.3
OrthoPhosphate (as P)	mg/l	Grab	= 6	4
Sulphate (SO ₄)	mg/l	Grab	= 0	0
Phenols (Sum)	µg/l	Grab	= 0	0

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper

For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent

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Table D.1(i)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Primary Discharge Point)

Discharge Point Code: SW-1

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
Atrazine	µg/l	Grab	= 0	0
Dichloromethane	µg/l	Grab	= 0	0
Simazine	µg/l	Grab	= 0	0
Toluene	µg/l	Grab	= 0	0
Tributyltin	µg/l	Grab	= 0	0
Xylenes	µg/l	Grab	= 0	0
Arsenic	µg/l	Grab	= 0	0
Chromium	µg/l	Grab	= 0	0
Copper	µg/l	Grab	= 0	0
Cyanide	µg/l	Grab	= 0	0
Flouride	µg/l	Grab	= 0	0
Lead	µg/l	Grab	= 0	0
Nickel	µg/l	Grab	= 0	0
Zinc	µg/l	Grab	= 0	0
Boron	µg/l	Grab	= 0	0
Cadmium	µg/l	Grab	= 0	0
Mercury	µg/l	Grab	= 0	0
Selenium	µg/l	Grab	= 0	0
Barium	µg/l	Grab	= 0	0

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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Table D.1(iii)(a): EMISSIONS TO SURFACE/GROUND WATERS (Storm Overflow)

Discharge Point Code: SW-2

Local Authority Ref No:	SW-02 KILL	
Source of Emission:	Emergency Overflow	
Location:	Ballymacmoy, Killavullen	
Grid Ref (12 digits, 6E, 6N)	164900 / 099503	
Name of Receiving waters:	Ross	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	u/s of Salmonid River	
Flow Rate in Receiving Waters:	0.035	m ³ .sec ⁻¹ Dry Weather Flow
	0.07	m ³ .sec ⁻¹ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)		

Emission Details:

(i) Volume emitted			
Normal/day	m ³	Maximum/day	m ³
Maximum rate/hour	m ³	Period of emission (avg)	min/hr hr/day day/yr
Dry Weather Flow	m ³ /sec		

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TABLE E.1(i): WASTE WATER FREQUENCY AND QUANTITY OF DISCHARGE – Primary and Secondary Discharge Points

Identification Code for Discharge point	Frequency of discharge (days/annum)	Quantity of Waste Water Discharged (m ³ /annum)
SW-1	365	80300

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TABLE E.1(ii): WASTE WATER FREQUENCY AND QUANTITY OF DISCHARGE – Storm Water Overflows

Identification Code for Discharge point	Frequency of discharge (days/annum)	Quantity of Waste Water Discharged (m ³ /annum)	Complies with Definition of Storm Water Overflow
SW-2			No

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TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1d
Grid Ref (12 digits, 6E, 6N)	165179 / 099631

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	10/04/08	24/09/08	09/10/08	23/10/08			
pH					Grab	2	Electrochemical
Temperature					Grab	0.5	electrochemical
Electrical Conductivity (@ 25°C)					Grab	0.5	Electrochemical
Suspended Solids					Grab	0.5	Gravimetric
Ammonia (as N)				< 0.01	Grab	0.02	Colorimetric
Biochemical Oxygen Demand					Grab	0.06	Electrochemical
Chemical Oxygen Demand					Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as CaCO ₃)					Grab	0	titrimetric
Total Nitrogen (as N)					Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0.013	colorimetric
Nitrate (as N)					Grab	0.04	Colorimetric
Total Phosphorous (as P)				< 0.2	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05	< 0.05	< 0.05	< 0.05	Grab	0.02	Colorimetric
Sulphate (SO ₄)				< 30	Grab	30	Turbidimetric
Phenols (Sum)					Grab	1	GS-MS 2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default setting of 01/01/09 and 0 where results are not available
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WWD Licence Application Annex I

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	08/01/09	21/01/09	28/01/09			
pH		= 7.5	= 7.5	= 7.6	Grab	2	Electrochemical
Temperature	= 0				Grab	0.5	electrochemical
Electrical Conductivity (@ 25°C)		= 192	= 154	= 145	Grab	0.5	Electrochemical
Suspended Solids		< 1	= 4	= 4	Grab	0.5	Gravimetric
Ammonia (as N)		= 0.07	< 0.05	< 0.01	Grab	0.02	Colorimetric
Biochemical Oxygen Demand		< 2	< 2	< 1	Grab	0.06	Electrochemical
Chemical Oxygen Demand		= 11	= 24	< 21	Grab	8	Digestion & Colorimetric
Dissolved Oxygen	= 0				Grab	0	ISE
Hardness (as CaCO ₃)	= 0				Grab	0	titrimetric
Total Nitrogen (as N)		= 2.5	= 2.4	= 2.3	Grab	0.5	Digestion & Colorimetric
Nitrite (as N)				= 0.00815	Grab	0.013	colorimetric
Nitrate (as N)				= 2.21	Grab	0.04	Colorimetric
Total Phosphorous (as P)		= 0.06	< 0.05	< 0.2	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)		= 0.06	< 0.05	< 0.05	Grab	0.02	Colorimetric
Sulphate (SO ₄)				< 30	Grab	30	Turbidimetric
Phenols (Sum)				< 0.1	Grab	1	GS-MS 2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default setting of 01/01/09 and 0 where results are not available
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Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	05/03/09						
pH					Grab	2	Electrochemical
Temperature					Grab	0.5	electrochemical
Electrical Conductivity (@ 25°C)					Grab	0.5	Electrochemical
Suspended Solids					Grab	0.5	Gravimetric
Ammonia (as N)					Grab	0.02	Colorimetric
Biochemical Oxygen Demand					Grab	0.06	Electrochemical
Chemical Oxygen Demand					Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as CaCO ₃)					Grab	0	titrimetric
Total Nitrogen (as N)					Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0.013	colorimetric
Nitrate (as N)					Grab	0.04	Colorimetric
Total Phosphorous (as P)					Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	= 0.19				Grab	0.02	Colorimetric
Sulphate (SO ₄)					Grab	30	Turbidimetric
Phenols (Sum)					Grab	1	GS-MS 2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default setting of 01/01/09 and 0 where results are not available
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TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1d
Grid Ref (12 digits, 6E, 6N)	165179 / 099631

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	23/10/08	01/01/09	08/01/09	21/01/09			
Atrazine					Grab	0.96	HPLC
Dichloromethane					Grab	1	GC-MS1
Simazine					Grab	0.01	HPLC
Toluene					Grab	0.02	GC-MS1
Tributyltin		= 0			Grab	0.02	GC-MS1
Xylenes					Grab	1	GC-MS1
Arsenic					Grab	0.96	ICP-MS
Chromium	< 20		< 20	< 20	Grab	20	ICP-OES
Copper	< 20		< 20	< 20	Grab	20	ICP-OES
Cyanide					Grab	5	Colorimetric
Flouride					Grab	100	ISE
Lead	< 20		< 20	< 20	Grab	20	ICP-OES
Nickel	< 20		< 20	< 20	Grab	20	ICP-OES
Zinc	< 20		< 20	< 20	Grab	20	ICP-OES
Boron	< 20		< 20	< 20	Grab	20	ICP-OES
Cadmium	< 20		< 20	< 20	Grab	20	ICP-OES
Mercury					Grab	0.2	ICP-MS
Selenium					Grab	0.74	ICP-MS
Barium	< 20		< 20	< 20	Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn TBT analysis not required
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Parameter	Results (µg/l)			Sampling method	Limit of Quantitation	Analysis method / technique
	28/01/09	05/03/09				
Atrazine	< 0.01			Grab	0.96	HPLC
Dichloromethane	< 0.1			Grab	1	GC-MS1
Simazine	< 0.01			Grab	0.01	HPLC
Toluene	< 1			Grab	0.02	GC-MS1
Tributyltin				Grab	0.02	GC-MS1
Xylenes	< 1			Grab	1	GC-MS1
Arsenic	< 0.96			Grab	0.96	ICP-MS
Chromium	< 20	< 20		Grab	20	ICP-OES
Copper	< 20	< 20		Grab	20	ICP-OES
Cyanide	< 5			Grab	5	Colorimetric
Flouride	= 270			Grab	100	ISE
Lead	< 20	< 20		Grab	20	ICP-OES
Nickel	< 20	< 20		Grab	20	ICP-OES
Zinc	< 20	< 20		Grab	20	ICP-OES
Boron	< 20	< 20		Grab	20	ICP-OES
Cadmium	< 20	< 20		Grab	20	ICP-OES
Mercury	< 0.2			Grab	0.2	ICP-MS
Selenium	= 0.9			Grab	0.74	ICP-MS
Barium	= 51	< 20		Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn TBT analysis not required
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TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1u
Grid Ref (12 digits, 6E, 6N)	164893 / 099427

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	10/04/08	24/09/08	09/10/08	23/10/08			
pH					Grab	2	Electrochemical
Temperature					Grab	0.5	electrochemical
Electrical Conductivity (@ 25°C)					Grab	0.5	Electrochemical
Suspended Solids					Grab	0.5	Gravimetric
Ammonia (as N)				< 0.1	Grab	0.02	Colorimetric
Biochemical Oxygen Demand					Grab	0.06	Electrochemical
Chemical Oxygen Demand					Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as CaCO ₃)					Grab	0	titrimetric
Total Nitrogen (as N)					Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0.013	colorimetric
Nitrate (as N)					Grab	0.04	Colorimetric
Total Phosphorous (as P)				< 0.2	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05	< 0.05	< 0.05	< 0.05	Grab	0.02	Colorimetric
Sulphate (SO ₄)				< 30	Grab	30	Turbidimetric
Phenols (Sum)					Grab	0.1	GC-MS 2

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For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default setting of 01/01/09 and 0 where results are not available
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Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	08/01/09	21/01/09	28/01/09			
pH		= 7.7	= 7.6	= 7.6	Grab	2	Electrochemical
Temperature	= 0				Grab	0.5	electrochemical
Electrical Conductivity (@ 25°C)		= 192	= 153	= 147	Grab	0.5	Electrochemical
Suspended Solids		< 1	< 1	= 3	Grab	0.5	Gravimetric
Ammonia (as N)		< 0.05	< 0.05	< 0.1	Grab	0.02	Colorimetric
Biochemical Oxygen Demand		< 2	< 2	< 1	Grab	0.06	Electrochemical
Chemical Oxygen Demand		= 9	= 7	< 21	Grab	8	Digestion & Colorimetric
Dissolved Oxygen	= 0				Grab	0	ISE
Hardness (as CaCO ₃)	= 0				Grab	0	titrimetric
Total Nitrogen (as N)		= 2.4	= 2.3	= 2.4	Grab	0.5	Digestion & Colorimetric
Nitrite (as N)				= 0.00811	Grab	0.013	colorimetric
Nitrate (as N)				= 2.23	Grab	0.04	Colorimetric
Total Phosphorous (as P)		= 0.05	< 0.05	< 0.2	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)		< 0.05	< 0.05	= 0.05	Grab	0.02	Colorimetric
Sulphate (SO ₄)				< 30	Grab	30	Turbidimetric
Phenols (Sum)				< 0.1	Grab	0.1	GC-MS 2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default setting of 01/01/09 and 0 where results are not available
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Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	05/03/09						
pH					Grab	2	Electrochemical
Temperature					Grab	0.5	electrochemical
Electrical Conductivity (@ 25°C)					Grab	0.5	Electrochemical
Suspended Solids					Grab	0.5	Gravimetric
Ammonia (as N)					Grab	0.02	Colorimetric
Biochemical Oxygen Demand					Grab	0.06	Electrochemical
Chemical Oxygen Demand					Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as CaCO ₃)					Grab	0	titrimetric
Total Nitrogen (as N)					Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0.013	colorimetric
Nitrate (as N)					Grab	0.04	Colorimetric
Total Phosphorous (as P)					Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05				Grab	0.02	Colorimetric
Sulphate (SO ₄)					Grab	30	Turbidimetric
Phenols (Sum)					Grab	0.1	GC-MS 2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default setting of 01/01/09 and 0 where results are not available
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TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1u
Grid Ref (12 digits, 6E, 6N)	164893 / 099427

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	23/01/08	23/10/08	01/01/09	08/01/09			
Atrazine					Grab	0.96	HPLC
Dichloromethane					Grab	1	GC-MS1
Simazine					Grab	0.01	HPLC
Toluene					Grab	0.02	GC-MS1
Tributyltin			= 0		Grab	0.02	GC-MS1
Xylenes					Grab	1	GC-MS1
Arsenic					Grab	0.96	ICP-MS
Chromium		< 20		< 20	Grab	20	ICP-OES
Copper		< 20		< 20	Grab	20	ICP-OES
Cyanide					Grab	5	Colormetric
Flouride					Grab	100	ISE
Lead		< 20		< 20	Grab	20	ICP-OES
Nickel		< 20		< 20	Grab	20	ICP-OES
Zinc		< 20		< 20	Grab	20	ICP-OES
Boron		< 20		< 20	Grab	20	ICP-OES
Cadmium		< 20		< 20	Grab	20	ICP-OES
Mercury					Grab	0.2	ICP-MS
Selenium					Grab	0.74	ICP-MS
Barium	< 20			< 20	Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn TBT analysis not required
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Parameter	Results (µg/l)			Sampling method	Limit of Quantitation	Analysis method / technique
	21/01/09	28/01/09				
Atrazine		< 0.01		Grab	0.96	HPLC
Dichloromethane		< 1		Grab	1	GC-MS1
Simazine		< 0.01		Grab	0.01	HPLC
Toluene		< 1		Grab	0.02	GC-MS1
Tributyltin				Grab	0.02	GC-MS1
Xylenes		< 1		Grab	1	GC-MS1
Arsenic		< 0.96		Grab	0.96	ICP-MS
Chromium	< 20	< 20		Grab	20	ICP-OES
Copper	< 20	< 20		Grab	20	ICP-OES
Cyanide		< 5		Grab	5	Colormetric
Flouride		= 23		Grab	100	ISE
Lead	< 20	< 20		Grab	20	ICP-OES
Nickel	< 20	< 20		Grab	20	ICP-OES
Zinc	< 20	< 20		Grab	20	ICP-OES
Boron	< 20	< 20		Grab	20	ICP-OES
Cadmium	< 20	< 20		Grab	20	ICP-OES
Mercury		< 0.2		Grab	0.2	ICP-MS
Selenium		< 0.74		Grab	0.74	ICP-MS
Barium	< 20	= 50		Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn TBT analysis not required
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Annex 2: Check List For Regulation 16 Compliance

Regulation 16 of the waste water discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007) sets out the information which must, in all cases, accompany a discharge licence application. In order to ensure that the application fully complies with the legal requirements of regulation 16 of the 2007 Regulations, all applicants should complete the following.

In each case, refer to the attachment number(s), of your application which contains(s) the information requested in the appropriate sub-article.

Regulation 16(1) In the case of an application for a waste water discharge licence, the application shall -		Attachment Number	Checked by Applicant
(a)	give the name, address, telefax number (if any) and telephone number of the applicant (and, if different, of the operator of any treatment plant concerned) and the address to which correspondence relating to the application should be sent and, if the operator is a body corporate, the address of its registered office or principal office,	B1	Yes
(b)	give the name of the water services authority in whose functional area the relevant waste water discharge takes place or is to take place, if different from that of the applicant,	Not Applicable	Yes
(c)	give the location or postal address (including where appropriate, the name of the townland or townlands) and the National Grid reference of the location of the waste water treatment plant and/or the waste water discharge point or points to which the application relates,	B2	Yes
(d)	state the population equivalent of the agglomeration to which the application relates,	Not Applicable	Yes
(e)	specify the content and extent of the waste water discharge, the level of treatment provided, if any, and the flow and type of discharge,	C,D	Yes
(f)	give details of the receiving water body, including its protected area status, if any, and details of any sensitive areas or protected areas or both in the vicinity of the discharge point or points likely to be affected by the discharge concerned, and for discharges to ground provide details of groundwater protection schemes in place for the receiving water body and all associated hydrogeological and geological assessments related to the receiving water environment in the vicinity of the discharge.	F1	Yes
(g)	identify monitoring and sampling points and indicate proposed arrangements for the monitoring of discharges and, if Regulation 17 does not apply, provide details of the likely environmental consequences of any such discharges,	E3	Yes
(h)	in the case of an existing waste water treatment plant, specify the sampling data pertaining to the discharge based on the samples taken in the 12 months preceding the making of the application,	E4	Yes
(i)	describe the existing or proposed measures, including emergency procedures, to prevent unintended waste water discharges and to minimise the impact on the environment of any such discharges,	Not Applicable	Yes
(j)	give particulars of the nearest downstream drinking water abstraction point or points to the discharge point or points,	Not Applicable	Yes
(k)	give details, and an assessment of the effects, of any existing or proposed emissions on the environment, including any environmental medium other than those into which the emissions are, or are to be made, and of proposed measures to prevent or eliminate or, where that is not practicable, to limit any pollution caused in such discharges,	F1	Yes
(l)	give detail of compliance with relevant monitoring requirements and treatment standards contained in any applicable Council Directives of Regulations,	E4	Yes
(m)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.	Not Applicable	Yes
(n)	Any other information as may be stipulated by the Agency.	Not Applicable	Yes
Regulation 16(3) Without prejudice to Regulation 16 (1) and (2), an application for a licence shall be accompanied by -		Attachment Number	Checked by Applicant
(a)	a copy of the notice of intention to make an application given pursuant to Regulation 9,		
(b)	where appropriate, a copy of the notice given to a relevant water services authority under Regulation 13,		
(c)	Such other particulars, drawings, maps, reports and supporting documentation as are necessary to identify and describe, as appropriate -		
(c) (i)	the point or points, including storm water overflows, from which a discharge or discharges take place or are to take place, and		
(c) (ii)	the point or points at which monitoring and sampling are undertaken or are to be undertaken,		
(d)	such fee as is appropriate having regard to the provisions of Regulations 38 and 39.		

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Regulation 16(4) An original application shall be accompanied by 2 copies of it and of all accompanying documents and particulars as required under Regulation 16(3) in hardcopy or in an electronic or other format as specified by the Agency.		Attachment Number	Checked by Applicant
1	An Original Application shall be accompanied by 2 copies of it and of all accompanying documents and particulars as required under regulation 16(3) in hardcopy or in electronic or other format as specified by the agency.		
Regulation 16(5) For the purpose of paragraph (4), all or part of the 2 copies of the said application and associated documents and particulars may, with the agreement of the Agency, be submitted in an electronic or other format specified by the Agency.		Attachment Number	Checked by Applicant
1	Signed original.		Yes
2	2 hardcopies of application provided or 2 CD versions of application (PDF files) provided.		Yes
3	1 CD of geo-referenced digital files provided.		Yes
Regulation 17 Where a treatment plant associated with the relevant waste water works is or has been subject to the European Communities (Environmental Impact Assessment) Regulations 1989 to 2001, In addition to compliance with the requirements of Regulation 16, an application in respect of the relevant discharge shall be accompanied by a copy of an environmental impact statement and approval in accordance with the Act of 2000 in respect of the said development and may be submitted in an electronic or other format specified by the Agency		Attachment Number	Checked by Applicant
1	EIA provided if applicable		Yes
2	2 hardcopies of EIS provided if applicable.		Yes
3	2 CD versions of EIS, as PDF files, provided.		Yes
Regulation 24 In the case of an application for a waste water discharge certificate of authorisation, the application shall –		Attachment Number	Checked by Applicant
(a)	give the name, address, telefax number (if any) and telephone number of the applicant and the address to which correspondence relating to the application should be sent and, if the operator of the waste water works is a body corporate, the address of its registered office or principal office		
(b)	give the name of the water services authority in whose functional area the relevant waste water discharge takes place or is to take place, if different from that of the applicant,		
(c)	give the location or postal address (including where appropriate, the name of the townland or townlands) and the National Grid reference of the location of the discharge point or points to which the application relates,		
(d)	state the population equivalent of the agglomeration to which the application relates,		
(e)	in the case of an application for the review of a certificate, specify the reference number given to the relevant certificate in the register		
(f)	specify the content and extent of the waste water discharge, the level of treatment provided and the flow and type of discharge,		
(g)	give details of the receiving water body, its protected area status, if any, and details of any sensitive areas or protected areas, or both, in the vicinity of the discharge point or points or likely to be affected by the discharge concerned,		
(h)	identify monitoring and sampling points and indicate proposed arrangements for the monitoring of discharges and of the likely environmental consequences of any such discharges,		
(i)	in the case of an existing discharge, specify the sampling data pertaining to the discharge based on the samples taken in the 12 months preceding the making of the application,		
(j)	describe the existing or proposed measures, including emergency procedures, to prevent unauthorised or unexpected waste water discharges and to minimise the impact on the environment of any such discharges,		
(k)	give particulars of the location of the nearest downstream drinking water abstraction point or points to the discharge point or points associated with the waste water works,		
(l)	give details of any designation under any Council Directive or Regulations that apply in relation to the receiving waters,		
(m)	give details of compliance with any applicable monitoring requirements and treatment standards,		
(n)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work,		
(o)	give any other information as may be stipulated by the Agency, and		
(p)	be accompanied by such fee as is appropriate having regard to the provisions of Regulations 38 and 39.		