

Environmental Protection Agency,
P.O.Box 3000,
Johnstown Castle Estate,
County Wexford.

Our Ref.: CB/BAGR/221209

22 December 2009

Re: Waste Water Discharge Certificate of Authorisation Application for the Ballinagree Agglomeration

Dear Sir/Madam,

Please find enclosed the Waste Water Discharge Certificate of Authorisation Application for the Ballinagree Agglomeration

The following are the documents enclosed as per the application guidance note.

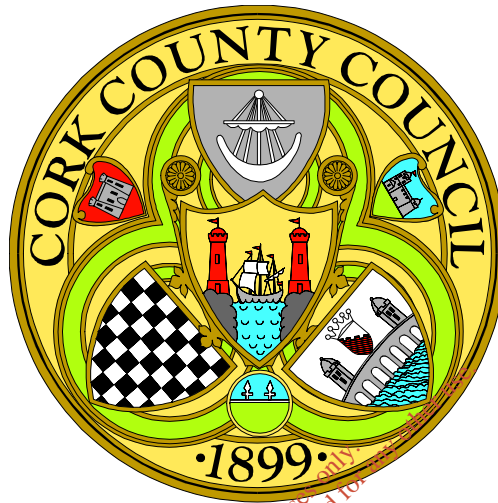
- 1 No. signed original hard copy.
- 1 No. copy of the signed original.
- 2 No. CD-ROMs with the documentation in electronic searchable PDF.
- 1 No. CD with Geo-referenced digital drawing files and tabular data templates.

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

Yours faithfully,

Patricia Power
Director of Services

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTE WATER DISCHARGE CERTIFICATE OF AUTHORISATION



Waste Water Discharge Certificate of Authorisation
Application for the agglomeration of **Ballinagree** under the
Wastewater Discharge Authorisation Regulations S.I. 684 of
2007.

Water Services Name: *Cork County Council, Southern Division.*

Category of Application: *< 500 PE.*

Submitted To: *Licencing Unit, Environmental Protection Agency,
Wexford.*

Date Application Lodged: *22nd December 2009*

This is a draft document and is subject to revision.



Waste Water Discharge Certificate of Authorisation 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.	12/06/2009	N/A	
V.2.	17/06/2009	<p>Delete reference to Design Build and Operate</p> <p>Delete the requirement to provide contact information for the associated waste water treatment plant</p> <p>Replace references to the Water Services investment Programme with the Small Schemes Programme</p> <p>Update references to new legislation</p> <p>Inclusion of the requirement to submit information on private WWTPs within the agglomeration.</p>	<p>To accurately reflect the information required for the small schemes programme</p> <p>To accurately reflect the information required and the scale of the waste water works</p> <p>To accurately reflect the information required for the small schemes programme</p> <p>To reflect changes in legislation</p> <p>To obtain an overview of all discharges within the agglomeration.</p>

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Environmental Protection Agency
Application for a Waste Water Discharge Certificate of Authorisation
Waste Water Discharge (Authorisation) Regulations, 2007.

CONTENTS

	Page
ABOUT THIS APPLICATION FORM	4
PROCEDURES	5
SECTION A: NON-TECHNICAL SUMMARY	7
SECTION B: GENERAL	10
SECTION C: INFRASTRUCTURE & OPERATION	17
SECTION D: DISCHARGES TO THE AQUATIC ENVIRONMENT	21
SECTION E: MONITORING	23
SECTION F: EXISTING ENVIRONMENT & IMPACT OF THE DISCHARGE(S)	26
SECTION G: PROGRAMMES OF IMPROVEMENTS	35
SECTION H: DECLARATION	37
SECTION I: JOINT DECLARATION	38

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ABOUT THIS APPLICATION FORM

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

The Application Form **must** be completed in accordance with the instructions and guidance provided in the *Waste Water Discharge Certificate of Authorisation Application Guidance Note*. The Guidance Note gives an overview of Waste Water Certificates of Authorisation, outlines the certification 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 Certificate of Authorisation must contain the information prescribed in the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). Regulation 24 of the Regulations sets out the statutory requirements for information to accompany a Certificate of Authorisation 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 with respect to Regulation 24 requirements, please complete the Regulation 24 Checklist provided in the following web based tool: http://78.137.160.73/epa_wwd_licensing/

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 Certificates of Authorisation, and for the processing of reviews of such Certificates, appears 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.

An application for a Certificate of Authorisation must be submitted on the appropriate form (available from the Agency website – <http://www.epa.ie/whatwedo/licensing/wwda/>) 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 (under notices provided for in the Regulations) 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 Certificate of Authorisation is an offence under the Waste Water Discharge (Authorisation) Regulations, 2007.

The provision of information in an application for a waste water discharge Certificate of Authorisation 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, where applicable, 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**

Non-Technical Summary

Ballinagree is located at the foot of the Boggeragh Mountains, just north of the Laney River, approximately 8 km north east of Macroom. The village is served by County Road L3418-55. In the overall strategy of this Local Area Plan, Ballinagree is designated as a village nucleus. The village has recently experienced a large amount of development.

The Waste Water Works and the activities carried out therein.

The sewer network in Ballinagree is quite limited. It runs roughly on a North-South Axis through the village. The catchment area includes; the Council estate located to the North of the village with 5 dwellings, Terence Mc Sweeney's development (05/3641) located to the West of the village with 4 dwellings built and finally through Carrig Rua (03/6487), the large development of 22 dwellings. As this sewer network has only been recently constructed, it is largely a separate system.

The WWTP has not been commissioned yet. It is being managed on an interim basis by Cork County Council. An operation and maintenance contract is being prepared and will be put out to tender as part of the WSIP Western Bundle.

The plant is comprised of the following;

- Inlet including an Automatic Inlet 6mm Fine Screen and a manually raked Emergency Bypass 6mm Bar Screen.
- Inlet Pump Sump complete with 2 No. Pumps (Duty/Standby)

- Storm Tank
- Compact Extended Activated Sludge (CAS) Unit complete with Aeration Compartment and Settlement Tank
- Chemical Phosphorous Removal System
- 2 No. Sand Filters (Culligan Filters)
- UV Disinfection System
- Sludge Holding Tank
- Outlet

Ballinagree WWTP is designed to have an ultimate design flow of 243m³/d (3 DWF) which is equivalent to a PE of 360.

The waste water gravitates to the inlet manhole. It then passes through the inlet screens and gravitates into the inlet pump sump, where it is pumped into the aeration compartment of the CAS unit. Here it is subjected to aerobic micro-organisms, which consume the biodegradable organic matter in the waste water. The waste water then gravitates to the settlement chamber of the CAS unit. This acts as a secondary clarifier, where solids gravitate to the bottom, leaving the supernatant which gravitates into the break tank. The supernatant is then pumped to the sand filters where it is fed into an area below the sand beds. As the water rises to the surface, the particles of dirt remain between the grains of sand. Once the water is above the sand bed it then falls by gravity to a UV disinfection unit. The treated effluent then falls by gravity to the Laney River, at the discharge point.

Solids from the bottom of the settlement chamber are pumped (by RAS pump) back into the aeration tank to re-circulate the sludge and maintain the quality of micro-organisms in the system. Surplus sludge from the bottom of the settlement chamber is pumped (by WAS pump) to the sludge holding tank. The supernatant from the sludge holding tank is pumped back to the inlet works to recycle through the process.

As the WWTP has not been commissioned there is no sampling or monitoring scheme in place.

Ballinagree Sewer Extension has been provisionally approved for funding from Cork County Council's 2009 revenue budget. This project will extend the sewer system through the village.

The sources of emissions from the waste water works.

The population load for the Ballinagree agglomeration arises from the following sources:

- Domestic Population
- Commercial Premises
- School
- Infiltration

Currently only domestic houses are connected to the sewerage system. However the proposed sewer extensions will collect the sewage from non-domestic premises and it will be treated in conjunction with the domestic waste at the WWTP. Ballinagree WWTP does not receive any other sludge imported from other municipal waste water sources or septic tanks.

Other potential emissions from the waste water treatment plant include;

- Odour generated from the treatment process – No recorded issues to date.
- Noise pollution – No recorded Issues to date.

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 discharges to the Laney River which is located to the east of the site. The average inflow to the plant is in the order of 56m³/day which is equivalent to a PE of 248.

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

Technology

Not applicable as Ballinagree WWTP is a new plant and no new technology is proposed.

Techniques

Ballinagree WWTP shall be operated and maintained in accordance with best practice and any performance requirements stipulated in the Employer's Requirements.

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

It is likely that under the operation and maintenance contract for the new WWTP, a Performance Management system will be required. Such a system would provide a uniform approach to dealing with management issues, including procedures for dealing with plant operation and in particular for dealing with emergencies or failure to meet treated effluent standards.

Failure to meet the specified treated effluent standards may result in financial penalties to the operating contractor. As a result, the risk of environmental pollution from the treatment plant should be reduced.

Measures planned to monitor emissions into the environment.

As Ballinagree WWTP has not been commissioned, no sampling is currently carried out on the influent or effluent. It is likely that under the Employers Requirements for Operation and Maintenance the Contractor will be obliged to implement in full, the requirements of a Performance Management System. In providing this service, the Contractor would monitor the waste water treatment plant assets and operation, which would include undertaking sampling, monitoring and analysis of the wastewater and Sludge. Cork County Council Environmental Department, Inniscarra has carried out some ambient monitoring in the Laney River as part of this application. The Laney River is monitored by the EPA, upstream at Carrigagulla Bridge and Downstream at Coppeleenbawn Bridge.

SECTION B: GENERAL

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

B.1 Agglomeration Details

Name of Agglomeration: Ballinagree

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 Certificate of Authorisation application relates. It should have the boundary of the agglomeration to which the Certificate of Authorisation application relates clearly marked in red ink.

Name*:	Cork County Council
Address:	County Hall
	Carrigrohane Road
	Cork
Tel:	021 4276891
Fax:	021 4276321
e-mail:	

*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*:	Patricia Power
Address:	Director of Services: Operational Water Services
	Floor 5 (Tower)
	County Hall
	Cork
Tel:	021 4285285
Fax:	021 4276321
e-mail:	Patricia.power@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 Certificate of Authorisation application.

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*:	Madeleine Healy
Address:	Ballynagree West
	Ballinagree
	Macroom
	Co. Cork
Grid ref (6E, 6N)	E 136781, N 080680
Level of Treatment	Tertiary

*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
	✓	

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.

Discharge to	Surface Water
Type of Discharge	Pipe to River (250mm Dia. PVC Pipe)
Unique Point Code	SW1BAGR
Location	Ballynagree West
Grid ref (6E, 6N)	E 137178, N 080415

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.

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

*Where a septic tank is in existence simultaneous to a package plant within an agglomeration, discharges from the septic tank shall be considered as a secondary discharge.

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	Pipe to River (250mm Dia. PVC Pipe)
Unique Point Code	SW2BAGR
Location	Ballynagree West

Grid ref (6E, 6N)	E 137178, N 080415
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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
	Carrigrohane Road
	Cork
Tel:	021 4276891
Fax:	021 4867007
e-mail:	planninginfo@corkcoco.ie

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

has been obtained	✓	is being processed	
is not yet applied for		is not required	

Local Authority Planning File Reference N^o:	03/6487
---	---------

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 Services Executive Southern Region
Address:	North Lee Local Heath Office
	Abbeycourt House
	George's Quay, Cork
Tel:	021 4965511
Fax:	
e-mail:	info@hse.ie

B. 8(i) Population Equivalent of Agglomeration

TABLE B.8.1 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	248
Data Compiled (Year)	2009
Method	House Counts and Population Data

Domestic Contribution

There are 42 existing dwellings within the agglomeration boundary.

Non Domestic Contribution

The non domestic contribution is made up of 2 Public Houses and 1 School.

Pending Development

A further 28 houses have been granted planning permission within the agglomeration boundary.

The total number of dwellings, existing and future is 70. Assuming that there are c2.8 persons per household (CSO Data), this gives a PE of 196. Assuming that the non-domestic contribution is 15% of the domestic, adds another PE of 29. This brings the total PE to 225. Finally an additional 10% should be added to the current figure over what already has been allowed, to account for further future development. This adds an additional PE of 23, resulting in a grand total of 248.

Presently only the Council Estate (5 Dwellings), Terence Mc Sweeney's development (4 Dwellings built so far) and the Carrig Rua development (5 Dwellings Approx. Occupied) discharge to the WWTP. However it is highly likely that this will increase, as more dwellings are connected to the sewerage system and as more of the unoccupied dwellings are sold.

B.8 (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 waters.

The PE of 248 obtained in the previous section includes the following; A PE of 78 from dwellings that may connect to the public sewer during the course of the licence (Planned), A PE of 23 which is an additional 10% allowance for future development. This allows for a total potential increase of up to 101PE during the course of the licence.

B.8 (iii) FEES

State the relevant Class of waste water discharge as per Regulation 5, 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 €)
	€3000

Appropriate Fee Included	Yes	No
		✓*

*please see copy of attached letter sent by registered post to Mr F. Clinton, Programme Manager , Licencing Unit EPA on December 18th 2009

B.9 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 small schemes programme) 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.

Ballinagree Sewer Extension has been provisionally approved for funding from Cork County Council's 2009 revenue budget. This project will extend the sewer system through the village.

Attachment B.9 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.10 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.

Not Applicable

Attachment B.10 should contain a summary of any relevant correspondence issued in relation to a Section 63 notice.

Attachment included	Yes	No
		✓

B.11 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.

Not Applicable

Attachment B.11 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.

C.1 Operational Information Requirements

Ballinagree is located at the foot of the Boggeragh Mountains, just north of the Laney River, approximately 8 km north east of Macroom. The village is served by County Road L3418-55. In the overall strategy of this Local Area Plan, Ballinagree is designated as a village nucleus. The village has recently experienced a large amount of development.

The sewer network in Ballinagree is quite limited. It runs roughly on a North-South Axis through the village. The catchment area includes; the Council estate located to the North of the village with 5 dwellings, the small new estate development located to the West of the village with 4 dwellings and finally through Carrig Rua, the large development of 22 dwellings. As this sewer network has only been recently constructed it is largely a separate system.

The plant is comprised of the following;

- Inlet including an Automatic Inlet 6mm Fine Screen and a manually raked Emergency Bypass 6mm Bar Screen.
- Inlet Pump Sump complete with 2 No. Pumps (Duty/Standby)
- Storm Tank
- Compact Extended Activated Sludge (CAS) Unit complete with Aeration Compartment and Settlement Tank
- Chemical Phosphorous Removal System
- 2 No. Sand Filters (Culligan Filters)
- UV Disinfection System
- Sludge Holding Tank
- Outlet

Ballinagree WWTP is designed to have an ultimate design flow of 243m³/d (3 DWF) which is equivalent to a PE of 360. The treatment plant will also meet the following discharge limit standards;

- BOD 10mg/l
- SS 10mg/l
- TP 1mg/l

Secondary Treatment

Under normal operating conditions all of the screened effluent enters the aeration compartment of the CAS unit, which has a capacity of 62.8m³. The aeration tank has 21 diffusion disks at the bottom of the tank. 2 air blowers supply these disks. The air blowers compress the air and blows it to the diffusion disks at the bottom of the tank. Fine air bubbles rise up through the waste water providing oxygen for the bacteria. The aeration tank walls are contoured to give efficient movement of the tank contents and prevent solids accumulation and settlement. The air blowers operate on Duty/Standby basis. The aeration tank is also supplied with a dissolved oxygen meter.

The waste water then gravitates through inlet ports to the settlement chamber of the CAS unit, which has a capacity of 20m³. This acts as a secondary clarifier, where solids gravitate to the bottom, leaving the supernatant which gravitates into the break tank via the V notch weir.

Solids from the bottom of the settlement chamber are pumped (by RAS pump) from the base of the clarifier back into the aeration tank to re-circulate the sludge and maintain the quality of micro-organisms in the system. Surplus sludge from the bottom of the settlement chamber is pumped (by WAS pump) to the sludge holding tank, which has a capacity of 15.9m³ or 2 weeks storage. The supernatant from the sludge holding tank is pumped back to the inlet works to recycle through the process.

Tertiary Treatment

The supernatant is then pumped to the sand filters where it is fed into an area below the sand beds. As the water rises to the surface, the particles of dirt remain between the grains of sand. Once the water is above the sand bed it is clean for further treatment.

Before discharge the effluent passes through a UV disinfection unit. Chemical dosing using ferric sulphate to remove phosphorous is also carried out in the aeration tank.

C.1.1 Storm Water Overflows

There is one Storm Water Overflow (SWO) associated with the WWTP. The inlet works incorporates a SWO which diverts Storm water to the Storm Tank. This has a capacity of 25m³, which gives it a retention time of 2.4hrs at 3DWF. Storm water flows are then discharged into the Laney River, via the primary discharge point.

There is no information regarding the frequency of storm water overflows, or the quantities discharged.

There are no designated bathing waters or salmonid waters affected by the SWOs. There is no existing drinking water abstraction point on the Laney River, however there was a historical proposal to provide an abstraction point on the Laney to supply Macroom town. This was proposed around 10 years ago. This is not currently under consideration and it is highly unlikely that it will ever be implemented given the investment that has taken place in the existing Macroom Water Plant and system. There are 2 other abstraction points on the Lee River. These are located downstream of the primary discharge point and are at Inniscarra Reservoir and at Lee Road Waterworks. These are approximately 36km and 49km respectively downstream of the primary discharge point. Therefore the quality standards or objectives for the aquatic environment considered in the DoEHLG "Procedures and Criteria in Relation to Storm Water Overflows" (1995) apply.

Given that the sewerage system is largely a separate system, and that WWTP is designed to cope with 3DWF and that a storm holding tank with a capacity of 25m³, which gives it a retention time of 2.4hrs at 3DWF is provided it is highly likely that the 80% minimum storm water containment level required, will be achieved. (As detailed in the DoEHLG "Procedures and Criteria in Relation to Storm Water Overflows" (1995) in Section 3.3 Sensitive areas").

The DoEHLG "Procedures and Criteria in Relation to Storm Water Overflow" (1995), provides assessment criteria for existing SWOs. These criteria are discussed below;

1. Determine if the SWO causes significant visual or aesthetic impact and public complaints.

As the WWTP has not yet been commissioned, there are no records of public complaints regarding the SWOs to date.

2. Determine if the SWO causes deterioration in water quality of the receiving water.

As the WWTP has not yet been commissioned, and as the SWO at the WWTP is connected to the primary discharge point, there is no specific data regarding the overflows from the septic tank.

3. Determine if the SWO gives rise to failure in meeting the requirements of National Regulations on foot of EU Directives (Bathing Waters etc).

As the WWTP has not yet been commissioned, there is no information available regarding the quality of the SWOs, therefore and assessment cannot be made.

4. Determine if the SWO operates in dry weather.

Given that the WWTP is newly built and that only a fraction of the design capacity is being used it is highly unlikely that the SWO operates in dry weather.

C.1.2 Pumping Stations

Number of duty and standby pumps at each pump station;

After the waste water passes through the inlet screens, it gravitates into the inlet pump sump, where it is pumped into the aeration compartment of the CAS unit. There are 2 DGO 200/2/80 AOCT pumps, one duty the other standby in this pumping station. The pumps have a duty capacity of 8Ltr/s.

The measures taken in the event of power failure;

Not Applicable, as the operation and maintenance arrangements are not in place yet.

Details of storage capacity at each pump station;

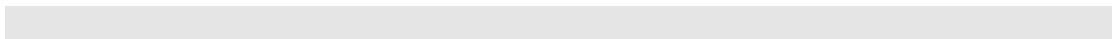
Approximately 2.5 hours storage capacity is provided in the pumping station.

Frequency and duration of activation of emergency overflow to receiving waters. Clarify the location where such discharges enter the receiving waters.

Not Applicable, as the WWTP has not been commissioned yet.

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
	✓	



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 discharges 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 'Emissions to Surface/Groundwaters and 'Dangerous Substances Emissions' 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(i) 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 'Discharge Point Details', 'Emissions to Surface/Groundwaters and 'Dangerous Substances Emissions', should be completed for the primary discharge point from the agglomeration and for **each** secondary discharge point, where relevant. Table 'Discharge Point Details' 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 waste water treatment plant this data should also be provided in response to Section D.1(i).

Supporting information should form **Attachment D.1(i)**

Attachment included	Yes	No
		✓

D.1(ii) Discharges to Groundwater

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 'Discharge Point Details', 'Emissions to Surface/Groundwaters and 'Dangerous Substances Emissions', should be completed for the primary discharge point from the agglomeration and for **each** secondary discharge point, where relevant. Table 'Discharge Point Details' 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 waste water treatment plant this data should also be provided in response to Section D.1(ii).

Supporting information should form **Attachment D.1(ii)**

Attachment included	Yes	No
		✓

D.1 (iii) Private Waste Water Treatment Plants

Provide information on all independently owned/operated private waste water treatment plants operating within the agglomeration. Submit a copy of the Section 4 discharge licence issued under the Water Pollution Acts 1977 to 1990, as amended for each discharge.

Not Applicable

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
SW1BAGR	Primary	Cork County Council	River	Laney River	None	137178	080415
SW2BAGR	Storm Water	Cork County Council	River	Laney River	None	137178	080415

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.

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 'Discharge Point Details' 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 'Discharge Point Details' 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 monitoring.

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 discharge and its effect on the receiving environment should be considered.

E.2 Monitoring in respect of Ballinagree Waste Water Discharge Licence Application Form

As the treatment plant has not yet been commissioned, there is no monitoring system currently in place. For the purposes of this application samples were collected at the outlet and at an ambient monitoring points and tested by the Environmental Directorate of Cork County Council.

General Laboratory Information

The Wastewater Laboratory of Cork County Council is accredited for a number of analytical tests under the Irish National Accreditation Board (INAB) under the ISO 17025 international standard. The details of the Accreditation can be found in Attachment E.2. The Wastewater Laboratory of Cork County Council is currently accredited for the following parameters under the ISO 17025 system:

- pH
- Biochemical Oxygen Demand
- Chemical Oxygen Demand
- Suspended Solids
- Ammonia

- Ortho Phosphates
- Total Phosphates
- Chloride
- Sulphate

The laboratory performs a number of analytical tests e.g. fats, oil , grease and metals using an ICP-OES system and while the Wastewater Laboratory of Cork County Council is not currently accredited for extra tests the same analytical procedures and protocol are adhered to by the laboratory as would be required if the tests were accredited. The laboratory also participates in proficiency testing schemes which measure the accuracy of the results and performance of the laboratory in both the EPA scheme and the WRC Aquacheck scheme from the UK. The performance of the laboratory in these schemes is excellent and the non-accredited tests are within the performance criteria for the schemes as evaluated by the scheme coordinators.

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
SW1	Primary Discharge		136806 E	080679 N	Y
aSW-1u	Ambient	S	138964 E	082998 N	Y
aSW-1d	Ambient	S	136847 E	079954 N	Y

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 24(i) of the Waste Water Discharge (Authorisation) Regulations 2007 requires all applicants in the case of an existing discharge 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 24(m) 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
	✓	

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

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

Clear and concise 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) and/or the ambient environmental conditions of the groundwater upgradient and downgradient of any discharges.

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. Impact on Receiving Surface water or Groundwater

- Details of monitoring of the receiving surface water should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details' 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 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details'. Monitoring of surface water shall be carried out at not less than two points, one upstream from the discharge location and one downstream.
- Details of monitoring of the receiving ground water should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details' should be completed for the primary discharge point. Ground water monitoring locations upgradient and down gradient of the discharge point shall be screened for those substances listed in Tables 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details'. Monitoring of ground water shall be carried out at not less than two points, one upgradient from the discharge location and one downgradient.
- For discharges from secondary discharge points Tables 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details' should be completed.
- 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 surface or groundwater.

Existing Environment & Impact of Discharges

The Laney River (Water Body Code IE_SW_19_885, EPA River Code 19L01) is contained within Hydrometric Area 19 and is located entirely in the Lee Catchment in County Cork. The Laney River is derived from a number of small feeder streams, which arise in the foothills of the Boggeragh Mountains. The river is approximately 19km long and it generally flows south towards Macroom. It joins the Sullane approximately 1km East of Macroom. The Sullane is a tributary of the Lee River. The Sullane River flows for 37km in an easterly direction through Ballyvourney and Macroom and into Carrigdrohid Reservoir.

The Laney River has "Good" status and has been classified as being "Not at Risk" or strongly expected to achieve good status by 2015 under the Water Framework Directive Article 5 Characterisation (2004).

The 1998 Phosphorus Regulations set targets for phosphorus levels and biological quality (Q-values) for rivers and lakes. Where water quality is satisfactory it must be maintained and where water quality is unsatisfactory it must be improved. For levels of phosphorus the baseline Q-value determines the median molybdate-reactive phosphorus (MRP) to be achieved.

Water quality in the Laney River is monitored by the EPA. EPA monitoring station 19L010200 is located at Copeleenbawn Bridge, approximately 2.4km downstream of Ballinagree WWTP primary discharge point. The sampling results show that the Laney River has maintained an "Unpolluted" status since 2002. Water quality at this station has been satisfactory since 2002 with a base Q-value of 4-5. Eutrophication is unlikely to occur in water bodies with a biological quality rating of Q4 or higher. The monitoring results are shown in **Table F1.1**.

Station	2002	2005
19L010200	4-5	4-5

Table F1.1.

The WWTP removes phosphorous using biological treatment and a final polishing using chemical dosing of ferric sulphate. This should result in a TP limit of 1mg/l in the discharged effluent.

The River Laney is not designated as salmonid water under the European Communities (Quality of Salmonid Waters Regulations, 1988 (S.I. No. 293/1988)) however a population of freshwater mussel (*Margaritifera margaritifera*) is known to exist within the Laney River and this species is protected under Irish and European Legislation. Of particular note is its listing in Annex II of the Habitats Directive. The Laney River also holds a large stock of brown trout and is used for spawning.

Schedule 5 of the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009) sets out "Criteria for Calculating Surface Water Ecological Status and Ecological Potential." These are summarised for river water bodies in **Table F1.2 below**.

Biological quality elements	Classification system	Ecological quality ratio	CCC Sampling Data Ambient Monitoring Point aSW-1d
		High-Good boundary	
		Rivers (All Types)	
Benthic invertebrate fauna	Quality rating system (Q-value)	0.85	-
Phytobenthos	Trophic diatom index (TDI)	0.93	-
Thermal conditions		River water body	CCC Sampling Data
Temperature		Not greater than 1.5°C rise in ambient temperature outside the mixing zone	-
Oxygenation conditions		River water body	CCC Sampling Data
Biochemical Oxygen Demand (BOD) (mgO ₂ /l)		Good status ≤1.3 (mean) or ≤2.2(95%ile)	<1
Dissolved oxygen lower limit		95%ile >80% Saturation	-
Dissolved oxygen upper limit		95%ile <120% Saturation	
Acidification Status		River Water Body	CCC Sampling Data
pH (individual values)		Soft Water 4.5 < pH < 9.0 Hard Water 6.0 < pH < 9.0	6.9
Nutrient conditions		River Water body	CCC Sampling Data
Total Ammonia (mg N/l)		Good status ≤0.065 (mean) or ≤0.090 (95%ile)	<0.1 (Limit of Detection)
Molybdate Reactive Phosphorus (MRP) (mg P/l)		Good status ≤0.035 (mean) or ≤0.075 (95%ile)	<0.05 (Limit of Detection)

Table F1.2 Criteria for Calculating Surface Water Ecological Status and Ecological Potential

- 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.

Cork County Council have monitored for the main polluting substances, as part of this application, as defined in the Dangerous Substances Regulations, 2001 (S.I. No. 12/2001). The results are presented in **Attachment E**.

- In circumstances where drinking water abstraction points exist downstream/down gradient 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.

There is no existing drinking water abstraction point on the Laney River, however there was a historical proposal to provide an abstraction point on the Laney to supply Macroom town. This was proposed around 10 years ago. This is not currently under consideration and it is highly unlikely that it will ever be implemented given the investment that has taken place in the existing Macroom Water Plant and system.

The only other abstraction points downstream of the primary discharge point are at Inniscarra Reservoir and at Lee Road Waterworks. These are located

approximately 36km and 49km respectively downstream. Furthermore the WWTP includes tertiary treatment or effluent polishing, which includes a UV disinfection system. This is an Aquafine unit, Type: HX02BDLU. This unit has a throughput of 10.15m³/hr.

- 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)

Assessment of Relevant Legislation Applicable to Ballinagree Discharge

The following assesses the relevant European Union Directives and Irish Statutory Legislation that is applicable to the discharge standards at Ballinagree.

- 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 (Not applicable),
- Drinking Water Directives 80/778/EEC (Not applicable),
- Urban Waste Water Treatment Directive 91/271/EEC,
- Habitats Directive 92/43/EEC,

- Bathing Water Directive 76/160/EEC, and
- Shellfish Waters Directive 79/923/EEC.

Dangerous Substances Directive 2006/11/EC

Council Directive 2006/11/EC recognises the need for action to be taken by member states to protect the aquatic environment from pollution, in particular that caused by certain persistent, toxic and bioaccumulable substances. The discharge from Ballinagree is primarily from domestic sources. Cork County Council has monitored for the main polluting substances, as part of this application, as defined in the Dangerous Substances Regulations, 2001 (S.I. No. 12/2001). The results are presented in **Attachment E**.

Water Framework Directive 2000/60/EC

The objectives of the Water Framework Directive (WFD) are to protect all high status waters, prevent further deterioration of all waters and to restore degraded surface and ground water status by 2015. Cork County Council carried out some limited monitoring on the outlet flows to measure compliance against the relevant standards. Ambient monitoring was also carried out on the Laney River (for this application). A copy of the Water Quality Management Plan for this area has been included in **Attachment F**.

Birds Directive 79/409/EEC

The directive aims to conserve and manage populations of wild birds throughout Europe partly through the designation of Special Protection Areas (SPA) for birds and their habitats. The primary discharge point is located approximately 4km West of Mullaganish to Musheramore Mountains SPA (site code 004162). The site synopsis for this SPA is included in **Attachment F**. Given this distance and the higher elevation of this SPA, it is highly unlikely to be affected by the discharge from the WWTP.

Groundwater Directives 80/68/EEC & 2006/118/EC

Not Applicable as there are no discharges to groundwater.

Drinking Water Directives 80/778/EEC

In view of the importance for public health of water for human consumption, it is necessary to lay down quality standards with which such water must comply. Table E of Annex I of the directive lays down the Microbiological parameters that must be adhered to. The WWTP includes tertiary treatment or effluent polishing, which includes a UV disinfection system.

The Urban Waste Water Treatment Directive 91/271/EEC and Amendment Directive 98/15/EEC

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

Article 7 (a) states that "Member States shall ensure that, by 31 December 2005, urban waste water entering collecting systems shall before discharge be subject to appropriate treatment as defined in Article 2 (9) in the following cases:

- for discharges to fresh-water and estuaries from agglomerations of less than 2 000 PE.,
- for discharges to coastal waters from agglomerations of less than 10,000 PE.”

Appropriate treatment is described as that which will allow compliance with other relevant Directives.

When the WWTP is commissioned it will have a PE of 248. Furthermore it has been designed so that the final effluent will comply with the following discharge limits: BOD 10mg/l, SS 10mg/l and TP 1mg/l. These meet the requirements of the UWWT Regs.

Habitats Directive 92/43/EEC

The aim of this Directive is to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora. There are no SACs designated in the vicinity of the primary discharge.

Bathing Water Directive 79/160/EEC

Council Directive (76/160/EEC 1975), concerning bathing water quality and the associated Bathing Water Regulations (S.I. No 177 of 1998) lay down quality requirements for inland and coastal waters designated bathing areas. The quality standards rely predominantly on microbiological parameters. The purpose is to ensure that bathing water quality is maintained and if necessary improved so that it complies with specified standards designated to protect health and the environment. There are no designated bathing areas located in the vicinity of the primary discharge.

EU Shellfish Waters Directive (79/923/EEC); and EU Directive on Health Conditions and the Placing on the Market of live Bivalve Molluscs (91/67/EEC) and associated amendments

There are two main EU directives relating to Shellfish Waters. These are the Shellfish Directives (79/923/EEC) as implemented by the Quality of Shellfish Waters Regulations 2006 (S.I. No 268 of 2006), and the Directive on Health Conditions and the placing on the market of Live Bivalve Molluscs (91/67/EEC) and its associated amendments. There are no designated shellfish waters in the vicinity of the primary discharge.

Assimilative Capacity of the Receiving Water

Mass Balance Equation for Orthophosphates:

Median flow of River (SWRBD) = 0.9812m³/sec
 Median OPO₄-P in River (upstream) = 0.05mg/l
 Average volume of discharge = 0.00065m³/sec
 Median value for OPO₄-P in discharge = 1.0mg/l

$$C_{\text{final}} = \frac{(0.9812 \times 0.05) + (0.00065 \times 1.0)}{(0.9812 + 0.00065)}$$

$$C_{\text{final}} = 0.0506\text{mg/l OPO}_4\text{-P}$$

The increase in Orthophosphate due to the discharge of Ballinagree WWTP is 0.0006 mg/l.

Mass Balance Equation for BOD:

Flow of River (95%ile) = 0.1973m³/sec
Median BOD in River (upstream) = 1.0mg/l
Average volume of discharge = 0.00065m³/sec
Median value for BOD in discharge = 25.0mg/l

$$C_{\text{final}} = \frac{(0.1973 \times 1.0) + (0.00065 \times 25)}{(0.1973 + 0.00065)}$$

$$C_{\text{final}} = 1.08\text{mg/l BOD}$$

The increase in BOD due to the discharge of Ballinagree WWTP is 0.08mg/l.

Mass Balance Equation for Suspended Solids:

Flow of River (95%ile) = 0.1973m³/sec
Median SS in River (upstream) = 2.5 mg/l
Average volume of discharge = 0.00065m³/sec
Median value for SS in discharge = 35.0mg/l

$$C_{\text{final}} = \frac{(0.1973 \times 2.5) + (0.00065 \times 35)}{(0.1973 + 0.00065)}$$

$$C_{\text{final}} = 2.607\text{mg/l Suspended Solids}$$

The increase in Suspended Solids due to the discharge of Ballinagree WWTP is 0.107mg/l.

Mass Balance Equation for Total Phosphates:

Median Flow of River (SWRBD) = 0.9812m³/sec
Median TP-P in River (upstream) = 0.05mg/l
Average volume of discharge = 0.00065m³/sec
Median value for TPO4-P in discharge = 2.0mg/l

$$C_{\text{final}} = \frac{(0.9812 \times 0.05) + (0.00065 \times 2.0)}{(0.9812 + 0.00065)}$$

$$C_{\text{final}} = 0.0513\text{mg/l Total Phosphates}$$

The increase in Total Phosphates due to the discharge of Ballinagree WWTP is 0.0013mg/l.

Mass Balance Equation for Total Nitrogen:

Flow of River (95%ile) = 0.1973m³/sec
Median Total Nitrogen in River (upstream) = 1.04mg/l
Average volume of discharge = 0.00065m³/sec
Median value for Total Nitrogen in discharge = 15.0mg/l

$$C_{\text{final}} = \frac{(0.1973 \times 1.04) + (0.00065 \times 15)}{(0.1973 + 0.00065)}$$

$$C_{\text{final}} = 1.086\text{mg/l Total Nitrogen}$$

The increase in Total Nitrogen due to the discharge of Ballinagree WWTP is 0.046mg/l.

Mass Balance Equation for Sulphates:

Flow of River (95%ile) = 0.1973m³/sec
 Median Sulphates in River (upstream) = 30.0mg/l
 Average volume of discharge = 0.00065m³/sec
 Median value for Sulphates in discharge = 80.0mg/l

$$C_{\text{final}} = \frac{(0.1973 \times 30) + (0.00065 \times 80)}{(0.1973 + 0.00065)}$$

C_{final} = 30.16mg/l Sulphates

The increase in Sulphates due to the discharge of Ballinagree WWTP is 0.16mg/l.

Mass Balance Equation for Ammonia-N:

Flow of River (95%ile) = 0.1973m³/sec
 Median Ammonia in River (upstream) = 0.1mg/l
 Average volume of discharge = 0.00065m³/sec
 Median value for Ammonia in discharge = 8.0mg/l

$$C_{\text{final}} = \frac{(0.1973 \times 0.1) + (0.00065 \times 8.0)}{(0.1973 + 0.00065)}$$

C_{final} = 0.126mg/l Total Ammonia

The increase in Ammonia due to the discharge of Ballinagree WWTP is 0.026mg/l.

- This section should also contain details of any modelling of discharges from the agglomeration. Any other relevant information on the receiving environment should be submitted as **Attachment F.1.**

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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_SE RVED	ABS_VOL	PT_CD	DIS_DS	EASTING	NORTHING	VERIFIED
SW_Lee288Main _Lee_Lower,LWB : Inniscarra Reservoir	Cork Harbour and City	35323	-	36000	153489	072309	N
SW_Lee288Main _Lee_1Lower	Cork City	49600	-	49000	164738	071444	N

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.

Attachment F.2 should contain any supporting information.

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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 (2006/113/EC).

Not Applicable as there is no programme of improvements planned.

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 the European Communities Environmental Objectives (Surface Waters) Regulations 2009

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 European Communities Environmental Objectives (Surface Waters) Regulations 2009 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 previously identified as the principal sources of pollution under the Phosphorous Regulations (S.I. No. 258 of 1998).

Not Applicable as there is no programme of improvements planned.

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.

Not Applicable as there is no programme of improvements planned.

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 Overflows

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.

Not Applicable as there is no programme of improvements planned.

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
		✓

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SECTION H: DECLARATION

Declaration

I hereby make application for a waste water discharge Certificate of Authorisation/revised Certificate of Authorisation, 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 : _____

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 Certificate of Authorisation /revised Certificate of Authorisation, 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.

TABLE OF CONTENTS

ATTACHMENTS FOR BALLINAGREE APPLICATION

Section A

A1_Map1(Location Plan of WWTP)
A1_Map2(Location WWTP)

Section B

B1_Map3(Agglomeration Boundary)
B2_Map4(Location Plan of WWTP)
B2_Map5(Locat. Of Up & Downstream Sample Pt)
B3_Map6(Location Of Primary Disc Pt)
B3_Map7(Locat. Of Up & Downstream Sample Pt)
B5_Map8(Location of Storm Water Overflow Pt)
B5_Map9(Locat. Of Up & Downstream Sample Pt)
Attachment B6 Planning Permission 03-6487
Attachment B6 Ecological Assessment 141009
Attachment B9 Capital Investment Programme

Section C

C1_Dwg 01(Operational Info WWTP Plan)

Section D

No Attachments

Section E

Attachment E2 CCC Inniscarra Lab Accreditation Section E 240809
Attachment E4 Ballinagree Analytical Data 161209

Section F

Attachment F1 Laney River Report WFD 011009
Attachment F1 Mullaganish SPA Site Synopsis 004162 051009

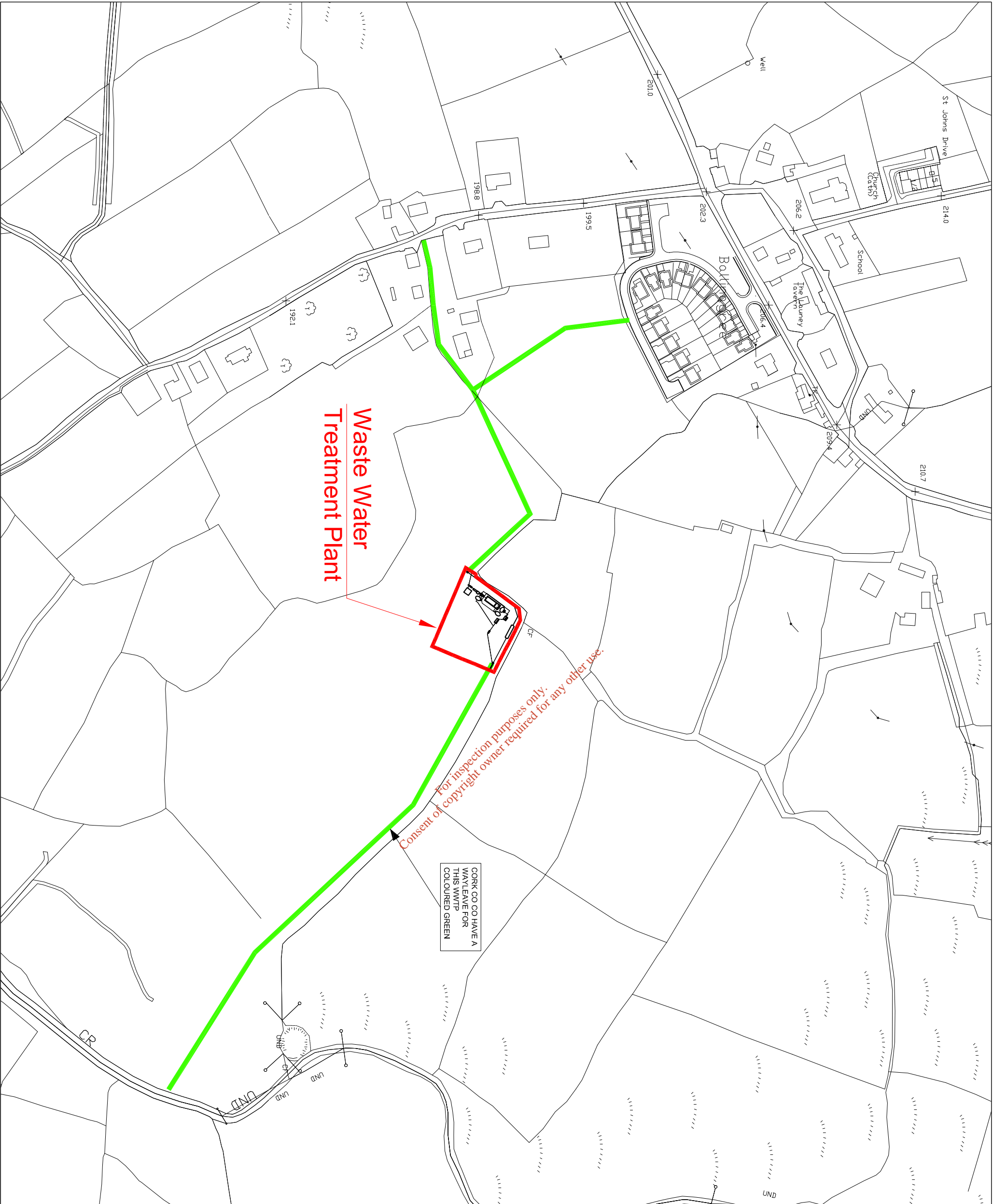
Section G

No Attachments

Online Data

Online Tables Ballinagree 161209

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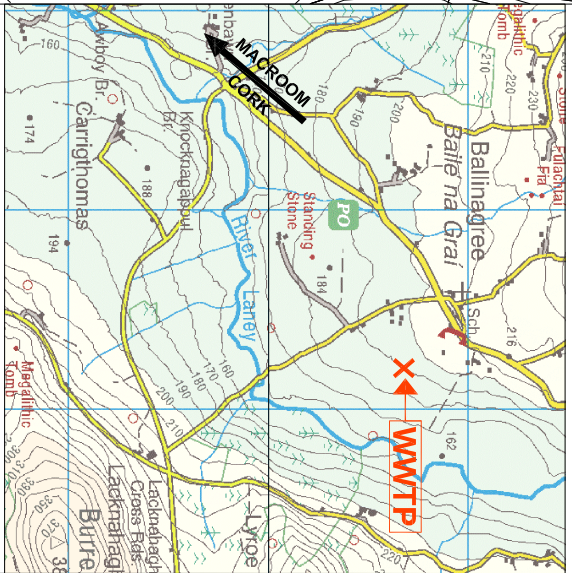
CORK CO CO HAVE A
WAY LEAVE FOR
THIS WWTP
COLOURED GREEN

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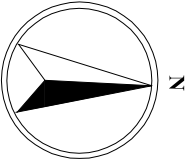
Waste Water
Treatment Plant

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Key Map
Not to Scale
OS Number: 1208
1206



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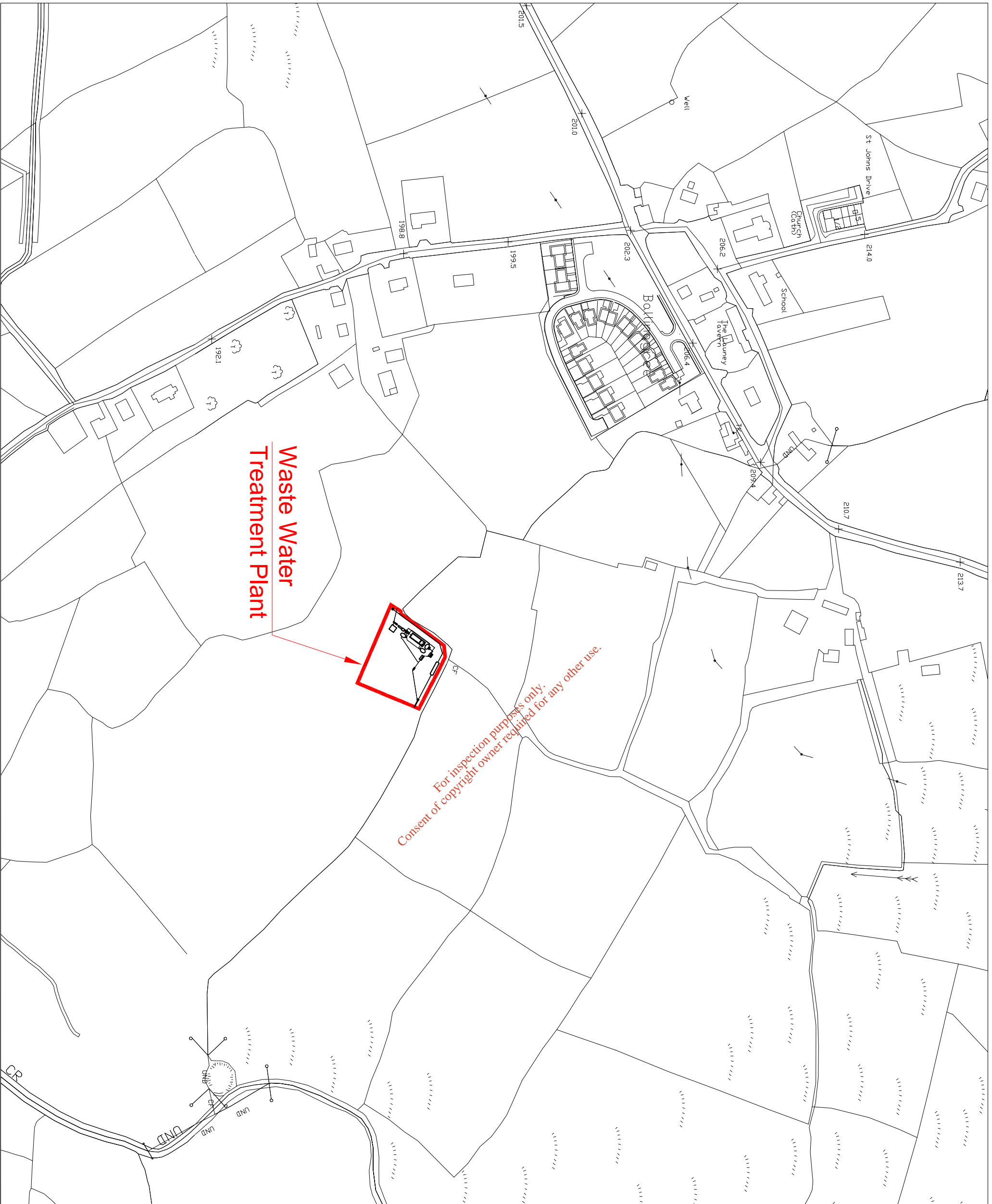
Ned O Keefe, B.E. C.Eng. F.Eng. F.I.E.M.C.E.
County Engineer
County Hall, Cork

Patricia Power,
Director of Services,
Area Operations South

Project: BALLINAGREE WWTP
WWTP WASTE WATER
DISCHARGE LICENCE APPLICATION

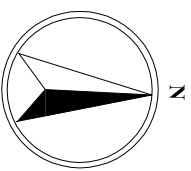
Title: Application Form
Attachment A1_Map1
Location Plan of Waste Water Treatment Plant

Designed: CB	Checked: MH	Scale: 1:5,000 @ A3	Drawing No: A1_Map1
Drawn: MM	Approved: MH	Date: NOV 09	Rev: 0
File Path:			



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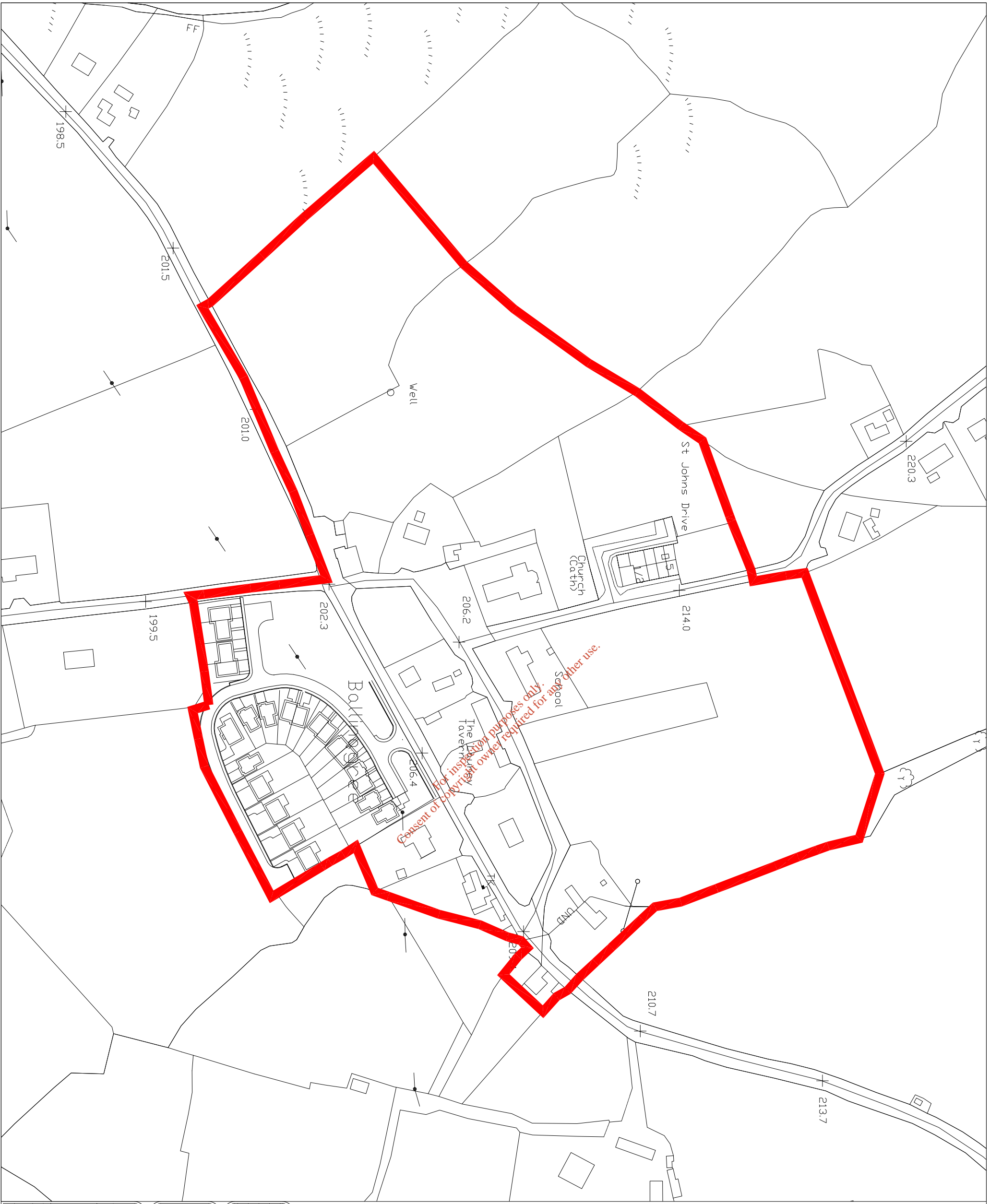
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Noel O'Keefe, B.E. CEng. Eur Ing F.I.E.M.I.C.E.
County Engineer
County Hall, Cork.
Patricia Power,
Director of Services,
Area Operations South

Rev.	Date	By	Description

Project: **BALLINAGREE WWTP
WWTP WASTE WATER
DISCHARGE LICENCE APPLICATION**

Title: **Application Form
Attachment A1_Map2
Location of WWTP**

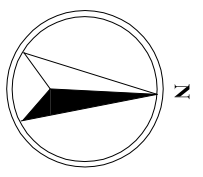
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**AGGLOMERATION
BOUNDARY**



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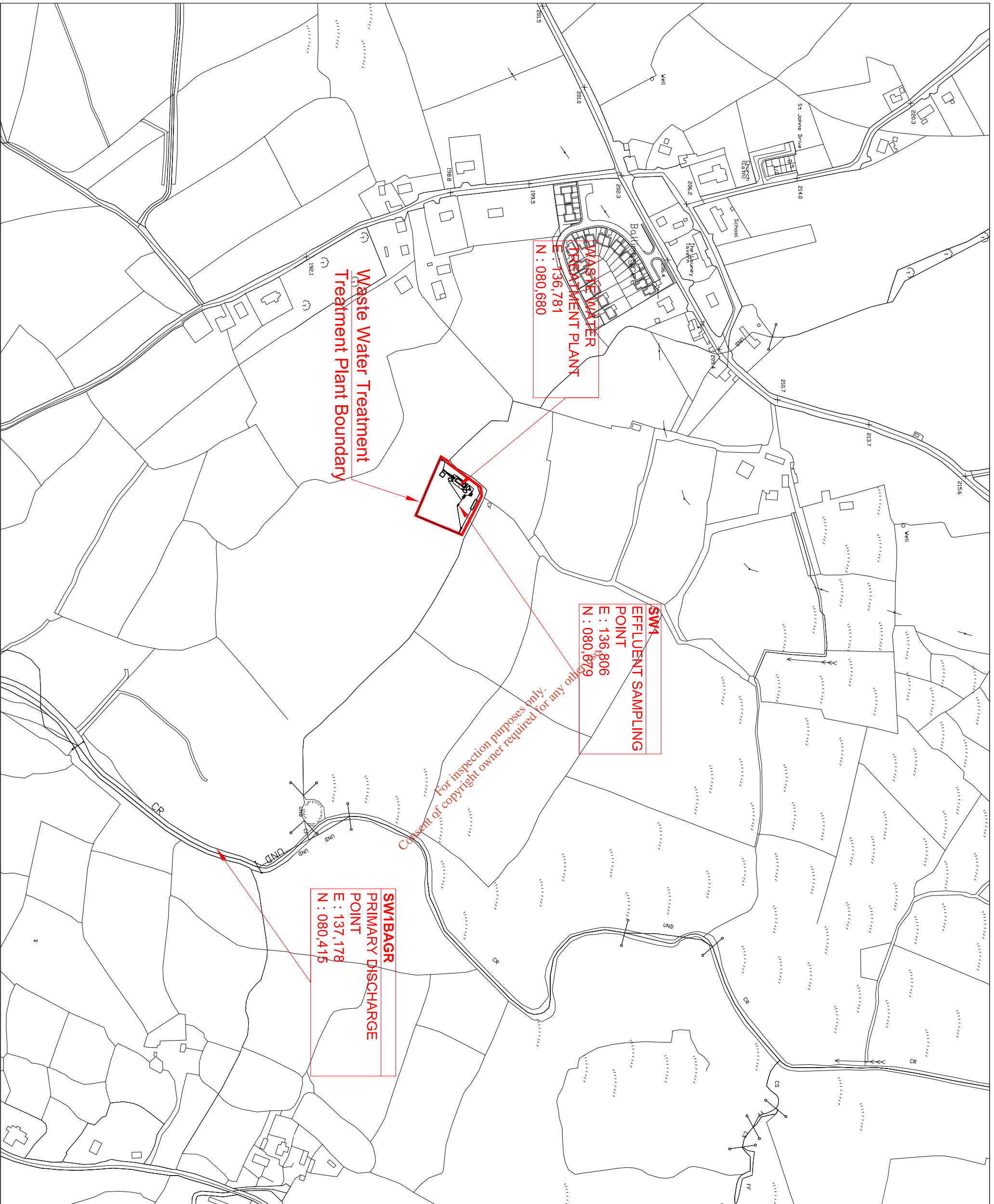
Noel O Keefe, B.E. Chief Executive
County Hall, Cork.

Patricia Power,
Director of Services,
Area Operations South

**Project: BALLINAGREE WWTP
WWTP WASTE WATER
DISCHARGE LICENCE APPLICATION**

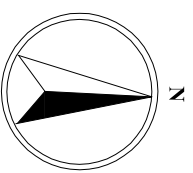
**Title: Application Form
Attachment B1_Map3
Agglomeration Served By The
Waste Water Treatment Works**

Designed: CB	Checked: MH	Scale: 1:2,000 @ A3	Drawing No: B1_Map3
Drawn: MM	Approved: MH	Date: Nov 09	Status: 0
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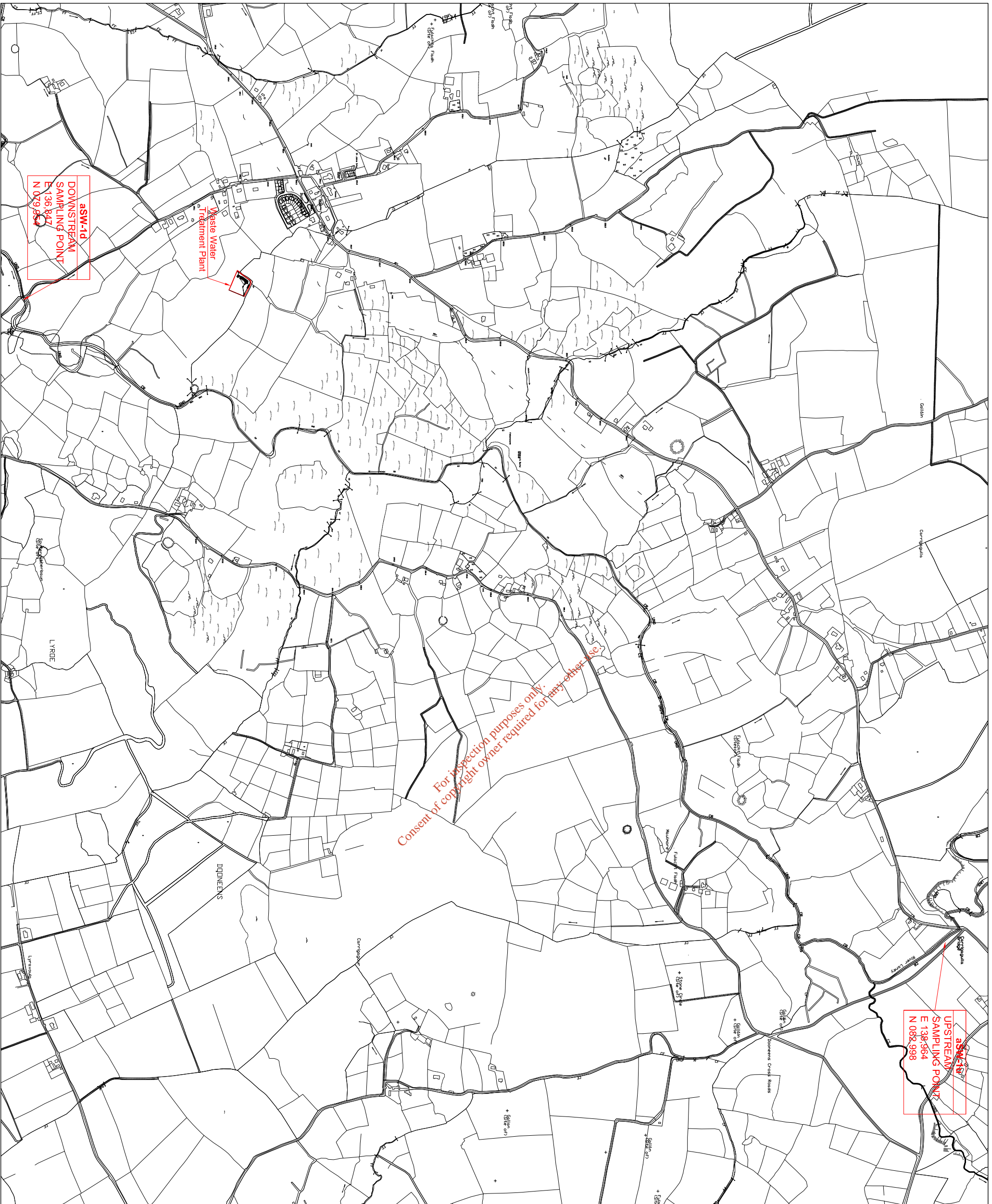
Noel O'Keefe, B.E. C. Eng. Bar. Ing. F.I.E.I.R.C.E.
 County Engineer
 County Hall, Cork.

Patricia Power,
 Director of Services,
 Area Operations South

Project: BALLINAGREE WWTP
WASTE WATER DISCHARGE LICENCE APPLICATION

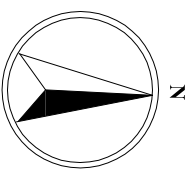
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 Attachment B2_Map4
 Location Plan of Waste Water Treatment Plant

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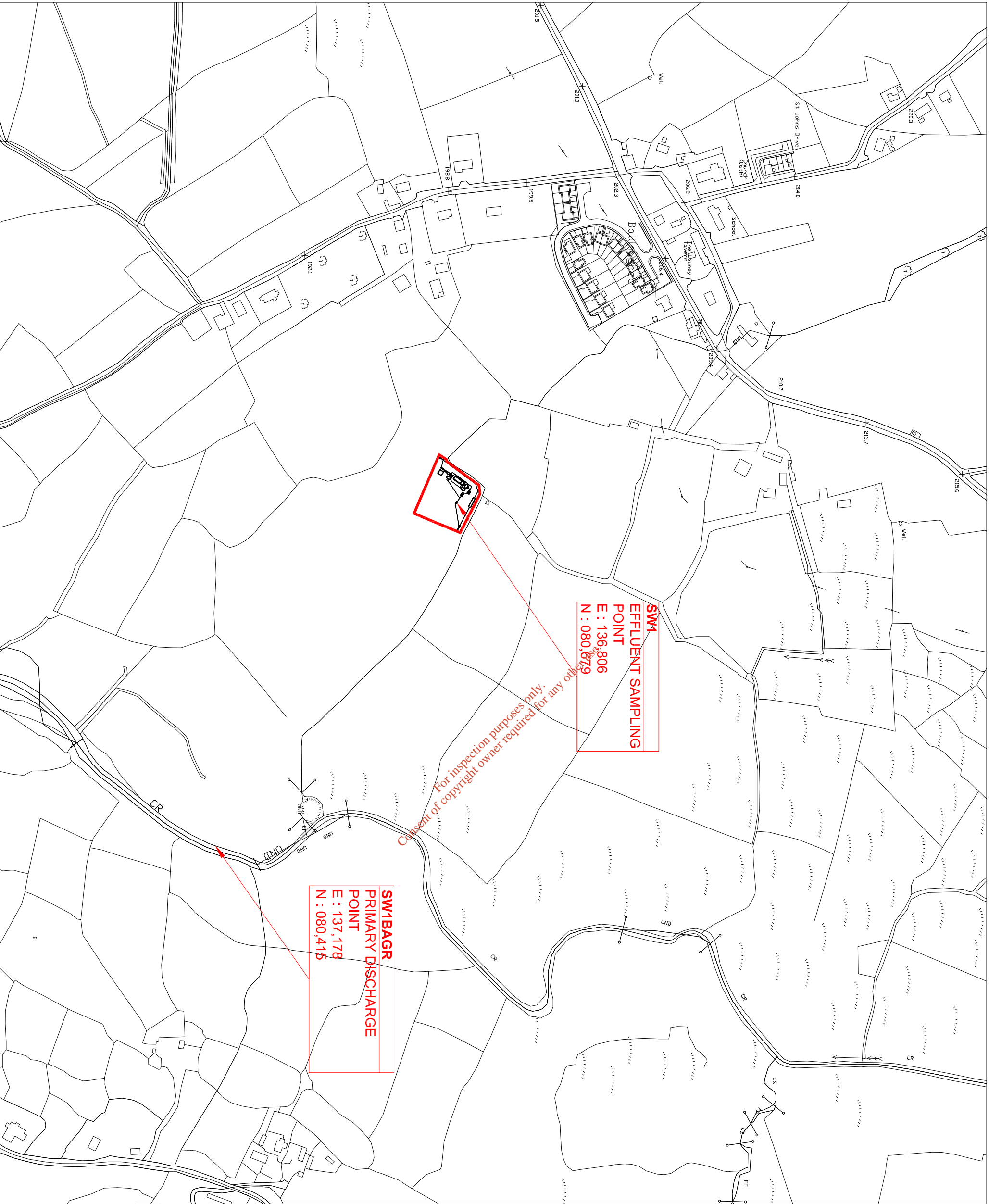


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Noel O'Keefe, B.E. C.Eng. Eurling F.F.L.M.I.C.E.
County Engineer,
County Hall, Cork.
Patricia Power,
Director of Services,
Area Operations South

Project: **BALLINAGREE WWTP
WWTP WASTE WATER
DISCHARGE LICENCE APPLICATION**

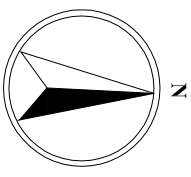
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Attachment B2_Maps
Location of Up & Downstream Sampling Point**

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Drawn: MM	Approved: MH	Date: Nov 09	Rev: 0
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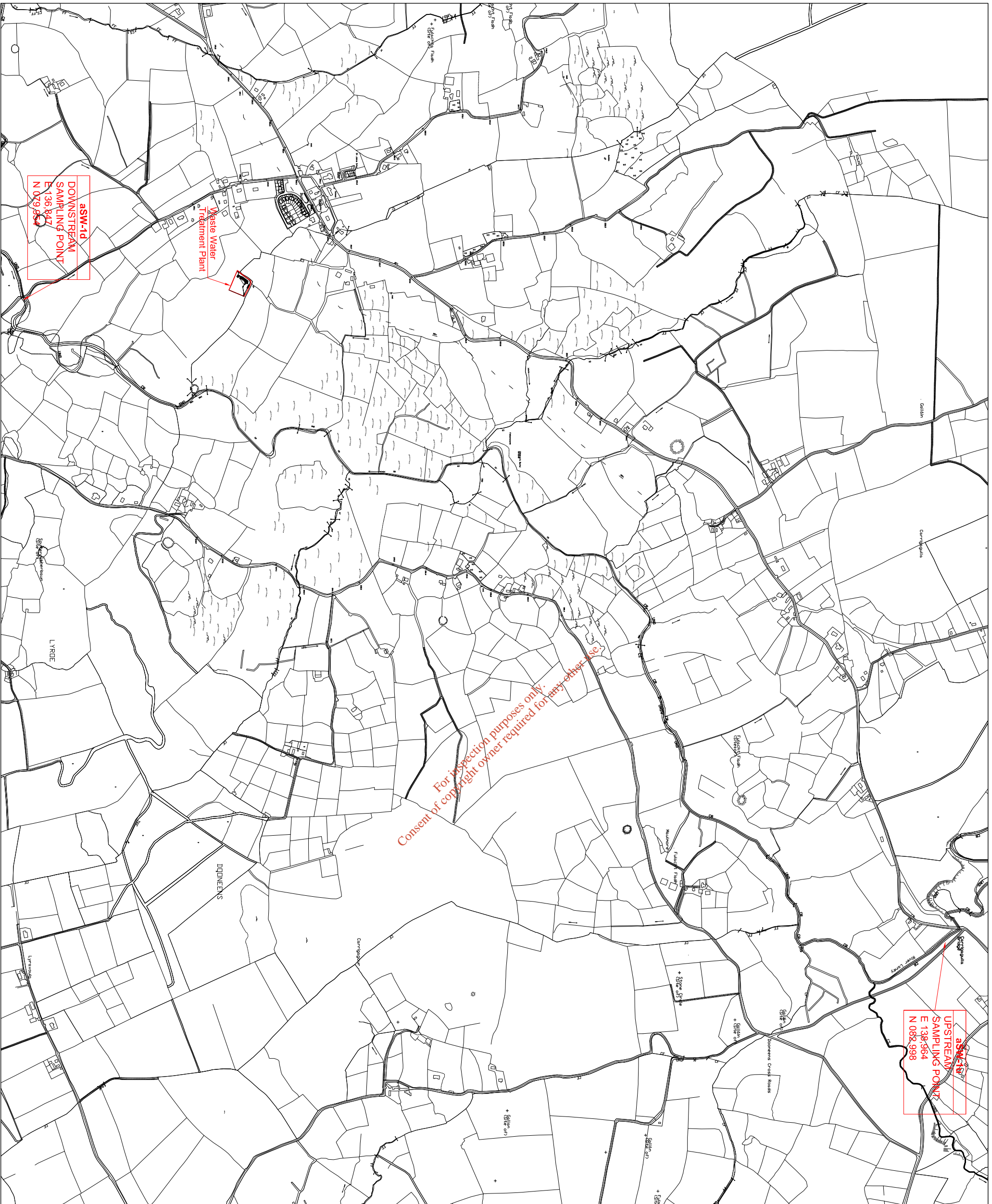
Niall O'Keefe, B.E. C. Eng. F. I. E. N. C. E.
County Engineer
County Hall, Cork.

Patricia Power,
Director of Services,
Area Operations South

**Project: BALLINAGREE WWTP
WASTE WATER
DISCHARGE LICENCE APPLICATION**

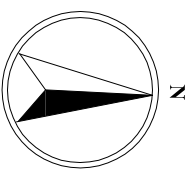
**Title: Application Form
Attachment B3_Mapp6
Location of Primary Discharge Point**

Designed: CB	Checked: MH	Scale: 1:4,000 @ A3	Drawing No: B3_Mapp6
Drawn: MM	Approved: MH	Date: NOV '09	Rev: 0
File Path:	Summ: -		



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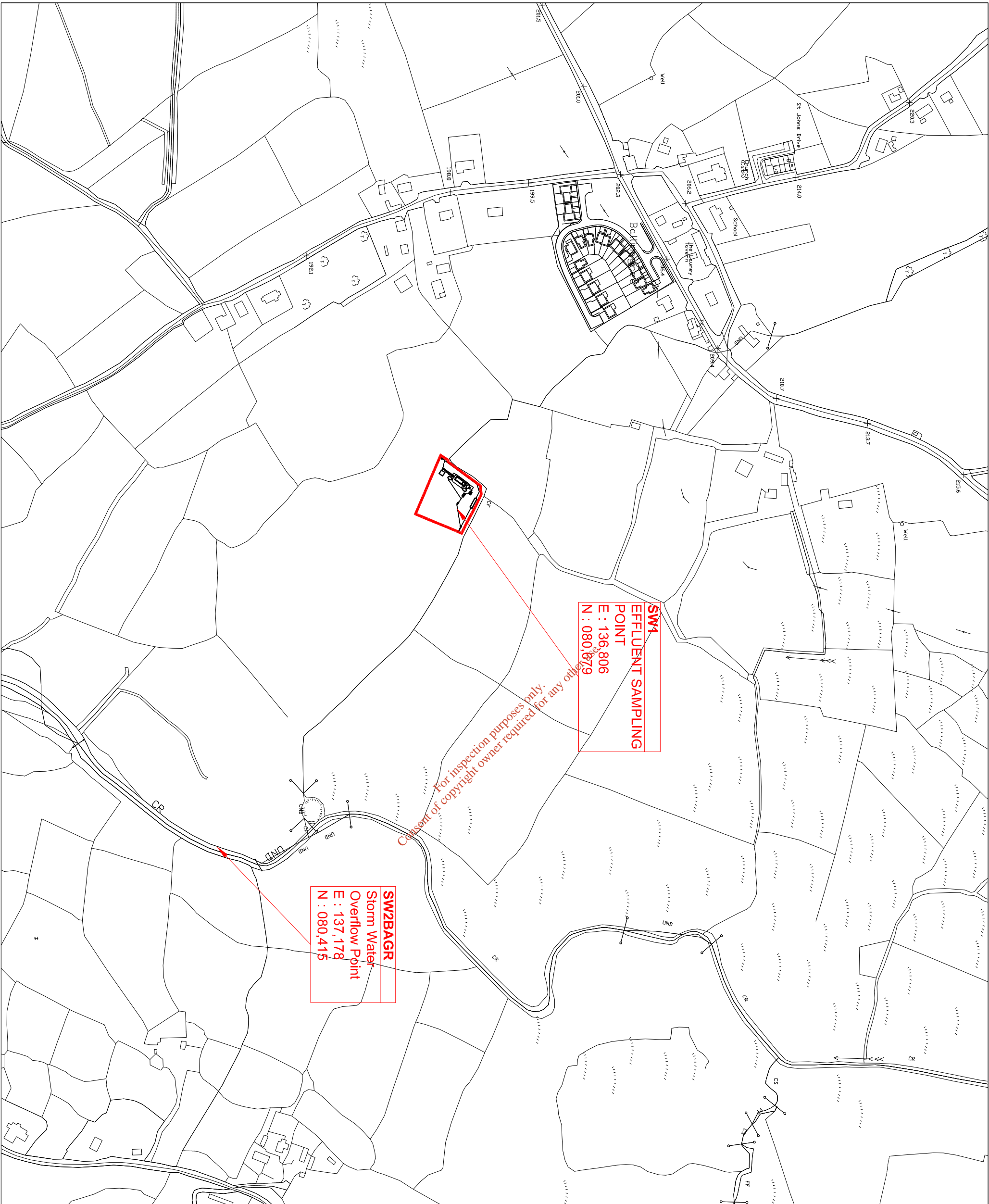


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Noel O'Keefe, B.E. C.Eng. Eurling F.F.L.M.I.C.E.
County Engineer,
County Hall, Cork.
Patricia Power,
Director of Services,
Area Operations South

Project: **BALLINAGREE WWTP
WWTP WASTE WATER
DISCHARGE LICENCE APPLICATION**

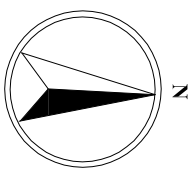
Title: Application Form
Attachment B3_Map7
Location of Up & Downstream Sampling Point

Designed: CB	Checked: MH	Scale: 1:12,000 @ A3	Drawing No: B3_Map7
Drawn: MM	Approved: MH	Date: Nov 09	Status: _
File Path:			Rev: 0



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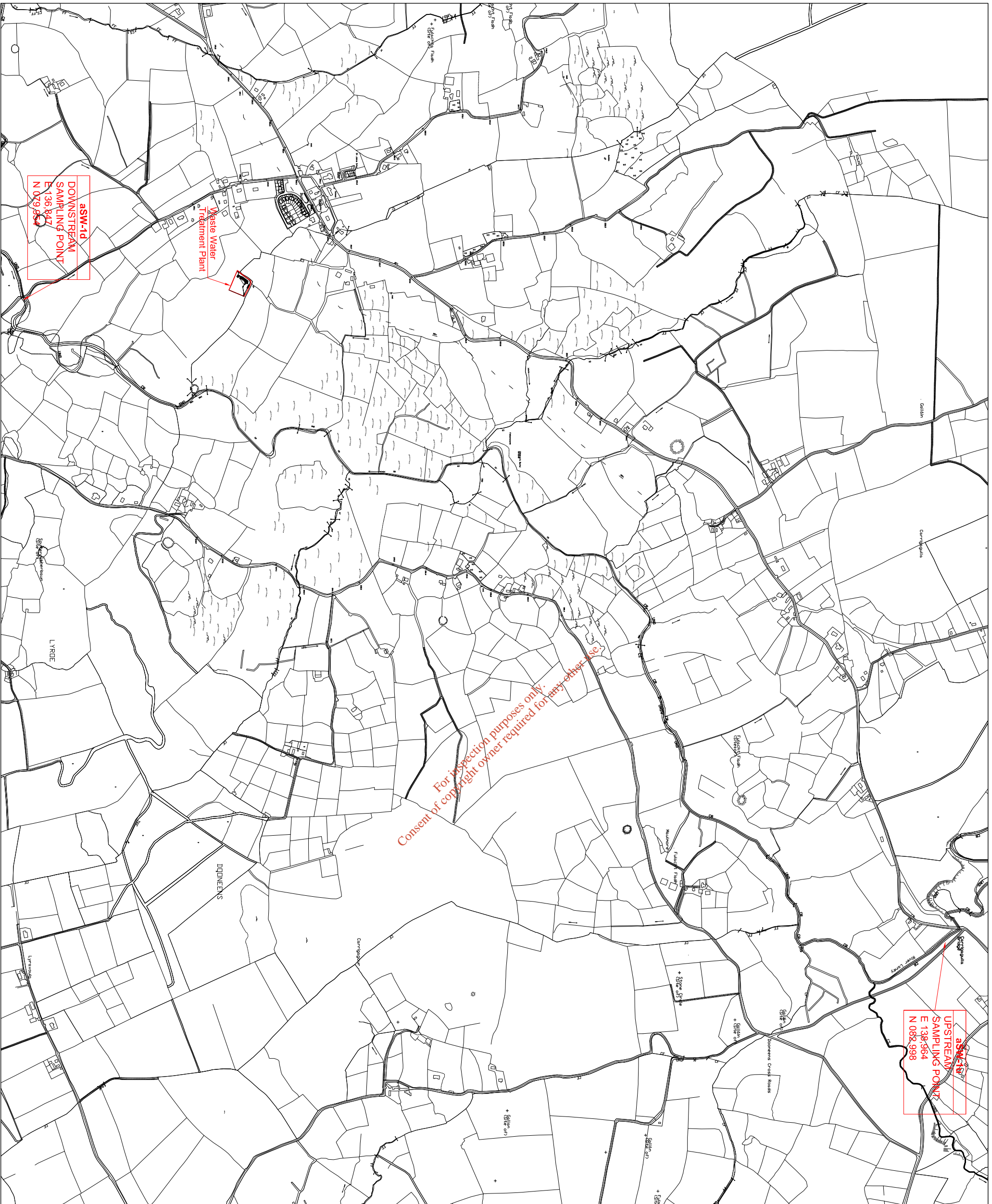


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County Engineer
County Hill, Cork.
Patricia Power,
Director of Services,
Area Operations South

Project: **BALLINAGREE WWTP**
WASTE WATER
DISCHARGE LICENCE APPLICATION

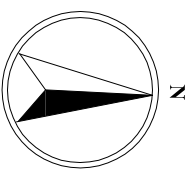
Title: Application Form
Attachment B5_Map8
Location of Storm Water Overflow Point

Designed: CB	Checked: MH	Scale: 1:4,000 @ A3	Drawing No: B5_Map8
Drawn: MM	Approved: MH	Date: Nov 09	Status: 0
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County Engineer
County Hall, Cork.
Patricia Power,
Director of Services,
Area Operations South

Project: **BALLINAGREE WWTP
WWTP WASTE WATER
DISCHARGE LICENCE APPLICATION**

Title: Application Form
Attachment B5_Map9
Location of Up & Downstream Sampling Point

Designed: CB	Checked: MH	Scale: 1:12,000 @ A3	Drawing No: B5_Map9
Drawn: MM	Approved: MH	Date: Nov 09	Status: _
File Path:			Rev: 0

	Condition	Reason
1	The proposed development shall be carried out in accordance with plans and particulars lodged with the Planning Authority on 16/12/03 , 13/07/04, 23/09/04 and 22/10/04, save where amended by the conditions herein.	To clarify the documents to which this permission relates in the interests of the proper development of the site.
2	Permission is hereby granted for 22 dwellinghouses only.	In the interests of orderly development.
3	The applicant, or any other person with an interest in the land to which this application relates, shall enter into an agreement with the Planning Authority, providing for the transfer of land, or houses, or partially or fully serviced sites, to the Planning Authority or persons nominated by the Planning Authority or for the payment of a contribution, under Section 96 of the Planning and Development Act, 2000 (as substituted by Section 3 of the Planning and Development (Amendment) Act, 2002, and preferably within 8 weeks of the grant of this permission, provision to this effect shall be embodied in an agreement between the applicant (or other person with an interest in the land to which this application relates) and the Planning Authority, in accordance with Section 96 of the Planning and Development Act, 2000, as amended by the Planning and Development (Amendment) Act, 2002.	To ensure compliance with the policy objectives of the Joint Housing Strategy, which have been indicated in the County Development Plan, through the conclusion and implementation of an agreement which, in the view of the Planning Authority, satisfies the criteria outlined in Section 96 of the Planning and Development Act, 2000, (as substituted by Section 3 of the Planning and Development (Amendment) Act, 2002.
4	Hedging , to the satisfaction of the Planning Authority, shall be planted along the eastern, southern and western boundaries and on boundaries between sites and on boundaries of area containing sewage treatment unit. Faces of cuttings and embankments	In the interests of visual amenity.

	<p>shall be landscaped to the satisfaction of the Planning Authority.</p> <p>A minimum no. of 120 no. indigenous trees shall be planted in groups on site to the satisfaction of the Planning Authority.</p> <p>Sod and stone wall, to the satisfaction of the Planning Authority, shall be provided along the north western boundary.</p>	
5	Visible deadwork shall not exceed 300mm.	To minimise the visual impact of the development.
6	Roof covering shall be slate coloured blue/black.	In the interests of visual amenity.
7	All external walls of proposed structure shall be finished in smooth plaster.	In the interests of visual amenity.
8	Screen walls, in agreed durable material, 2m in height and suitably capped and rendered, plastered or dashed shall be provided along AB and DE on attached map.	In the interests of visual amenity.
9	No dwelling shall be occupied until the watermain, foul sewer and storm sewer serving such dwellings are installed and functioning to the satisfaction of the Council's Estate Engineer.	To ensure that services satisfactory to the Council are provided before dwellings are occupied.
10	Roads shall be named, a "bilingual" name plate shall be erected at the entrance to each road in a location clearly visible to drivers. Houses shall be numbered in a logical sequence and these numbers shall be affixed to the house in a prominent position. Details of the numbering of the houses shall be submitted to and agreed with the Planning Authority prior to commencement of the development.	In the interests of orderly development and ease of identification of houses.
11	At least one month before commencing development, the developer shall pay a contribution of € 56647 to Cork County Council in respect of public infrastructure	It is considered appropriate that the developer should contribute towards the cost of public infrastructure and facilities benefiting development in the area

	and facilities benefiting development in the area of the planning authority. The value of this contribution is calculated in accordance with the Council's Development Contributions Scheme on 01/09/04, and shall be increased at a rate of 8% per annum in the period between the date on which this value was calculated, and the date of payment. No development shall take place until the monies have been paid to the Council.	of the Planning Authority, as provided for in the Council's Development Contributions Scheme, made in accordance with section 48 of the 2000 Planning and Development Act, and that the level of contribution payable should increase at a rate which allows both for inflation and for phasing in of the target contribution rates, in the manner specified in that Scheme.
12	The developer shall provide built in connections to the foul sewer to facilitate the installation of washing machines and dishwashers. Additional gullies discharging to the foul sewer shall be provided where directed by the Council.	To avoid contamination of the storm system and facilitate satisfactory discharge of waste from these appliances.
13	Surface water shall not be permitted to enter the foul sewer.	To prevent overloading of the sewer.
14	Road gullies to B.S. 556 shall have grit sumps of at least 1/30-cu.m capacity and shall be fitted with gratings having locking devices to the approval of the Planning Authority. Gratings and chamber covers shall be heavy duty, lockable, to B.S. 497, I.S. 261.	To prevent obstruction of road gullies.
15	The storm system shall be designed using a rainfall intensity of 50mm per hour. Storm pipes shall have a minimum diameter of 225mm.	In the interests of orderly development.
16	Footpaths shall be ramped at junctions as directed by the Planning Authority to facilitate wheelchairs, prams, etc.	In the interests of orderly development.
17	The watermain shall be laid on the roadway, 1 metre from the kerb line.	In the interests of orderly development.
18	A fire hydrant shall be provided at	In the interests of orderly

	the end of each road and otherwise no house should be more than 46 metres from a hydrant.	development.
19	A water service control box (W.S.C.R.) which shall include a non-return valve, shall be fitted to each water service pipe.	In the interests of orderly development.
20	A water meter to the satisfaction of the Planning Authority shall be fitted at the take off point from the public main.	In the interests of orderly development.
21	All connections to the foul sewer shall be made using tee pieces built into the main line where PVC pipes are used. Where concrete pipes are used, connections shall be made using either cored pipes or inlets cast into the pipes during manufacture. The appropriate rubber rings and fittings shall be used.	In the interests of orderly development.
22	The developer shall submit as required by the Planning Authority, accurate record drawings to scale 1/500 of roads, footpaths, foul and storm sewers including depths and locations of manholes, and locations of house services; watermains including locations of valves, hydrants and other fittings; public lighting and open space areas.	To facilitate future maintenance of the roads and services.
23	The developer shall indemnify the County Council against all claims resulting from defective foul and storm sewers, manholes and road gullies until the development is taken in charge by the County Council.	In the interests of orderly development.
24	Turning areas shall be 15m x 10m.	In the interests of orderly development.
25	Public lighting shall be installed to the E.S.B.'s specification and shall be in accordance with Cork County Council specification "Public Lighting in Residential	In the interests of public safety.

	Area - Guidelines for Housing Developers - July, 2001".	
26	All public services required for the development including electrical, communal television and telephone cables shall be laid underground in accordance with the Council's Guidelines for Housing Estates (1986).	In the interests of visual amenity and safety.
27	The gradient of access road shall not exceed 1 in 30 for the first 5m.	In the interests of road safety.
28	The layout and services for the estate shall comply with the standards set down in "Recommendations for Site Development Works for Housing Areas" (Dept. of the Environment and Local Government, 1998) subject to such amendments as have been approved by Cork County Council in a planning permission.	In the interests of orderly development.
29	All pump sumps or other treatment plant chambers from which spillages might occur shall be fitted with high liquid level alarms. The alarm condition shall be signified by an alarm on site and a modem to the responsible person for the site.	In the interests of orderly development.
30	Duty and standby pumps shall be interchanged weekly in order to allow each unit equal running time in duty mode.	In the interests of orderly development.
31	Control panels shall incorporate hours-run meters for each individual pump.	In the interests of orderly development.
32	Containment areas around pump sumps shall be put in place and any spillages diverted to the effluent plant.	In the interests of orderly development.
33	Roadside walls of sites shall be to the satisfaction of the Planning Authority.	In the interests of orderly development.
34	A 2m high palisade fence shall be erected around the sewage	In the interests of orderly development.

	treatment plant.	
35	Treatment plant shall be equipped with adequate alarm systems to highlight malfunctions and adequate storage or alternative treatment to allow for downtime so as to guarantee no untreated effluent reaches the river.	To safeguard the amenities of the area.
36	Sight distance at entrance from public road shall be to the satisfaction of the Planning Authority. Site layout making provision for same shall be submitted to and agreed with the Planning Authority before development commences.	In the interest of road safety.
37	Kerb radii at the entrance to the public road shall be a minimum of nine metres and all the other corner radii shall be a minimum of six metres	In the interests of orderly development.
38	The developer shall provide layout plans of E.S.B. and Telecom Eireann ducting requirements to the Planning Authority for agreement before work commences and all such ducting shall be underground.	In the interests of orderly development.
39	The developer shall retain sewer wayleaves to the satisfaction of the Planning Authority, over areas where the sewer traverses private property. In the event of the Planning Authority deciding at its discretion to take the roads and services in charge the developer shall provide wayleaves over these areas to the Planning Authority.	In the interests of orderly development.
40	The developer shall retain wayleaves over any drain connection to the public sewer within the site serving private dwellings where such drains traverse private property and the said wayleaves shall be assigned to the owners of the properties that	In the interests of orderly development.

	are served by the drains.	
41	Details of watermain sizes, valves, hydrants and connection to public main shall be submitted to and agreed with the Planning Authority before development commences. Demand shall be established to ensure existing supply network and source is adequate.	In the interests of orderly development.
42	The developer shall be responsible for the maintenance of all roads, footpaths, open spaces and other services until taken in charge by the Council at its discretion.	To ensure that these parts of the development are maintained to a satisfactory standard.
43	Before commencing any individual house construction the developer shall provide, to the satisfaction of the Planning Authority, security for the provision and satisfactory completion, including maintenance until taken in charge at the discretion of that Authority of roads, footpaths, sewers, watermains, road lighting, open spaces and other services required in connection with the development. The security shall be a Bond in a form and amount approved by the Planning Authority and provided by a Bank or Insurance Company acceptable to the Planning Authority.	To ensure that these parts of the development are constructed and completed to a satisfactory standard.
44	The area between the road and new footpath along north western boundary shall be stoned, graded, compacted and blinded level with public roadway.	In the interests of orderly development.
45	The concentration of the treated foul effluent shall not exceed: 1. 10ppm BOD 2. 10ppm S.S. 3. 1 ppm Total Phosphorus.	In the interests of orderly development.

	There shall be 90% removal of Pathogens.	
46	A sampling chamber to the satisfaction of the Planning Authority shall be provided on outlet from sewage treatment unit.	To enable Planning Authority officials to take samples of the treated effluent.
47	Suspended solids (clay, earth, etc.) shall not be discharged to River Laney during construction phase.	To safeguard the amenities of the area.
48	The concentration of Phosphorus (1ppm) in treated effluent shall be achieved by chemical precipitation to the satisfaction of the Planning Authority.	In the interests of orderly development.
49	Each WC installed shall be fitted with an approved dual-flush facility.	In the interests water conservation.
50	The proposed Wastewater Treatment Plant shall have a capacity of 350 population equivalent. The capacity over the development permitted under this order shall be made available, by agreement, to Cork County Council. A detailed design for the proposed Waste Water Treatment Plant shall be agreed with the Planning Authority prior to development commencing. Procurement of the Waste Water Treatment Plant shall be in accordance with Public Procurement guidelines.	In the interests of orderly development.
51	There shall be no interference with, draining or culverting of the Laney River or any watercourse, their banks or bankside vegetation to facilitate this development without prior consultation with the Planning Authority.	In the interests of orderly development.

CORK COUNTY COUNCIL

Local Government (Planning & Development) Act 2000 - 2002

To: Mr Pat Lehane
C/o J & N Murphy Ltd
New Street
Macroom
Co. Cork

Planning
Register No: 03/6487

Application by: Mr Pat Lehane

Of: Ballinagree West Co. Cork

On: 16/12/2003
And as amended on 13/07/2004, 23/09/2004 & 22/10/2004

For: Residential development - 25 no. dwellings, effluent treatment plant and discharge pipes to river

At: Ballynagree West, Macroom

Further to Notice dated 17/11/04 the Cork County Council hereby conveys a grant of **PERMISSION** for the application described above subject to the conditions set out in the schedule (if any) attached to the said Notice dated 17/11/04 of its intention to grant **PERMISSION**.

Signed on behalf of Cork County Council



Planning Dept.,
Model Business Park,
Model Farm Road, Cork.

DATE: 23/12/2004

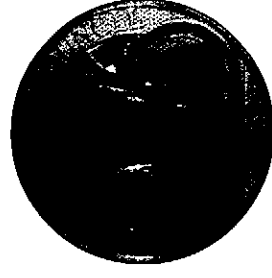
NOTE FOR GUIDANCE OF DEVELOPERS

A grant of Planning Permission or Permission Consequent on the grant of Outline Permission does **NOT** of itself empower a person to carry out a development unless that person is otherwise legally entitled to do so. Unless otherwise stated or unless it is revoked a Permission or Permission Consequent on the Grant of Outline Permission is valid for a period of five years.

Any development which takes place prior to the payment of a financial contribution required by any of the conditions attached to a Permission or Permission Consequent on the grant of Outline Permission will be unauthorised until compliance with the condition or conditions.

Please note that there is an onus on developers to ensure that there is no danger to the public as a result of the proposed development.

Comhairle Chontae Chorcaí Cork County Council



Planning Department,
Model Business Park,
Model Farm Road,
Cork.

Tel. No: (021) 4867006

Fax No: (021) 4867007

E-mail: planninginfo@corkcoco.ie

Mr Pat Lehane
C/o J & N Murphy Ltd
New Street
Macroon
Co. Cork

Web: <http://www.corkcoco.com/>

20/01/2005

Re: Residential development - 25 no. dwellings, effluent treatment plant and discharge pipes to river

At: Ballynagree West, Macroon,

Reg. No. 03/6487

A Chara,

I enclose grant of PERMISSION in connection with the above.

Your attention is drawn to condition no. 11 of the PERMISSION, which requires that before any work commences on the site, you pay financial contributions to the Council. Otherwise, the PERMISSION granted is of no effect.

It should be noted that the amount of the contribution is linked to the Consumer Price Index and, should there be any delay in payment of the contribution, the amount will vary accordingly.

Please note that payment of development contributions by CASH or CREDIT CARD may only be made at the PAYMENTS OFFICE, COUNTY HALL. Payment by CHEQUE /BANK DRAFT etc. will be accepted at the PLANNING DEPARTMENT, MODEL BUSINESS PARK.

Mise, le meas,

M. ALLISON
STAFF OFFICER
PLANNING DEPARTMENT

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CORK COUNTY COUNCIL

O.S. NO. 60/2(25)

ORDER NO:

04/6490

SUBJECT:

Application Reg. Ref. No. 03/6487

for: Residential development - 25 no. dwellings, effluent treatment plant and discharge pipes to river.

at: Ballynagree West,
Macroom,

ORDER:

CONDITIONAL PERMISSION is hereby **GRANTED** subject to the provision of Subsection 11 of Section 34 of the Planning and Development Act, 2000 - 2002 for the reason set out in the First Schedule attached hereto.

to: Mr Pat Lehane

of: C/o J & N Murphy Ltd
New Street
Macroom
Co. Cork

for: Residential development - 22 no. dwellings, effluent treatment plant and discharge pipes to river.

at: Ballynagree West, Macroom,

in accordance with plans and particulars lodged by the applicant on 16/12/2003 and amended on 13/07/04, 23/09/04, 22/10/04 and subject to the conditions (51 no. conditions) set out in the Second Schedule attached hereto.

The **PERMISSION** is to be granted subject to the conditions provided no appeal is made to An Bord Pleanala within the Statutory time for the making of such appeals.

SIGNED:

J. Deasy
ASST. CORK COUNTY MANAGER

Dated this 17th

November 2004

FIRST SCHEDULE

Planning Ref. No. 03/6487

Having regard to the fact that site is proximate to Ballynagree village and that part of site is zoned for housing it is considered proposal is in accordance with the proper planning and development of the area.

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	<u>Dixon .Brosnan</u> environmental consultants
project title	Assessment of the ecological and water quality impacts of providing a Wastewater Treatment System at Ballinagree, Co. Cork.
client	Cork County Council
client ref.	-
d.b ref.	
revision	Draft 1.
date	
approved by	Carl Dixon
on behalf of dixon.Brosnan	
	Dixon.Brosnan, Tellengana Lodge, Blackrock Road, Cork, Ireland. Tel: (021) 4968 600 Fax: (021) 4968 210 Email: dixonbrosnan@eircom.net

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EXECUTIVE SUMMARY

Dixon.Brosnan were commissioned by Cork County Council to carry out an environmental assessment for the provision of a sewage treatment plant serving Ballinagree, Co. Cork. The assessment included the examination of the most suitable means of disposal of treated wastewater and the treatment standard required. The impacts of the proposed development were examined with respect to the existing environment.

Ballinagree village is currently served by individual septic tanks and it is proposed to install a new wastewater treatment plant on a new site discharging to the Laney River. In order to facilitate future development at Ballinagree, it is proposed that the upgraded system will cater for up to 350 people. Accordingly, a design population of 350 p.e. has been assumed in the assessment of the proposed development.

The Laney River is derived from a number of small feeder streams, which arise in the foothills of the Boggeragh Mountains. Most of the upper catchment is afforested with conifers. The river is approximately 15 miles long and joins the Sullane River 3 miles east of Macroom. For most of its length it is a fast flowing moorland stream.

There are no designated areas close to Ballinagree and there are no designated sites on the Laney River. However a population of freshwater mussel (*Margaritifera margaritifera*) is known to exist within the Laney River and this species is protected under Irish and European legislation. Of particular note is it's listing in Annex II of the Habitats Directive. The species is particularly vulnerable because of its longevity (one hundred years or more) and slow reproduction. In rivers where it is present, there may be no juveniles. As it lives on gravel in high quality, low nutrient streams and rivers it is susceptible to increases in nutrients and levels of suspended solids. The Laney contains high numbers of brown trout and is fished locally.

An analysis of the limited water chemistry data available shows that water quality in the Laney is generally satisfactory. However high orthophosphate readings were recorded in January 2004. Results from the EPA biological monitoring programme indicate that water quality has been consistently satisfactory on all monitoring sites on the Laney River. Flow data is available for the Laney River and extrapolations from this data were used to assess the likely impact of any discharges. The possibility of a future extraction point on the Laney River downstream of the discharge was also considered.

Following an assessment of disposal options the following minimum treatment standards recommended are as follows: BOD - 10mg/l, SS - 10mg/l, no N removal required and total P - 1mg/l

CONTENTS

1. INTRODUCTION	5
<hr/>	
<i>PART 1: EXISTING ENVIRONMENT</i>	6
2. CATCHMENT OVERVIEW	6
3. ABSTRACTIONS & DISCHARGES	6
4. FLOW DATA	10
5. HABITAT DESIGNATIONS & FISHERIES	10
6. WATER QUALITY MANAGEMENT PLAN	10
7. EXISTING WATER QUALITY DATA – CORK COUNTY COUNCIL	11
8. EXISTING WATER QUALITY DATA – EPA	12
9. SITE SURVEYS	14
10. INTERPRETATION – EXISTING ENVIRONMENT	16
<hr/>	
<i>PART 2: LEGISLATION & STANDARDS</i>	17
11. SURFACE WATER DIRECTIVE	17
12. BATHING WATER DIRECTIVE	17
13. FRESHWATER FISH DIRECTIVE/SALMONID REGULATIONS	18
14. URBAN WASTE WATER TREATMENT DIRECTIVE	19
15. PHOSPHOROUS REGULATIONS	20
16. NITRATES DIRECTIVE	21
17. ROYAL COMMISSION STANDARDS	21
18. NOISE & ODOUR	22
19. INTERPRETATION – LEGISLATION & STANDARDS	22
<hr/>	

<i>PART 3: TREATMENT AND DISPOSAL OPTIONS</i>	24
20. PROPOSED DEVELOPMENT	24
21. DISCHARGE TO THE LANEY RIVER	25
<i>PART 4: IMPACTS & RECOMMENDATIONS</i>	26
22. IMPACTS	26
23. WASTE ASSIMILATIVE CAPACITY & BOD	29
24. SUSPENDED SOLIDS	27
25. NITROGEN	27
26. PHOSPHORUS	28
27. PATHOGENS	29
28. ECOLGOY & FISHERIES	30
29. RECOMMENDED TREATMENT	30
30. REFERENCES	33
APPENDICES	34

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1. INTRODUCTION

1.1 Dixon.Brosnan were commissioned by Cork County Council to carry out an environmental assessment for the provision of a sewage treatment plant serving Ballinagree, Co. Cork. The assessment included the examination of the treatment options available and the most suitable means of disposal of treated wastewater. The impacts of the various options were examined with respect to the existing environment.

1.2 The proposed development is below the threshold above which an Environmental Impact Assessment is required under the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989), and accordingly this report does not purport to be an Environmental Impact Statement. However, the Environmental Protection Agency document *Advice notes on current practice in the preparation of Environmental Impact Statements* (1995) was consulted during the preparation of the report.

1.3 This report is presented in four parts as follows:

- Part 1: Existing environment
- Part 2: Legislation & standards
- Part 3: Treatment & disposal options
- Part 4: Impacts & recommendations.

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PART 1: EXISTING ENVIRONMENT

.....

2. CATCHMENT OVERVIEW

2.1 Ballinagree village is situated in the foothills of the Boggeragh Mountains at an elevation of approximately 210 m. To the south of the village is a relatively narrow strip of more fertile land along the river valley of the Laney River. A high proportion of the Boggeragh Mountains, including the headwaters of the Laney River, is afforested. The afforested area is dominated by non-native conifers in large plantations with few native species. The village itself is situated between upland areas and the strip of more fertile land, which slopes to the floor of the Laney River valley.

2.2 The village of Ballinagree is located within the Gortanimill Formation, which occurs from the Boggeragh Mountains north of Macroom to Clonmult northeast of Midleton. It consists of green fine-grained sandstone and siltstone. The rocks in the lower and middle part of the Devonian sequence, including the Gortanimill Formation, are considered to have similar characteristics. They usually crop out on elevated ground, are relatively impermeable and are considered to be aquitards or unproductive rocks. Most groundwater in these areas moves in the upper weathered zone, the more permeable sandstone beds of limited extent, fault or fracture zones and /or overlying Quaternary deposits where permeable. The flow is generally in localised systems with little continuity between them. The low storage in these strata is usually balanced by the higher rainfall of the uplands. However during long dry spells, baseflow to streams can be reduced significantly as many of the small springs and seepages, which feed them dry up.

2.3 The land to the north of the village is of moderate agricultural quality and gradually grades into upland habitats dominated by forestry and coarse grassland. To the south and southeast of the village the land consists of a mixture of intermediate quality grassland interspersed with marginal areas of scrub or wetter grassland. This land also has a steep gradient. A similar pattern is evident on the opposing bank of the river with a narrow band of better quality land grading into upland habitats with extensive conifer plantations. In places these conifer plantations reach to the bank of the river.

2.4 The Laney River is derived from a number of small feeder streams, which arise in the foothills of the Boggeragh Mountains. Most of the upper catchment is afforested with conifers. The river is approximately 15 miles long and joins the Sullane River approximately 1km east of Macroom. For most of its length it is a fast flowing moorland stream and it contains high numbers of brown trout. It may also hold occasional salmon. It is fished locally particularly in the lower reaches. The Sullane, into which the Laney flows, is a tributary of the Lee River. The Sullane River flows for 23 miles in an easterly direction through Ballyvourney and Macroom into Carrigadrohid Reservoir. The river flows mainly over sandstone and holds a large stock of brown trout. This river is extensively fished.

3. ABSTRACTIONS & DISCHARGES

3.1 The village of Ballinagree receives its water supply from a bored well north of the village. The volume of water abstracted is approximately 50m³/day. As the village does not have a collective wastewater treatment system the majority of this water will probably go to groundwater via percolation. This volume of water is therefore not included in calculations of flow within the Laney River.

3.2 At present the water supply for Macroom is abstracted from the Sullane River, however an abstraction point on the Laney is planned. This abstraction point is to be located approximately 117m downstream of Knocknagappul Bridge and approximately 64 m downstream of the confluence of the Laney River and the Glashreagh River. This proposed abstraction point will be situated approximately 1.83 km downstream of the proposed discharge point.

3.3 The Sullane River, from which water is currently abstracted, is in close proximity to the N22 in certain sections, and water quality could conceivably be affected by acute or chronic discharges associated with the road. The Sullane is a much longer river than the Laney and there are a number of settlements along its route including Coolea, Ballyvourney and Ballymakeera. Some of land adjoining the Sullane is more intensively farmed. The Laney River in contrast, is characterised in its upper reaches by a lower population density, less intensive agriculture and is not located close to a major road. An abstraction point on the Laney would therefore be at less risk from pollution.

3.4 The Laney catchment in the vicinity of the site of the proposed WWTP is entirely agricultural with no industry evident within the town. Most development is confined to the village. The catchment area was inspected during the preparation of the report in order to determine the existence of unlicensed discharges. No significant discharges were observed, although the possibility of agricultural or domestic discharges, whether from point or diffuse sources, cannot be discounted.

3.5. At present the houses in the village are served by individual septic tanks, and there is no treatment plant in operation. It is envisaged that a maximum treatment capacity of 350p.e. will provide sufficient treatment, having due regard for future increases in the population of the village. This figure includes a new development of 25 houses, which is currently the subject of a planning application.

3.6 The location of the proposed discharge point from the WWTP, proposed abstraction point and monitoring points are shown on Map 1&2 overleaf.

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Map 1: Site of proposed WWTP at Ballinagree

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4. FLOW DATA

4.1 The EPA Hydrometric Office has registered an automatic flow recorder on the Laney River at Kill (Grid ref. 136400 74300), 5.2 km downstream of Ballinagree. Flow data indicates that the dry weather flow rate recorded is $0.12\text{m}^3/\text{s}$, with a 95th percentile flow of $0.27\text{m}^3/\text{s}$. The catchment area discharging through this point is approximately 81.6km^2 , indicating a unit 95th percentile flow rate of 3.31 l/s/ km^2 .

4.2 The area draining through the Laney at the proposed discharge point is approximately 34.75 km^2 . Based on a 95th percentile unit flow of 3.31 l/s/ km^2 the 95th percentile flow at the discharge point will be 115.02 l/s or $0.115\text{ m}^3/\text{s}$.

5. HABITAT DESIGNATIONS & FISHERIES

5.1 There are no designated areas close to Ballinagree and there are no designated sites on the Laney River. Although there are a number of designated areas adjoining the main channel of the Lee River none of these habitats will be affected by the proposed treatment plant at Ballinagree.

5.2 A population of freshwater mussel (*Margaritifera margaritifera*) is known to exist within the Laney River (Donal Scannell, NPWS; J. Lucy EPA pers. comm.) As the Laney River has not received any formal designations, there is no detailed data available on the distribution of this species within the river. However, given the high Q ratings and cleanliness of the substrate in proximity to the discharge point, it is probable that this species does occur in that section of the watercourse.

5.3 The freshwater mussel is protected under Irish and European legislation. Of particular note is it's listing in Annex II of the Habitats Directive (Plant and animals being of Community Interest whose conservation requires the designation of Special Areas of Conservation). Is it a species of base-poor, unpolluted soft water, and is therefore usually confined to well-oxygenated streams and rivers in upland areas, which are free from mud and suspended matter. It is a declining species throughout Europe and has become extinct in some places in Ireland. The causes are various and include destruction by pearl fishers, physical changes to the habitat and pollution. The species is particularly vulnerable because of its longevity (one hundred years or more) and slow reproduction. In rivers where it is present, there may be no juveniles. As it lives on gravel in high quality, low nutrient streams and rivers it is susceptible to increases in nutrients and levels of suspended solids.

6. WATER QUALITY MANAGEMENT PLAN

6.1 The Local Government (Water Pollution) Act, 1977, provides for one or more local authorities to take co-ordinated action on a river catchment basis by the preparation and implementation of river catchment water quality management plans. Cork County Council has formally adopted no such plans for the catchment under investigation.

6.2 The above management function has now been superseded by EU Directive 2000/60/EC, establishing a framework for Community action in the field of water policy. Under the Water Framework Directive local authorities are obliged to prepare river basin management plans. A management programme is currently under preparation for the Cork area.

7. EXISTING WATER QUALITY DATA – CORK COUNTY COUNCIL

7.1 It was confirmed by Cork County Council's environment department that there is no recent data detailing water quality in the Laney River. Water Quality data for the period 1995 – 1997 from Carrigagulla Bridge, which is upstream of the proposed, discharge point, is included in Table 7.1 below. However, it should be noted that this information is derived from only one sample and may not present a conclusive portrait of water quality over time.

Table 7.1: Water quality at Carrigagulla Bridge 1995-1997

<u>Parameter</u>	<u>Units</u>	<u>Level</u>
BOD	mg/l	0.9
Conductivity	us/cm	89
Dissolved Oxygen	mg/l	10.1
Dissolved Oxygen	%	96
Orthophosphate	mg/l P	0.01
Oxidised nitrogen	mg/l N	0.5
pH		7.5
Temperature	° C	13.5
Total ammonia	mg/l N	0.02
Un ionised ammonia	mg/l NH3	0.00

Source: EPA website

7.2 Ammonium levels recorded were satisfactory, being lower than the maximum allowable concentration of 0.82mg/l N specified in the Freshwater Fish Directive for total ammonium. The recorded levels are also lower than the 1mg/l (for 95% of samples) specified under the Salmonid Regulations, although it should be noted that the Laney is not designated under these regulations.

7.3 The Freshwater Fish Directive does not specify a limit for nitrate, and thus reference may be made instead to the Surface Water Regulations in which a maximum limit of 11.3mg/l N is noted. No breaches of this limit were recorded in the available data.

7.4 Under the Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations, 1998 (S.I. No. 258 of 1998) Q values of 4 or higher are taken to represent satisfactory water quality where eutrophication is unlikely to be a problem. Because annual median phosphate (P) values in such water rarely exceed 30ug/l, this concentration has been adopted as the target value to be achieved by 2007. As detailed in Table 7.1 the detected level of 0.01mg/l is significantly lower than this 30ug/l limit. It can therefore be summarised that levels of orthophosphate were generally satisfactory throughout the sampling period.

8. EXISTING WATER QUALITY DATA – EPA BIOLOGICAL MONITORING PROGRAMME

8.1 The Environmental Protection Agency carries out a biological assessment of most river channels in the country on a regular basis. The assessments are used to derive a Q-value - an indication of the biological quality of the water. The EPA Q-value scheme is summarised in Table 9.1.

Table 8.1. EPA Biotic Index Scheme.

Q-VALUE	WATER QUALITY	POLLUTION	CONDITION (likelihood of interference with uses)
5	Good	Unpolluted	Satisfactory
4	Fair	Unpolluted	Satisfactory
3	Doubtful	Moderately polluted	Unsatisfactory
2	Poor	Seriously polluted	Unsatisfactory
1	Bad	Seriously polluted	Unsatisfactory

Source: EPA

8.2 The intermediate ratings Q1-2, 2-3, 3-4 and 4-5 are also used to denote transitional conditions, while ratings within parenthesis indicate borderline values.

8.3 Great importance is attached to the EPA biotic indices and consequently it is this data that is generally used to form the basis of water quality management plans for river catchments.

8.4 The most recent available data for Hydrometric area no. 19, which includes the Laney River, is for the year 2002. Survey results for the years 1976 to 2002 are listed in Table 8.2.

Table 8.2. EPA Q-values for Laney River.

STATION	LOCATION	1976	1981	1986	1990	1994	1997	1999	2002
0100	Carrigagulla Bridge		5	5	5	4	4-5	4	4-5
0200	Knocknagappul Bridge*		5	5	5	4-5	4-5	4-5	4-5
0400	Morris Bridge		5	5	5	4-5	4-5	4-5	4-5
0500	Fords Mill u/s of Sullane	5	5	5	4	4-5	4-5	4-5	4-5

* Named Ceppeleenbawn Bridge in EPA reports on water quality. Corresponds to Knocknagappul Bridge on the Discovery Series Maps.

Source: EPA

8.5 Results presented in Table 8.2 indicate that the biological water quality is generally satisfactory, with the EPA assigning a Q-value of between 4 and 5 (a characteristic of unpolluted waters) to the watercourse since 1971. Some slight deterioration is evident and a lower Q value was assigned in 1999 in comparison to 1981. However the Q value of 5 assigned in the 1970s and 1980s is indicative of completely unpolluted conditions; these conditions did not persist in many areas following agricultural intensification. The planting of large forestry plantations may also have impacted on water quality. Notwithstanding the above, water quality remains satisfactory. When calculating the likely affect of a discharge on a receiving water body it is preferable to use long term monitoring data rather than data obtained from one-off grab samples. Given the lack of chemical data in this instance Q values provide a more accurate representation of background water quality.

8.6 The Laney is a tributary of the Sullane, which is itself a tributary of the Lee River. Table 8.3 details water quality on the Sullane from 1976 to 1999

Table 8.3. EPA Q-values for Laney River.

STATION	LOCATION	1976	1981	1986	1990	1994	1997	1999
0100	Br near Coolea	5	5	4-5	4	4	4-5	4-5
0170	Br d/s Ballyvourney				4-5	4-5	4	4-5
0200	Br d/s of Douglas confluence	5	5	5	4-5	4-5	4-5	4-5
0300	Sullane Bridge		5	4-5	5	4-5	4-5	4-5
0500	Fords Mill u/s of Sullane							

Source: EPA (Data for 2002 not yet published)

8.7 As detailed in Table 8.3 water quality was found to be satisfactory at all sites surveyed on the Sullane in the period 1976 –1999. As in the Laney there has been a slight reduction in water quality in the period from 1981-1999. Results, which are indicative of satisfactory water quality, were also obtained for other tributaries of the Sullane including the Douglas and Foherish Rivers.

8.8 The Sullane River discharges into the Lee, which has been designated a salmonid river under the European Community's (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 293, 1988) implementing the Fish Directive (78/659/EEC). Biological monitoring results indicate that water quality is generally satisfactory, with the EPA assigning a Q-value of between 4 and 5 to the watercourse since 1994. However, a Q-value of 3-4, which is indicative of moderately polluted waters was recorded at Toon Bridge, throughout the same sampling period.

8.9 Because of its designation under the Salmonid Regulations a considerable amount of chemical data is available for the main channel of the Lee River. According to the available data, the majority of the breaches of the specified limits occurred in respect of nitrite. BOD and dissolved oxygen levels exceeded the limits in a small percentage of samples. None of the exceedances noted above indicate that pollution levels are sufficient to impact significantly on salmonid populations, or on drinking water quality.

9.0 SITE SURVEYS

A number of surveys were undertaken on and in the environs of the WWTP site as follows: catchment assessment, percolation assessment, chemical survey and biological survey. The results of the catchment assessment have been described in Section 2. The remaining surveys are discussed below.

9.1 Percolation Assessment

The area in which the new WWTP will be constructed consists of sloping fields to the south of the village. It is characterised by semi intensive agriculture. However as it is intended to discharge to the river a percolation test was considered unnecessary at this stage.

9.2 Chemical Survey

9.2.1 In order to determine the current water quality of the Laney River at Ballinagree, water samples were taken at two locations on January 22nd, 2004. The sampling locations, and results of analyses undertaken by Water Technology Ltd., are presented in Tables 9.1 and 9.2 respectively.

Table 9.1. Sampling locations, January 22nd 2004.

REF.	LOCATION	REASON FOR SELECTION
L1	Laney R. 445m u/s of the proposed discharge	To ascertain current water quality in Laney R. u/s of the proposed discharge
L2	Laney R. 475 d/s of the proposed discharge	To ascertain current water quality in the Laney R. d/s of the proposed discharge

Table 9.2. Water quality- January 22nd, 2004.

PARAMETER	L1 Laney R. 445m u/s of the proposed discharge	L2 Laney R. 445m u/s of the proposed discharge
pH	6.42	6.47
BOD (mg/l)	<1	<1
Suspended solids (mg/l)	2	1
Nitrate (NO ₃ -N) (mg/l)	0.6	0.6
Nitrite (NO ₃ -N) (mg/l)	0.006	0.006
Total Nitrogen (mg/l)	3.75	12.09
Orthophosphate (o-PO ₄ -P) (mg/l)	0.08	0.08
Total coliform (CFU/100ml)	1100	1100
Faecal coliform (CFU/100ml)	43	43

Analysis: Water Technology Ltd.

9.2.2 pH, BOD and SS concentrations were similar and generally satisfactory at both sampling locations. The values detected were lower than the limits specified under the Surface Water Regulations for A1 waters. Orthophosphate concentrations were elevated at both sites and were in excess of the 30ug/l target value specified by the Phosphorus Regulations. Although both total and faecal coliforms were detected the results did not breach the mandatory values detailed in the Quality of Bathing Waters Regulations or Surface Water Regulations. The Freshwater Fish Directive does not specify a limit for nitrate, and thus reference may be made instead to the Surface Water Regulations in which a maximum limit of 11.3mg/l N is noted. This limit was not breached. The information presented above indicates that water quality is generally satisfactory, although orthophosphate levels are elevated. However it should be noted that the results in Table 9.2 are derived from one sampling occasion and may not be indicative of average water quality.

9.3 Biological survey

9.3.1 A biological survey was undertaken on the stream on January 26th 2004. The purpose of the survey was to assess background water quality in the Laney River in the absence of a discharge.

9.3.2 Samples were taken at three locations; the locations and results obtained are presented in Table 9.3. A summary of the biological report is attached in Appendix i.

Table 9.3. Q-values obtained January 26 2004

SITE	LOCATION	Q-VALUE
S1	Laney R. 445m u/s of the proposed discharge	Q4-5
S2	Laney R. 120m d/s of the proposed discharge	Q4-5
S3	Laney R. 475m d/s of the proposed discharge	Q4-5

9.3.3 Water quality at all three sampling locations was found to be satisfactory and all three sites were assigned Q values of 4-5. This Q value is indicative of unpolluted waters. Pollution sensitive species (*Heptageniidae*, *Isoperla* sp., *Perla* sp, *Chloroperla* sp. and *Protonemura* sp.) were present at high densities at all sites and pollution tolerant species were either present at low densities or were absent. The bed of the river is generally devoid of silt or algal growth and the gravels noted are suitable for salmonid spawning. Aquatic flora is relatively diverse with water crowfoot, *Fontinalis* sp. and hemlock water dropwort noted. The banks of the river are generally stable, and a natural riffle-glide sequence was evident throughout the stretch of river surveyed.

9.4 Noise and Odour

9.4.1 The noise environment is dominated by traffic (local and through-flow). Occasional noise emissions will arise from domestic sources (e.g. children), agriculture (e.g. tractors) and natural noise (e.g. wind, birds).

9.4.2 The local air environment is rural in character, with no sources of industrial atmospheric emissions present in the immediate locality. The nearest agglomerations (Macroom and Mallow) are

not significant industrial zones. Cork city is a considerable distance away and is situated downwind of the prevailing westerly winds.

9.4.3 From the foregoing, the noise and odour environment at Ballinagree village is generally rural in character. The most intrusive feature is the noise level arising from passing traffic. It is recommended that the proposed upgrade to the WWTP does not give rise to intrusive noise or odour emissions in the village or its environs.

10. INTERPRETATION – EXISTING ENVIRONMENT

10.1 This section provides a summary and analysis of information documented in Part 1 (Sections 2 to 9) regarding the existing environment.

10.2 The Laney is typical fast-flowing moorland river, which drains upland areas; significant proportions of which are afforested with conifers.

10.3 Although the Laney River has not received any formal designations it does contain a population of the freshwater mussel, which is protected under Irish and European legislation including Annex II of the Habitats Directive.

10.4 The Laney River supports a large population of brown trout and is fished locally. The gravels downstream of the discharge point are suitable for salmonid spawning.

10.5 A review of results from the EPA's biological monitoring programme indicates that water quality at all sites on the Laney River is satisfactory. Similarly, water quality in the Sullane and Lee rivers is generally satisfactory.

10.6 A number of chemical and biological samples were taken at various locations during the preparation of this report. Results from samples taken in January 2004 indicate that the water quality at the time of sampling was generally satisfactory at two sites. However, orthophosphate levels were elevated at both of these sites.

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PART 2: LEGISLATION & STANDARDS

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11. SURFACE WATER DIRECTIVE

11.1 Council Directive 75/440/EEC of 16 June 1975, concerning the quality of surface water intended for the abstraction of drinking water in the Member States, was incorporated into Irish law by the European Communities (Quality of Surface Water Intended for the Abstraction of Drinking Water) Regulations, 1989 (S.I. No. 294 of 1989). The Regulations set out quality standards for a total of 39 parameters for waters, which are to be treated for distribution, with the standards varying with the degree of treatment provided. The regulations divide surface waters, from which water for public supply will be taken, into three categories; these categories are based on the degree of treatment, which will be applied, and they set out quality standards for a total of 39 parameters. The degree of treatment for the three categories A1, A2 and A3 are as follows:

A1- Simple physical treatment and disinfection e.g. rapid filtration and disinfection

A2- Normal physical treatment, chemical treatment and disinfection e.g. prechlorination, coagulation, flocculation, decantation, filtration, disinfection (final chlorination).

A3- Intensive physical and chemical treatment, extended treatment and disinfection e.g. chlorination to break-up point, coagulation, flocculation, decantation, filtration, adsorption, (activated carbon), disinfection (ozone, final chlorination).

As the degree of treatment is based on the quality of water to be abstracted there are obvious financial implications should the water quality deteriorate to such a degree that it moves into an A2 or A3 classification. The most significant parameters in the context of this report are BOD, suspended solids, nitrates, ammonium, total coliforms, faecal coliforms, faecal streptococci and salmonella. Given that water may be abstracted from the Laney River downstream of the discharge point at a later date the values specified under these regulations are of relevance.

12. BATHING WATER DIRECTIVE

12.1 Council Directive 76/160/EEC of 8 December 1975, concerning the quality of bathing water and the follow-up National Quality of Bathing Waters Regulations (the most recent being S.I. No. 177 of 1998) lay down quality requirements for inland and coastal waters as designated bathing areas. The quality standards refer chiefly to microbiological parameters, with provision for monitoring of other parameters, where it is suspected that conditions have deteriorated. Microbiological limit values specified in the Directive and in the Quality of Bathing Waters Regulations, 1992 (S.I. No. 155 of 1992) are listed in Table 12.1.

Table 12.1. Bathing Waters limits (per 100ml).

LEGISLATION	TOTAL COLIFORMS	FAECAL COLIFORMS	FAECAL STREPTOCOCCI
Directive 76/160/EEC	500 ¹ 10,000 ²	100 ¹ 2,000 ²	100 ³
S.I. No. 155 of 1992	5,000 ¹ 10,000 ²	1,000 ¹ 2,000 ²	300 ^{2,4}

¹Compliance by 80% of samples ²Compliance by 95% of samples
³To be measured where present or where deterioration suspected
⁴Compliance by 90% of samples

12.2 There are no designated bathing areas in the stretch of water under examination and hence Directive 76/160/EEC and its Regulations, do not directly apply. However if the river downstream of the treatment plant is utilised for water related recreation a sampling programme may be required to ensure that numbers of bacteria do not reach dangerous levels.

13. FRESHWATER FISH DIRECTIVE/SALMONID REGULATIONS

13.1 Council Directive 78/659/EEC of 18 July 1978, on the quality of fresh waters needing protection, in order to support fish life, was given Irish effect by the European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 293 of 1988). The Regulations specify a separate range of standards for salmonid and cyprinid fish in waters designated as needing protection or improvement for their support.

13.2 The Laney River has not been designated as a salmonid river under the European Communities (Quality of Salmonid Waters) Regulations, 1988s. Under these regulations monthly monitoring for a range of specified parameters is required and limits are specified for a range of parameters. The Freshwater Fish Directive and Quality of Salmonid Waters Regulations carry some weight; due to their strict limits and the consequent suitability of a watercourse for other uses should it meet these limits. The most significant wastewater parameters are examined in Table 13.1 with respect to the Salmonid Regulations

Table 13.1. Freshwater Fish Directive limits.

PARAMETER	SALMONID WATERS
BOD	5 mg/l
Suspended solids	25mg/l
Non-ionised Ammonia – NH3	0.02 mg/l
Total ammonium –NH4	1 mg/l
Nitrite	0.05 mg/l
pH	6-9
Dissolved Oxygen	50%>9 mg/l

13.3 The Lee River, into which the water from the Laney will ultimately discharge, is designated under this directive. However the distance between the proposed discharge point on the Laney and the eventual confluence of the Sullane and Lee river are so far apart that the salmonid regulations are not considered directly relevant to this report. Although the Laney River is not designated as salmonid water under the regulations the limits specified do provide a useful standard with which to compare water quality.

14. URBAN WASTE WATER TREATMENT DIRECTIVE

14.1 The Environmental Protection Agency Act, 1992 (Urban Wastewater Treatment) Regulations, 1994 (S.I. No. 419 of 1994) were issued to give effect to EU Council Directive 91/271/EEC concerning urban wastewater treatment. The Regulations specify that wastewater arising from populations of less than 2,000 shall, by the end of 2005, be subject to appropriate treatment prior to discharge. Appropriate treatment is defined as

...any process and/or disposal system which after discharge allows the receiving waters to meet the relevant quality objectives and the relevant provisions of the Directive and of other Community Directives.

This requirement applies to freshwater and estuarine discharges. It also applies to coastal discharges from agglomerations of less than 10,000.

14.2 Wastewater quality limits specified in the Second Schedule of the Regulations note that the final concentrations of BOD and suspended solids shall not exceed 25mg/l and 35mg/l respectively. These limits apply however, only to treated discharges from populations over 2,000 (10,000 where the discharge is coastal); the relevant discharge standards to be applied are to be determined from '*...other relevant Community Directives*'. Other directives of immediate relevance are Directives 75/440/EEC, 76/160/EEC, 78/659/EEC and 79/923/EEC, all of which have been discussed above.

14.3 The Urban Wastewater Directive notes in Annex IIA that a water body (freshwater, estuarine or coastal) must be identified as a sensitive area if certain criteria are met and to where treated waste from agglomerations of greater than 10,000 p.e. will discharge. The Laney River has not been designated as a sensitive area. The designation process is directed at agglomerations significantly larger than that under consideration here.

14.4 The Directive specifies a number of obligations regarding the design of wastewater treatment plants as follows:

- (a) Such plants shall be designed, constructed, operated and maintained to ensure sufficient performance under all normal local climatic conditions.
- (b) When designing the plants, seasonal variations of the load shall be taken into account.
- (c) Waste water treatment plants shall be designed or modified so that representative samples of the incoming wastewater and of treated effluent can be obtained before discharge to receiving waters.
- (d) The points of discharge of urban wastewater shall be chosen, as far as possible, so as to minimize the effects on receiving waters.

It is recommended that items (a), (b) and (c) are taken into account at the design and installation stage of the treatment plant. Item (d) is addressed in this report.

15. PHOSPHORUS REGULATIONS

15.1 The Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations, 1998 (S.I. No. 258 of 1998) were introduced to counter eutrophication observed throughout Irish watercourses and also to comply with Council Directive 76/464/EEC, on pollution caused by certain dangerous substances, discharged into the aquatic environment.

15.2 The Regulations oblige local authorities to maintain or improve the water quality at any part of a river, by 2007, by reference to the biotic index (Q-value) or to the concentration of molybdate-reactive phosphate (largely orthophosphate). The target values specified are set out in the third schedule of the Regulations and are reproduced in Table 15.1.

Table 15.1. Phosphorus Regulations target values.

EXISTING Q-VALUE	EITHER TO BE APPLIED TARGET Q-VALUE	TARGET MRP (ug/l)
5	5	15
4-5	4-5	20
4	4	30
3-4	4	30
3	3-4	50
2-3	3-4	50
≤2	3	70

15.2 The target values specified in the Regulations were adopted on the basis of the empirical relationship between the biotic indices and orthophosphate concentrations in Irish waters as monitored extensively by the EPA. Some concern has been expressed that this simplistic approach does not apply equally throughout Irish watercourses, with consequent complications in the assessment of existing and proposed discharges. These and other difficulties may be addressed in the incorporation of the EU Water Framework Directive into Irish law.

15.3 In practical terms Q values of 4 or more are taken to represent satisfactory water quality, where eutrophication is unlikely to be a problem. Because annual median phosphate (P) values in such waters rarely exceed 30ug P/l, this concentration has been adopted as the target value to be achieved by 2007. The empirical relationship between phosphate and eutrophication suggests that once annual Median Reactive Phosphate (MRP) values exceed 30ug P/l, there is a strong statistical likelihood that the stretch of river in question will have a significant eutrophication problem.

The Phosphorous Directive is directly applicable to the proposed discharge, however information on orthophosphate levels in the watercourse is limited and may not provide accurate information on long-term trends within the watercourse. Given the consistency of the Q values over a long time period, these values are considered more relevant as a basis for determining background orthophosphate levels.

16. NITRATES DIRECTIVE

16.1 Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources obliges member states to identify Nitrate Vulnerable Zones within which restricted agricultural practices will apply. Zone designation is undertaken by reference to a number of criteria listed in Annex I of the Directive including excessive nitrate concentrations in surface or ground waters and high trophic status. With respect to surface waters, the Directive notes that sensitive waters shall be identified where nitrate levels exceed the maximum concentration specified in the Surface Water Directive i.e. 11.3mg/l N.

16.2 Under Ireland's implementation of the Nitrate Directive the whole country has been designated a Nitrate Vulnerable Zone and limited to 210kg/hectare/annum of animal manure or fertiliser. Nitrate levels in the samples taken upstream and downstream of the proposed discharge point in January 2004 revealed low levels of nitrate. These levels (0.006 mg/l – N at both locations) are considerably lower than the 11.3-mg/l N limit specified under the Surface Water Directive. It is noted however that only limited chemical data is available.

17. ROYAL COMMISSION STANDARDS

17.1 The standards noted in the *Eight Report of the Royal Commission on Sewage Disposal* (1912) have played an important part in water quality management since their publication. The standards are summarised in Table 17.1.

Table 17.1. Royal Commission standards, 1912.

DILUTION	STANDARD (mg/l)		TREATMENT REQUIRED
	BOD	SUSPENDED SOLIDS	
8-150	20	30	Primary & secondary
150-300	-	60	Chemical precipitation
300-500	-	150	Plain sedimentation
>500	-	-	No treatment

17.2 The normal standard fixed was 20mg/l BOD and 30mg/l suspended solids. The Commission did not include a quality standard for receiving waters in their recommendations, but noted that river waters with a BOD of 4mg/l will be ordinarily free from signs of pollution.

17.3 In accordance with the Commission's report, most river authorities have traditionally sought a minimum dilution of 1:8 in the discharge of treated wastewater to a watercourse, regardless of treatment efficiency.

17.4 The Commission standards formed the basis for *Memorandum No. 1* (1978) issued by the Irish Department of the Environment Technical Committee on Effluent and Water Quality Standards.

The majority of quality standards specified in the memorandum have since been superseded by more recent legislation and standards such as those described above.

18 NOISE AND ODOUR

18.1 There are no national noise limits in place in Ireland. Most developments are usually restricted by way of noise conditions in relevant planning permissions or Environmental Protection Agency licences. In the granting of permission to developments, the authorities will often refer to the EPA document *Integrated Pollution Control Licensing – Guidance note for noise in relation to scheduled activities* (1995) which notes that the noise level at a sensitive location should be kept below an L_{Ar} value of 55dB during the hours 0800-2200, and below 45dB outside of these hours, the L_{Ar} being equal to the L_{Aeq} (the average noise level) plus a penalty applied where the noise is tonal or impulsive. The guidance note states in particular that audible tones and impulsive noise at sensitive locations should be avoided at night, irrespective of the noise level.

18.2 The EPA guidance note defines a noise sensitive location as

Any dwelling house, hotel or hostel, health building, educational establishment, places of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

It follows that any local residence or establishment, internally and externally, in the vicinity of the WWTP site is a noise sensitive location within the terms of the guidance note.

18.3 While the EPA document was prepared as a guidance note for activities specified only in the First Schedule to the EPA Act (1992) and subsequently in follow-up Orders, the absence of other Irish guides or standards lends the document some significance and consequently the document now carries some weight outside of the industrial sectors regulated by the EPA.

18.4 There are no odour limits specified in Irish legislation, and only the Air Pollution Act, 1987 makes any reference to odour nuisance. In the absence of any limits, the EPA in their document *Wastewater Treatment Manuals: Treatment Systems for Small Communities, Business, Leisure Centres and Hotels* (1999) have recommended minimum buffer zones to be applied around WWTPs over certain threshold p.e. values. The zones have been selected to reduce both odour and noise impacts. The document notes that for systems designed to treat greater than 161p.e. a buffer zone of 50m should be allowed i.e. the WWTP should not be located nearer than 50m to existing development. It is further noted that at least 30m of this distance should be in the possession of the WWTP operator.

19. INTERPRETATION – LEGISLATION & STANDARDS

19.1 This section provides a summary and analysis of information documented in Part 2 (Sections 12 to 19) regarding legislation and standards pertinent to the proposed development and the aquatic environment.

19.2 It is intended that water will be abstracted from the Laney in the future and accordingly, the Surface Water Directive is of some relevance to the proposal. The whole country is designated as a nitrate vulnerable zone; therefore the Nitrate Directive is applicable.

19.3 The 1912 Royal Commission report notes that a wastewater discharge to a watercourse should comply with a 20mg/l BOD and 30mg/l suspended solids standard, and a minimum dilution of 8.

This standard is generally the minimum allowed in the disposal of treated wastewater, and has been endorsed by the Irish Department of the Environment Technical Committee on Effluent and Water Quality Standards.

19.4 The Laney River has not been designated as sensitive areas in the context of the Urban Wastewater Treatment Directive. With reference to the proposal under consideration, the Directive notes that the proposed discharge shall be subject to appropriate treatment prior to discharge, where appropriate treatment is described as that which will allow compliance with other relevant Directives. The most pertinent of these is the Freshwater Fish Directive. The Urban Wastewater Directive specifies that the point of discharge of the treated wastewater shall be chosen so as to minimize the effects on receiving waters.

19.5 There are no designated bathing areas in the Laney River and while due regard should be given to the amenity value of the area, the provisions of the Bathing Water Directive do not directly apply.

19.6 The Phosphorus Regulations oblige local authorities to maintain or improve the water quality at any part of a river, by 2007, by reference to the biotic index (Q-value) at EPA monitoring sites. The proposed development will be assessed in respect of the limits specified under these regulations.

19.8 In summary, the articles of legislation of greatest significance with respect to the proposed discharge are the Surface Water Directive, Freshwater Fish Directive, Nitrate Directive and Phosphorus Regulations. Compliance with limits specified in these articles will generally ensure compliance with provisions of other relevant legislation. The limits of relevance will be discussed in Part 4.

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PART 3: TREATMENT & DISPOSAL OPTIONS

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20. PROPOSED DEVELOPMENT

20.1 Cork County Council proposes to install a new wastewater treatment plant. In order to facilitate future development at Ballinagree it is proposed that the new system will cater for up to 350 people. Accordingly, a design population of 350 p.e. has been assumed in the assessment of the proposed development.

20.2 The EPA document *Wastewater Treatment Manuals: Treatment Systems for Small Communities, Business, Leisure Centres and Hotels* (1999) notes that recent research suggests that *per capita* wastewater flow averages 180l/day, and the document recommends this figure be used. Accordingly this per capita wastewater flow is now accepted as the standard flow to be used in the design of wastewater treatment systems. Using this flow rate, the average daily volume (dry weather flow – DWF) of wastewater arising from 350 p.e. will be 63 m³/day.

20.3 As there is minimal industrial discharge from Ballinagree the wastewater arising in Ballinagree is assumed to be domestic in nature. The characteristics of such wastewater streams have been documented by the EPA (1999) and are summarised in Table 20.1. No unusual variations in the wastewater discharge are expected.

20.4 In addition to the new wastewater treatment system a new collection system will be required so that all discharges are rerouted to the new WWTP.

20.5 It is recommended that surface water arising in Ballinagree be discharged directly to the nearest watercourse. It is advisable that an assessment be carried out of all dwellings and pubs/restaurants etc. in the village area to ensure that grey water entry to the surface water system is limited.

20.6 If surface water is prevented from entering the WWTP facility, it is recommended that the treatment plant does not include an overflow. In such circumstances it is advisable that the packaged treatment plant tender specifications include provision for a flow balancing system to cater for flows up to 6 DWF.

20.1. Domestic inflow wastewater characteristics from EPA study.

PARAMETER	MEAN
SS	163mg/l
BOD	168mg/l
COD	389mg/l
o-PO ₄ -P	7.1mg/l
Total N	40.6mg/l
NH ₃ -N	31.5mg/l
NO ₃ -N	0.25mg/l
NO ₂ -N	0.04mg/l
pH	7.5
Total coliforms	1x10 ⁸ CFU per 100ml
Faecal coliforms	4x10 ⁷ CFU per 100ml

Source: Wastewater treatment manuals –Treatment systems for small communities, business, leisure centres and hotels (EPA,1999)

20.7 The primary disposal options for wastewater arising at Ballinagree is disposal to the Laney River and this option is discussed below.

21. DISCHARGE TO THE LANEY RIVER

21.1 The available chemical data and Q ratings indicate that water quality is satisfactory on the Laney River.

21.2 The 95th percentile flow rate at the proposed discharge point is approximately 9,936 m³/day, providing a dilution of 1:158 with respect to a wastewater discharge of 63m³/day. This dilution is significantly greater than the 1:8 standard specified by the Royal Commission (1912), which is normally sought by river authorities (Section 17).

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PART 4: IMPACTS & RECOMMENDATIONS

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22. IMPACTS

22.1 In sections 26 to 33, the impacts of the proposed discharges to the Laney River are assessed under a number of headings: waste assimilative capacity and BOD, suspended solids, nitrogen, phosphorus, pathogens, and ecology and fisheries.

22.2 Mass balance equations may be used to determine the concentration of a parameter in a watercourse downstream of its discharge. A typical equation is as follows:

$$T = (FC + fc) / (F + f) \text{ Equation 22.1}$$

where T = downstream pollutant concentration (mg/l)
F = upstream river flow (m³/s)
C = background pollutant concentration (mg/l)
f = effluent flow (m³/s)
c = effluent pollutant concentration (mg/l)

23. WASTE ASSIMILATIVE CAPACITY & BOD

23.1 The waste assimilative capacity (WAC) of a watercourse is the mass of BOD, which the watercourse can healthily absorb in one day. The WAC is a function of the existing BOD in the watercourse, the maximum permissible BOD and the minimum flow rate. The WAC may be determined as follows:

$$WAC = (C_{\max} - C_{\text{back}}) \times F_{95} \times 86.4 \text{ Equation 23.1}$$

where WAC = waste assimilative capacity (kg BOD/day)
C_{max} = maximum permissible BOD (mg/l)
C_{back} = background upstream BOD (mg/l)
F₉₅ = 95th percentile flow (= min. flow approx.) (m³/s)
86.4 = units conversion factor

23.2 Under the European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 293 of 1988) the maximum BOD concentration in salmonid freshwaters should not exceed 5mg/l. This standard should be conformed to by 95% of samples over a period of 12 months. Although the Laney is not designated as salmonid water under these regulations the limits specified provide a good measure of suitable water quality.

23.3 The mean background BOD in the River Laney upstream of the proposed outfall location was noted in 7.3 to be >1mg/l. This figure was determined from a one off chemical sample taken in January 2004. Applying the determined 95th percentile flow of 0.115 m³/s upstream of its confluence with the Bunsheelin River, the WAC at this point was estimated to be 39.74 kg BOD/day.

23.4 Memorandum No. 1 (1978) notes that a discharge to a watercourse should not increase the BOD within the watercourse by more than 1mg/l. Using mass balance Equation 22.1, the maximum concentration of BOD in the final wastewater discharge required to meet this stipulation was determined to be 165mg/l. Accordingly treatment to a standard of 20mg/l or less will produce a BOD loading that is lower than this figure.

24. SUSPENDED SOLIDS

24.1 Of the various standards and articles of legislation discussed in Part 2, the strictest suspended solids limits are specified in the Freshwater Fish Directive, which notes that a guide limit of 25mg/l of suspended solids is desirable in fresh waters. A similar maximum concentration is specified by the Salmonid Waters Regulations. The application of this limit will ensure compliance with those specified in the Urban Waste Water Directive and in *Memorandum No. 1*.

24.2 The value for suspended solids was determined from a sample taken in January 2004 at L1. Based on this suspended solids concentration of 2 mg/l (from 7.), a discharge concentration of 30mg/l will result in a downstream level of 2.17 mg/l.

25. NITROGEN

NOTE: ALL CONCENTRATIONS BELOW IN MG/L AS N UNLESS OTHERWISE SPECIFIED.

25.1 Elemental nitrogen may be present in a number of forms in a wastewater discharge. Ammonia and nitrates are of most significance, with the relative proportions of their take-up by plants and algae varying with their ratio, the local conditions and the species involved. The nitrite form is an intermediate stage in the conversion of these two parameters.

25.2 Of greatest importance is that the proposed discharge does not elevate nitrate levels in the receiving watercourse significantly and does not affect the status of the aquatic environment with respect to the 11.3mg/l limit specified in the Nitrates Directive and the Surface Water Directive.

25.3 Nitrogen present as nitrate will rarely impact directly on fish life and thus there are no limits specified in the Freshwater Fish Directive or Salmonid Regulations. Nitrite limits are specified under Quality of Salmonid Waters Regulations. Of more significance are levels of ammonia, particularly the un-ionised form. The European Inland Fisheries Advisory Commission (1970) have reported that an un-ionised concentration of 0.02mg/l NH_3 will present a long-term sub-lethal dose for salmonid and cyprinid fish. This level of 0.02mg/l is specified under the Salmonid Regulations and the same regulations have specified maximum 'total ammonium' concentrations of 1mg/l N.

25.4 Most modern packaged treatment units produce a nitrified effluent, with the major portion of nitrogen converted from ammonia to nitrates as a result of nitrification processes incorporated in the design. Due to the conversion dynamics within secondary stage treatment units, it is difficult to specify separate concentrations of ammonia and nitrates to be met in the treated effluent. The application of a total nitrogen limit – consisting of ammonia, nitrates and intermediate stages – provides a more common sense approach, and limits below are specified accordingly.

25.5 Without the installation of a specific nitrogen-removal process, secondary stage treatment units will not significantly reduce nitrogen levels but merely convert the various forms present to oxidised nitrate, with consequent reductions in ammonia concentrations. The modular design of packaged systems allows further nitrification to be introduced following commissioning. It is not expected that the chosen method of treatment will result in problematic levels of ammonia. Nonetheless, it is recommended that the 1mg/l limit noted in 26.3 be applied as a guide quality standard downstream of the mixing zone.

25.6 A background nitrate level of 0.6mg/l was measured at L1 upstream of the proposed discharge point in January 2004. Using *Equation i*, a wastewater nitrate concentration of 40.6 mg/l (the expected influent concentration from Table 20.1) will result in a level of 0.852 mg/l downstream of the mixing zone. This increase will not be significant in the context of 26.2 and 26.3 above.

25.7 It follows that the removal of nitrogen will not be required in the discharge of the treated wastewater to the Laney River. It is recommended that a maximum limit of 40.6 mg/l of total nitrogen be applied to the discharge.

26. PHOSPHORUS

26.1 Within the aquatic environment phosphorus will be present in a number of forms, both organic and inorganic, and within solution or bound in solids. All forms present are referred to as total phosphorus. A significant fraction of total phosphorus is available for biological metabolism and is termed orthophosphate. The analytical procedure used in the determination of orthophosphate is the molybdate-reactive method, which is used to derive the concentration of molybdate-reactive phosphate (MRP) in a sample. Although the MRP may slightly overestimate the level of orthophosphate present, the two expressions have become synonymous.

26.2 The target values specified in the Phosphate Regulations were adopted on the basis of the empirical relationship between the biotic indices and orthophosphate concentrations in Irish waters as monitored extensively by the EPA. In practical terms Q values of 4 or more are taken to represent satisfactory water quality, where eutrophication is unlikely to be a problem. Because annual median phosphate (P) values in such waters rarely exceed 30ug P/l, this concentration has been adopted as the target value to be achieved by 2007.

26.3 An orthophosphate level of 0.08 mg/l was detected at both monitoring points in January 2004. This value is considerably higher than the target value of 30ug/l specified under the Phosphate Regulations and would be expected to cause eutrophication and a corresponding decrease in Q values. This however has not occurred and the EPA biological monitoring programme has consistently assigned high Q values to all sites on the Laney River. In this context the 0.08mg/l measured in January does not appear to be an accurate reflection of long-term water quality. As detailed in Table 17.1, under the Phosphate Regulations a Q value of 4-5 is correlated with a orthophosphate level of 0.02 mg/l and a Q value of 4 is correlated with a orthophosphate level of 0.03mg/l. Both the EPA and January monitoring programmes assigned a value of Q4-5 to all sites. However to provide a greater safety margin an orthophosphate level of 0.03mg/l (which corresponds to a Q value of 4) has been assumed for the purposes of the following calculations.

26.4 A total phosphorus concentration of 2mg/l is generally taken as the most cost-effective limit, which may be achieved with a secondary stage, packaged treatment plant. For the purposes of the following calculations it is assumed that 80% of total phosphate in the effluent will be orthophosphate, i.e. a concentration of 1.6mg/l orthophosphate in the final effluent.

26.5 The downstream orthophosphate concentrations arising from various total phosphorous loadings in the proposed wastewater discharge have been calculated using *Equation i*, and levels are presented in Table 26.1.

Table 26.1 Orthophosphate levels downstream of discharge.

TREATED P LEVEL	2mg/l Total P (1.6mg/l orthophosphate)	1mg/l Total P (0.8mg/l orthophosphate)
DOWNSTREAM P	0.0399	0.0303

(Orthophosphate)		
------------------	--	--

26.6 A figure of 0.03mg/l orthophosphate is considered indicative of satisfactory water quality in freshwater. A concentration of 0.399 mg/l would therefore represent a rise in orthophosphate levels and may impact on water quality, and thus a 2mg/l treatment limit will not be sufficient. A downstream concentration of 0.303 mg/l obtained with a 1mg/l treatment limit is less likely to have a significant downstream impact and is therefore recommended. Although the downstream value will be slightly higher than the target value of 0.03mg/l it is unlikely to have as significant an impact on the river. It is also noted that two tributaries join the main channel at approximately 464 and 1,400m downstream of the proposed discharge point. A larger tributary, the Glashreagh River, also joins the main channel of the Laney River approximately 1,760 m downstream of the proposed discharge point and in conjunction with the aforementioned tributaries will provide further dilution within a relatively short stretch of the river.

27. PATHOGENS

27.1 Table 20.1 indicates that domestic wastewater will contain on average 100 million and 40 million colony-forming units of total and faecal coliforms respectively per 100ml. These organisms, while not overtly pathogenic in themselves, are used as indicators of pathogenic activity. Due to growth and decay dynamics within bacterial populations, normal mass balance calculations cannot be applied in the assessment of bacteriological impacts. Significant variations in local environmental conditions and wastewater microbiological characteristics do not facilitate the generation of discharge-specific models.

27.2 All treatment processes applied to wastewater will provide some degree of coliform reduction, usually via the filtration of suspended solids in the wastewater stream. Gray (1999) reports that conventional treatment will remove up to 90% of bacterial pathogens, with tertiary treatment increasing this to 98%. Further reduction to 99.99% may be achieved using disinfection. He also notes that dilution and the effects of natural biotic and abiotic factors in surface waters will reduce the density of pathogens further.

27.3 Given the difficulties associated with the modelling of microbiological impacts of a discharge, the varying treatment abilities of treatment plants, and the absence of coliform quality objectives applicable to treated discharges, no specific coliforms standards are recommended. Alternatively it is recommended that a monitoring programme be undertaken following the commissioning of the WWTP selected. An ongoing examination of key microbiological parameters, including total and faecal coliforms, faecal streptococci and sulphite-reducing clostridia, may be used to determine the overall treatment efficiency of the system chosen.

27.4 All results should be examined in the context of limits specified in Table 13.1. It is also recommended that the design of the WWTP be such that the post-installation of disinfection equipment is facilitated. This will be particularly important if a water supply for Macroom is abstracted from this river at a future time. It is also noted that although the levels of bacteria noted did not breach the limits specified under the Surface Water Directive both faecal and total coliforms were found in both samples taken in January 2004. Although the available data suggests that the any water abstracted would currently come under the A1 category this categorisation is based on limited monitoring data. The decision on the installation of disinfection in the WWTP should therefore be made following commission of the abstraction system when more comprehensive data is available. Therefore the installation of disinfection is not considered necessary at this time.

28. ECOLOGY & FISHERIES

28.1 As detailed in section 5 there are no designated areas in proximity to Ballinagree. However the Laney River does support a population of freshwater mussels (*Margaritifera margaritifera*), which are protected under Irish and European legislation including Annex II of the Habitats Directive. This species is particularly susceptible to high levels of nutrients and suspended solids and is considered to be a conservation priority. The Laney River holds a large stock for brown trout and is used for spawning. The discharge limits specified in this report are designed to prevent any significant negative impacts on habitats and fisheries.

29. RECOMMENDED TREATMENT

29.1 The treatment criteria with respect to the River Laney are summarised in Table 29.1.

Table 29.1. Maximum limits in treated discharges.

PARAMETER	RIVER LANEY
BOD	10 mg/l
SS	10 mg/l
TOTAL N	No N removal required
NH ₃ -N	¹
NO ₃ -N	¹
total -P	1 mg/l
Pathogens	Up to 90% removal expected ²

¹No limit recommended, assuming compliance with 1mg/l quality objective outside mixing zone.

²Ongoing performance review recommended.

29.2 As detailed in Part 4 a BOD/SS concentration of 20/30mg/l is unlikely to cause breaches of the relevant limits downstream of the discharge point. However given the high water quality existing in the river at present, the possibility of future water abstraction and the presence of freshwater pearl mussel lower limits for BOD and suspended solids of 10mg/l are recommended. It is also recommended that a lower limit of 1mg/l total phosphorous be applied. These lower figures will also provide a better safety margin given the lack of long-term background data on water quality in the Laney.

29.3 Given the susceptibility of the freshwater pearl mussel to increased nutrients and suspended solids it is important that high levels of suspended solids do not reach the river. Particular care is therefore required during the construction phase of the WWTP and of any new residential developments.

29.4 Consideration should be given to acquiring sufficient ground to provide tertiary treatment should problems arise in the future. In particular the provision of a constructed wetland may be an appropriate treatment system. Such systems are particularly effective at removing suspended solids and would provide a margin of safety if serious problems arose with the WWTP. A wetland can remove heavier solids from the inflow and solids in wetland discharges are often derived from algal and plant material, which is less likely to negatively impact on river biota. The EPA guidelines

(*Treatment systems for small communities, business, leisure centres and hotels, EPA 1999*) give an requirement of 1m²/p.e. for tertiary treatment. However, as this system would function primarily as a backup system in the event of failure of the secondary treatment system, it may be possible to reduce the areal requirement. The final design of any treatment plant should be based on the type of treatment plant installed and local site conditions.

29.5 As nitrification processes may interfere with the wastewater pH, it is recommended that the effluent discharge be monitored to ensure the pH does not fall outside the range 6-9 where such processes are employed.

29.6 It is recommended that any existing discharges be removed following commissioning of the upgraded plant. It is advisable that an assessment be carried out of all premises in the village to ensure that grey water entry to the surface water system is limited.

29.7 It is recommended that a suitable grease trap/interceptor be stipulated in planning permissions granted to any developments proposed at Ballinagree which will include cooking facilities.

29.8 In the final selection of a treatment unit, it is recommended that the following criteria be applied by the supplier at the design stage:

(a) The plant should be designed, constructed, operated and maintained to ensure sufficient performance under all normal local climatic conditions.

(b) Seasonal variations of the load should be taken into account.

(c) If surface water is prevented from entering the WWTP facility (the preferred option), it is recommended that the treatment plant does not include an overflow. In this case it is recommended that the plant tender specifications include provision for a flow balancing system to cater for flows up to 6 DWF.

(d) Provision should be made for possible future retrofitting of additional nitrogen removal and disinfection processes in the WWTP selected.

(e) Sampling points should be provided on the influent and effluent lines to the selected WWTP unit.

29.9 The EPA's noise guidance note states that the noise level at a sensitive location should not exceed 55dB during daytime hours and 45dB at night-time. As the proposed WWTP will be operative during both periods, it is recommended that the 45dB limit be applied. In order to meet this limit, and also to prevent odour nuisance, it is recommended that a buffer zone of at least 50m is allowed between the site of the proposed WWTP and the nearest existing development, of which 30m or more should lie within the WWTP site boundary in order to minimise odour nuisance.

29.10 Modern treatment plants if correctly maintained should not cause excessive odours and similarly noise pollution is unlikely to be a significant issue. However it is important that both noise and odour are assessed on an ongoing basis. The treatment plant to be used for Ballinagree should allow retrospective fitting of absorption systems should odour become a problem in the future.

29.11 Secure fences will be necessary for the perimeter of the site to prevent unauthorised access.

29.12 It is advisable that a maintenance contract is agreed with the supplier of the treatment unit selected.

29.13 It is recommended that any proposed upgrade to the new WWTP or any increase in loadings to the plant is accompanied by a reassessment of waste assimilative capacities in the local catchment.

29.14 It is recommended that a monitoring programme be implemented following the commissioning of the treatment system selected. The programme should include monthly monitoring of the final effluent during the first six months of operation. Samples should also be taken downstream of the outfall outside of the mixing zone. The following parameters are recommended for analysis: pH, BOD, SS, NH₃, NO₃, o-PO₄, t-PO₄, total and faecal coliforms, faecal streptococci and sulphite-reducing clostridia. Results of analysis should be used in any retrospective fine-tuning of the treatment plant installed, and to determine the need for disinfection of the wastewater stream or for the installation of additional nutrient removal.

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APPENDIX I:

APPENDIX 5: BIOLOGICAL SURVEY SUMMARY

L 1	COMMENT
Summer shade 30% (estimated) Current Fast, turbulent riffle Substrate Cobbles, large stones Depth 20 cm Width 6m	Laney R. 445m u/s of the proposed discharge. Lightly shaded. Bankside vegetation includes ash and willow. In stream vegetation includes water crowfoot and <i>Fontinalis</i> sp. Excellent sampling location.

L 2	COMMENT
Summer shade 25% (estimated) Current Moderate Substrate Mixed cobbles, large gravel with some larger stones. Depth 20cm Width 5m	Laney R. 120m d/s of the proposed discharge Bankside vegetation includes mixed grasses and bramble; some erosion noted. Clean gravels. Good sampling location.

L 3	COMMENT
Summer shade 50% (estimated) Current Fast, turbulent Substrate Mixed gravels, cobbles and large stones Depth 20 cm Width 6.5 m	Laney R. 475m d/s of the proposed discharge Bank side partially wooded. No signs of pollution noted. Good sampling location.

SPECIES LIST
<i>Leutra</i> sp.
<i>Amphinemura</i> sp.
<i>Protonemura</i> sp.
<i>Chloroperla</i> sp.
<i>Perla</i> sp.
<i>Isoperla grammatica</i>
<i>Baetis rhodani</i>
<i>Ecdynurus</i> sp.
<i>Rhrithrogena semicolator</i>
<i>Caenis</i> sp.
<i>Gammarus</i> sp.
Seristocomatidae
Limniphilidae
<i>Polycentropus</i> sp.
<i>Hydropsyche</i> sp.
Tipulidae
Tabanidae
Simulidae
Chironomidae
Chironomous sp.
Oligochaeta

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Results of the biological assessment at each site are presented with numbers and relative sensitivities of macroinvertebrate taxa. The sensitivities of different taxa, numbering method and method for determining Q-values are outlined in *The Biological Survey of River Quality 2000* (EPA, 2001).

Site 1	Q4-5
Site 2	Q4-5
Site 3	Q4-5

Conclusion

Water quality was found to be satisfactory at all three sites surveyed. No signs of pollution were noted at any of the three monitoring locations.

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Accreditation Certificate

Cork County Council

Wastewater Testing Laboratory, Inniscarra, Co. Cork

Testing Laboratory

Registration number: 016T

is accredited by the Irish National Accreditation Board (INAB) to undertake testing as detailed in the Schedule bearing the Registration Number detailed above, in compliance with the International Standard ISO/IEC 17025:2005 2nd Edition "General Requirements for the Competence of Testing and Calibration Laboratories"

(This Certificate must be read in conjunction with the Annexed Schedule of Accreditation)

Date of award of accreditation: 01:10:2002

Date of last renewal of accreditation: 20:09:2007

Expiry date of this certificate of accreditation: 01:10:2012

This Accreditation shall remain in force until further notice subject to continuing compliance with INAB accreditation criteria, ISO/IEC 17025 and any further requirements specified by the Irish National Accreditation Board.

Manager: Tom Dempsey

Mr Tom Dempsey

Chairperson: Máire Walsh

Dr Máire Walsh

Issued on 23 June 2008

Organisations are subject to annual surveillance and are re-assessed every five years. The renewal date on this Certificate confirms the latest date of renewal of accreditation. To confirm the validity of this Certificate, please contact the Irish National Accreditation Board.

The INAB is a signatory of the European co-operation for Accreditation (EA) Testing Multilateral Agreement (MLA) and the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement.

Schedule of Accreditation



(Annex to Accreditation Certificate)

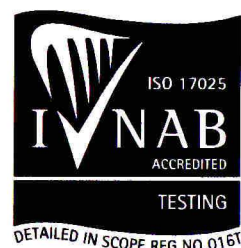
Permanent Laboratory:
Category A

CORK COUNTY COUNCIL

Chemistry Testing Laboratory

Initial Registration Date : 25-April-1991
Postal Address: Waste Water Laboratory
(Address of other locations as they apply) Inniscarra
Co. Cork
Telephone: +353 (21) 4532700
Fax: +353 (21) 4532777
E-mail:
Contact Name: Ms M Cherry
Facilities: Normally not available for Public testing

Schedule of Accreditation



Permanent Laboratory:
Category A

THE IRISH NATIONAL ACCREDITATION BOARD (INAB) is the Irish body for the accreditation of organisations including laboratories.

Laboratory accreditation is available to testing and calibration facilities operated by manufacturing organisations, government departments, educational institutions and commercial testing/calibration services. Indeed, any organisation involved in testing, measurement or calibration in any area of technology can seek accreditation for the work it is undertaking.

Each accredited laboratory has been assessed by skilled specialist assessors and found to meet criteria which are in compliance with ISO/IEC 17025 or ISO/IEC 15189 (medical laboratories). Frequent audits, together with periodic inter-laboratory test programmes, ensure that these standards of operation are maintained.

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- Category A:** Permanent laboratory calibration and testing where the laboratory is erected on a fixed location for a period expected to be greater than three years.
- Category B:** Site calibration and testing that is performed by staff sent out on site by a permanent laboratory that is accredited by the Irish National Accreditation Board.
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- (a) portable test equipment
 - (b) a site laboratory
 - (c) a mobile laboratory or
 - (d) equipment from a mobile or site laboratory

Standard Specification or Test Procedure Used:

The standard specification or test procedure that is accredited is the issue that is current on the date of the most recent visit, unless otherwise stated.

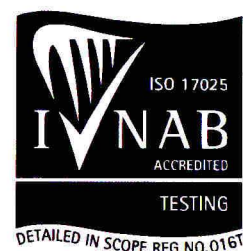
Glossary of Terms

Facilities:

- Public calibration/testing service:** Commercial operations which actively seek work from others.
- Conditionally available for public calibration/testing:** Established for another primary purpose but, more commonly than not, is available for outside work.
- Normally not available for public calibration/testing:** Unavailable for public calibration/testing more often than not.

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Scope of Accreditation



Cork County Council
Chemical Testing Laboratory

Permanent Laboratory:
Category A

INAB Classification number (P9)	Type of test/properties measured	Standard specifications
Materials/products tested	Range of measurement	Equipment/techniques used
766 Waters	Chemical analysis:	Documented in-house methods based on Standard Methods for the Examination of Water & Wastewater 21 st Edition APHA (See Note 1)
.01 Waters for domestic purposes <i>Surface and ground waters</i>	Biochemical Oxygen Demand 2 - 145,000 mg/l	CP No. 1 Membrane electrode
	pH 2 - 12	CP No. 5 Electrometry
	Suspended Solids 0.5 - 17,500 mg/l	CP No. 3 Gravimetric
	Chemical Oxygen Demand 21 - 135 mg/l 120 - 670,000 mg/l	CP No. 6 Reflux - colourmetric method
	Total phosphorus 0.2 - 5,300 mg/l	US-EPA Approved method/HACH Method CP No.20
	Ammonia 0.1 - 1,000 mg/l NH ₃ - N	Documented in-house method CP22 by Konelab based on Method for the Examination of Waters and Associated Material HMSO:1981

Scope of Accreditation

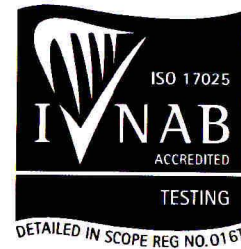


**Cork County Council
Chemical Testing Laboratory**

Permanent Laboratory:
Category A

INAB Classification number (P9) Materials/products tested	Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
766 Waters .01 Waters for domestic purposes <i>Surface and ground waters</i>	<p>Orthophosphate as P (Konelab) Range: 0.005-1.00 mg O-PO4 P/L High Range: 1000 mg O-PO4 P/L Method Detection Limit: 0.02 mg O-PO4 P/L</p> <p>Chloride (Konelab) Range: 25-250 mg/L Cl- High Range Conc.: 86,000 mg/L Cl- Method Detection Limit: 25 mg/L Cl-</p> <p>Sulphate (Konelab) Range: 30-350 mg/L SO4/L High Range Conc.: 35,000 mg/L SO4/L Method Detection Limit: 30 mg SO4/L</p>	<p>CP No. 23 Ascorbic Acid Method</p> <p>CP No. 24 Ferricyanide Method</p> <p>CP No. 25 Documented in-house method by Konelab based on method for the examination of waters and waste waters and associated material HMSO: 1981</p>

Scope of Accreditation



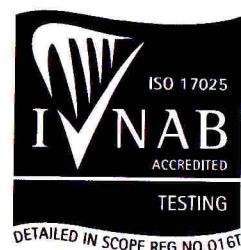
Cork County Council
Chemical Testing Laboratory

Permanent Laboratory:
Category A

INAB Classification number (P9)	Material ³ /products tested	Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
766	Waters	Chemical analysis	Documented in-house methods based on Standard Methods for the Examination of Water & Wastewater 21 st Edition APHA (See Note 1)
.05	Trade Wastes <i>Industrial effluents</i> <i>Urban Wastewater</i> <i>Municipal Wastewater</i>	Biochemical Oxygen Demand 2 - 145,000 mg/l	CP No. 4 Membrane electrode
		pH 2 - 12	CP No. 5 Electrometry
		Suspended Solids 0.5 - 17,500 mg/l	CP No. 3 Gravimetric
		Chemical Oxygen Demand 21 - 135 mg/l 120 - 670,000 mg/l	CP No. 6 Reflux - colourmetric method
		Total phosphorus 0.2 - 5,300 mg/l	US-EPA Approved method/HACH Method CP No.20
		Ammonia 0.1 - 1,000 mg/l NH ₃ -N	Documented in-house method CP22 by Konelab based on Method for the Examination of Waters and Associated Material HMSO: 1981.

Notes
1. APHA American Public Health Association, USA, 21st Edition

Scope of Accreditation

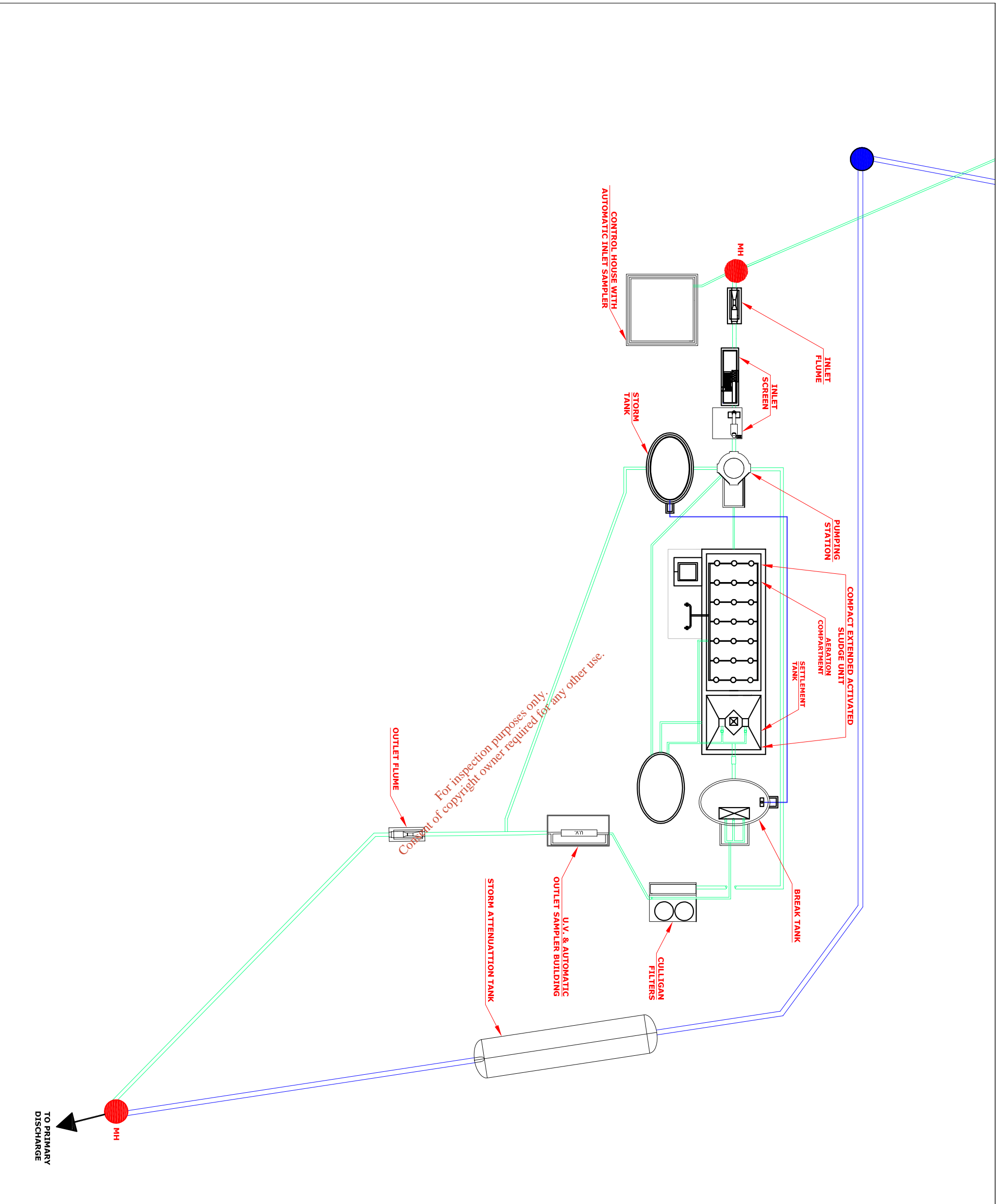


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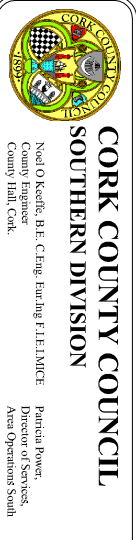
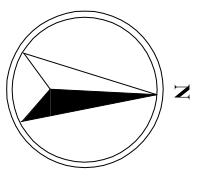
INAB Classification number (P9)	Materials/products tested	Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
766	Waters	Chemical analysis	Documented in-house methods based on Standard Methods for the Examination of Water & Wastewater 21 st Edition APHA (See Note 1)
.05	Trade Wastes Industrial effluents Urban Wastewater Municipal Wastewater	Orthophosphate as P (Konelab) Range: 0.005 - 1.00 mg O-PO ₄ P/L High Range: 1000 mg O-PO ₄ P/L Method Detection Limit: 0.02 mg O-PO ₄ P/L	CP No. 4 Membrane electrode CP No. 23 Ascorbic Acid Method
		Chloride (Konelab) Range: 25-250 mg/L Cl- High Range Conc.: 86,600 mg /L Cl- Method Detection Limit: 25mg / L Cl-	CP No. 24 Ferricyanide Method
		Sulphate (Konelab) Range: 30-250 mg/L SO ₄ /L High Range Conc.: 35,000 mg/L SO ₄ /L Method Detection Limit: 30 mg SO ₄ /L	CP No. 25 Documented in-house method by Konelab based on method for the examination of waters and waste waters and associated material HMSO: 1981

Notes
1. APHA American Public Health Association, USA, 21st Edition



NOTES:

1. This drawing is the property of Cork County Council. It is a confidential document and must not be copied, used, or its content divulged without prior written consent.
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3. All levels refer to Ordnance Survey Datum, Malin Head.
4. DO NOT SCALE, use figured dimensions only, if in doubt ask.



CORK COUNTY COUNCIL
SOUTHERN DIVISION

Niall O'Keefe, B.E. Chief Executive
County Hill, Cork.

Patricia Power,
Director of Services,
Area Operations South

Project: **BALLINAGREE WWTP**
WASTE WATER
DISCHARGE LICENCE APPLICATION

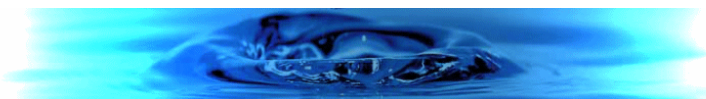
Title: Application Form
Attachment C1_Dwg01
Operational Information WWTP Plan

Designed: CB	Checked: MH	Scale: NOT TO SCALE @ A3	Drawing No: C-1_Dwg01
Drawn: MM	Approved: MH	Date: NOV 09	Status: 0
File Path:			

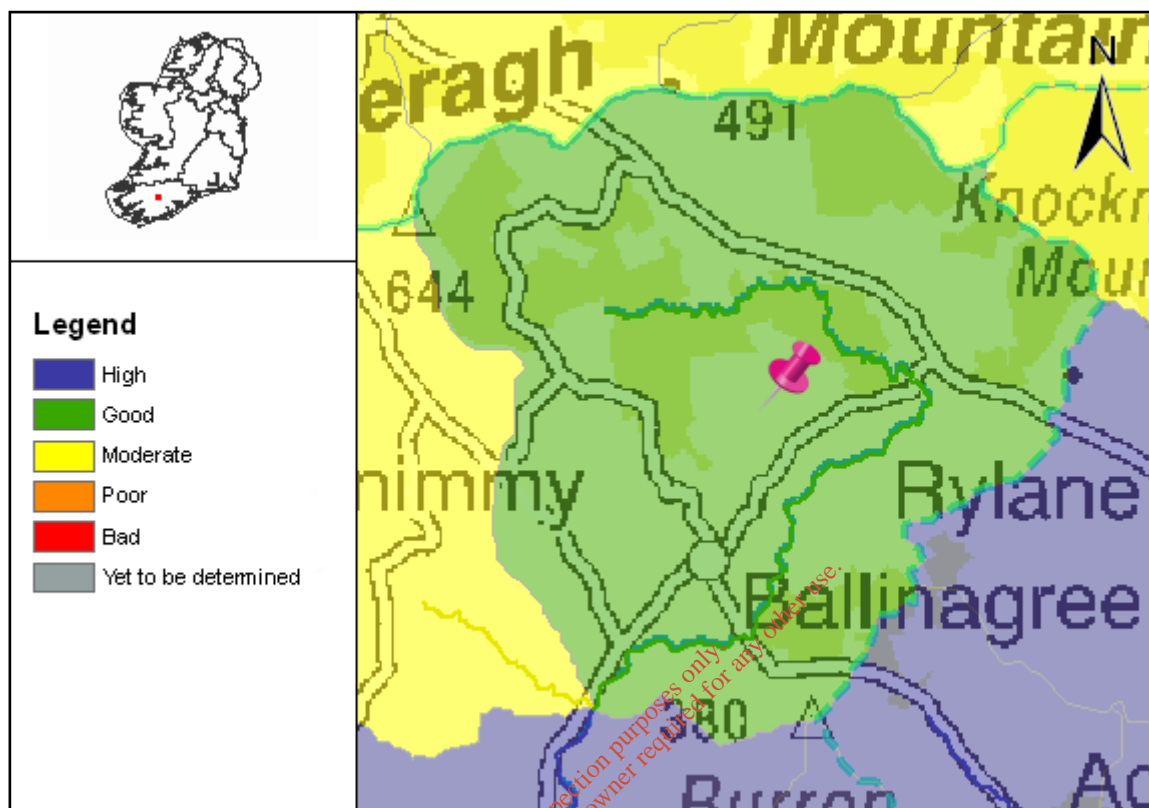
Attachment E4 Ballinagree Table E4

Sample Date	17/11/2009	17/11/2009	17/11/2009	17/11/2009
Sample	Influent	Effluent (SW1)	Upstream (aSW-1u)	Downstream (aSW-1d)
Sample Code	GT1372	GT1373	GT1375	GT1374
Flow M ³ /Day	*	*	*	
pH	7.3	7.4	6.9	6.9
Temperature °C	*	*	*	
Conductivity uS/cm 20 °C	364	373	63	76
Suspended Solids mg/L	48	8	<2.5	<2.5
Ammonia-N mg/L	1.7	4.3	<0.1	<0.1
BOD mg/L	58	8	<1	<1
COD mg/L	132	34	<21	<21
TN-N mg/L	10.08	10.68	1.04	11.5
Nitrite-N mg/L	1.312	<0.1	<0.1	<1
Nitrate-N mg/L	1.168	5.31	0.65	0.86
TP-P mg/L	0.627	0.615	<0.05	<0.05
O-PO4-P mg/L	<0.05	0.42	<0.05	<0.05
SO4 mg/L	36.4	40.3	<30	<30
Phenols µg/L	*	<0.10	*	<0.10
Atrazine µg/L	*	<0.010	*	<0.010
Dichloromethane µg/L	*	<1	*	<1
Simazine µg/L	*	<0.010	*	<0.010
Toluene µg/L	*	<0.28	*	<0.28
Tributyltin µg/L	NOT REQUIRED	NOT REQUIRED	NOT REQUIRED	NOT REQUIRED
Xylenes µg/L	*	<0.73	*	<1
Arsenic µg/L	*	0.2	*	<0.17
Chromium ug/L	<20	<20	<20	<20
Copper ug/L	102	<20	<20	<20
Cyanide µg/L		<5	*	<5
Fluoride µg/L	38	34	25	31
Lead ug/L	<20	<20	<20	<20
Nickel ug/L	<20	<20	<20	<20
Zinc ug/L	<20	<20	<20	<20
Boron ug/L	<20	<20	<20	<20
Cadmium ug/L	<20	<20	<20	<20
Mercury µg/L	*	<0.03	*	<0.03
Selenium µg/L		4	*	0.8
Barium ug/L	23.4	<20	51	<20

Note samples analysed for Dangerous substances in discharge and downstream of discharge



Full Report for Waterbody Laney, Trib of Lee



Date Reported to Europe: 22/12/2008

Date Report Created 01/10/2009



Summary Information:

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

WaterBody Code: IE_SW_19_885

Overall Status: Good

Overall Objective: Protect

Overall Risk: 2b Not At Risk

Applicable Supplementary Measures: Unsewered; Urban & Industrial; Morphology; Forestry;
Report data based upon Draft RBMP, 22/12/2008.



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Status Report

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

WaterBody Code: IE_SW_19_885

Overall Status Result: **Good**

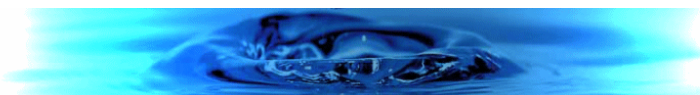


	Status Element Description	Result
EX	Status from Monitored or Extrapolated Waterbody	
	Biological Elements	
Q	Macroinvertebrates (Q-Value)	Good
F	Fish	n/a
DI	Phytobenthos (Diatoms)	n/a
FPM	Status value as determined by Margartifera	n/a
	Supporting Elements	
MOR	Hydromorphology	n/a
SP	Specific Pollutants	n/a
PC	General Physico-Chemical	n/a
	Chemical Status	
PAS	Chemical Status	n/a
	Overall Ecological Status	
O	Overall Ecological Status	Good

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Risk Report

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

WaterBody Code: IE_SW_19_885

Overall Risk Result: **2b** Not At Risk

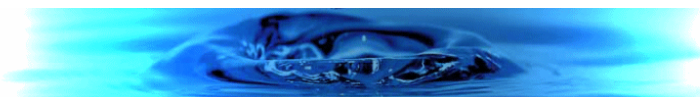


Risk Test Description	Risk
Point Risk Sources	
RP1 WWTPs (2008)	2b Not At Risk
RP2 CSOs	2b Not At Risk
RP3 IPPCs (2008)	2b Not At Risk
RP4 Section 4s (2008)	2b Not At Risk
RPO Overall Risk from Point Sources - Worst Case (2008)	2b Not At Risk
Diffuse Risk Sources	
RD1 EPA diffuse model (2008)	2b Not At Risk
RD2a Road Wash - Soluble Copper	2b Not At Risk
RD2b Road Wash - Total Zinc	2b Not At Risk
RD2c Road Wash - Total Hydrocarbons	2b Not At Risk
RD3 Railways	2b Not At Risk
RD4a Forestry - Acidification (2008)	2a Probably Not At Risk
RD4b Forestry - Suspended Solids (2008)	2b Not At Risk
RD4c Forestry - Eutrophication (2008)	2a Probably Not At Risk
RD5a Unsewered Areas - Pathogens (2008)	2a Probably Not At Risk
RD5b Unsewered Phosphorus (2008)	2b Not At Risk
RD5 Overall Unsewered (2008)	2b Not At Risk
RD6a Arable	2b Not At Risk
RD6b Sheep Dip	2b Not At Risk
RD6c Forestry - Dangerous Substances	2a Probably Not At Risk
RDO Diffuse Overall -Worst Case (2008)	2a Probably Not At Risk

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Date Report Created 01/10/2009

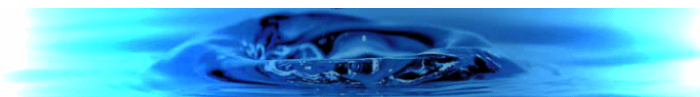


Morphological Risk Sources		
RM1	Channelisation (2008)	2b Not At Risk
RM2	Embankments (2008)	2b Not At Risk
RM3	Impoundments	2b Not At Risk
RM4	Water Regulation	2b Not At Risk
RM0	Morphology Overall - Worst Case (2008)	2b Not At Risk
Q/RDI or Point/Diffuse		
OPD	Q class/EPA Diffuse Model or worst case of Point and Diffuse (2008)	2b Not At Risk
Hydrology		
RHY1	Water balance - Abstraction	2b Not At Risk
Overall Risk		
RA	Rivers Overall - Worst Case (2008)	2b Not At Risk

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Objectives Report

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

WaterBody Code: IE_SW_19_885

Overall Objective: **Protect**

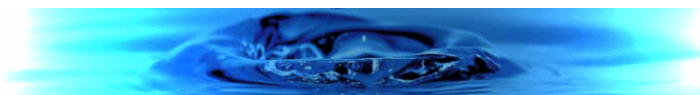


	Objectives Description	Result
	Objectives	
OB1	Objective 1 - Protected Areas	Not Applicable
OB2	Objective 2 - Protect High and Good Status	Protect
OB3	Objective 3 - Restore Less Than Good Status	Not Applicable
OB4	Objective 4 - Reduce Chemical Pollution	Not Applicable
OBO	Overall Objective	Protect
	Deadline	
YR	Default Year by which the objective must be met	2015
EX	Revised Objective Deadline	2007
OBO	Overall Objective and Deadline	Protect

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Basic Measures Report

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

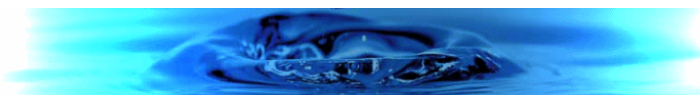
WaterBody Code: IE_SW_19_885



	Basic Measures Description	Applicable
	Key Directives	
BA	Bathing Waters Directive	No
BI	Birds Directive	No
HA	Habitats Directive	No
DW	Drinking Waters Directive	Yes
SEV	Major Accidents and Emergencies (Seveso) Directive	Yes
EIA	Environmental Impact Assessment Directive	Yes
SE	Sewage Sludge Directive	Yes
UW	Urban Waste Water Treatment Directive	No
PL	Plant Protection Products Directive	Yes
NI	Nitrates Directive	Yes
IP	Integrated Pollution Prevention Control Directive	Yes
	Other Stipulated Measures	
CR	Cost recovery for water use	Yes
SU	Promotion of efficient and sustainable water use	Yes
DWS	Protection of drinking water sources	Yes
AB	Control of abstraction and impoundments	Yes
PT	Control of point source discharges	Yes
DI	Control of diffuse source discharges	Yes
GWD	Authorisation of discharges to groundwater	No
PS	Control of priority substances	Yes
MOR	Control of physical modifications to surface waters	Yes
OA	Controls on other activities impacting on water status	Yes
AP	Prevention or reduction of the impact of accidental pollution incidents	Yes

Date Reported to Europe: 22/12/2008

Date Report Created 01/10/2009



Urban and Industrial Discharges Supplementary Measures Report

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

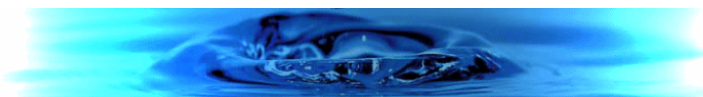
WaterBody Code: IE_SW_19_885



	Point discharges to waters from municipal and industrial sources	Result
PINDDIS	Is there one or more industrial discharge (Section 4 licence issued by the local authority or IPPC licence issued by the EPA) contained within the water body?	No
PINDDISR	Are there industrial discharges (Section 4 licence issued by the local authority or IPPC licence issued by the EPA) that cause the receiving water to be 'At Risk' within the water body?	No
PB1	Basic Measure 1 - Measures for improved management.	No
PB2	Basic Measure 2 - Optimise the performance of the waste water treatment plant by the implementation of a performance management system.	No
PB3	Basic Measure 3 - Revise existing Section 4 license conditions and reduce allowable pollution load.	No
PB4	Basic Measure 4 - Review existing IPPC license conditions and reduce allowable pollution load.	No
PB5	Basic Measure 5 - Investigate contributions to the collection system from unlicensed discharges.	No
PB6	Basic Measure 6 - Investigate contributions to the collection system of specific substances known to impact ecological status.	No
PB7	Basic Measure 7 - Upgrade WWTP to increase capacity.	No
PB8	Basic Measure 8 - Upgrade WWTP to provide nutrient removal treatment.	No
PS1	Supplementary Measure 1 - Measures intended to reduce loading to the treatment plant.	No
PS2	Supplementary Measure 2 - Impose development controls where there is, or is likely to be in the future, insufficient capacity at treatment plants.	No
PS3	Supplementary Measure 3 - Initiate investigations into characteristics of treated wastewater for parameters not presently required to be monitored under the urban wastewater treatment directive.	No
PS4	Supplementary Measure 4 - Initiate research to verify risk assessment results and determine the impact of the discharge.	No
PS5	Supplementary Measure 5 - Use decision making tools in point source discharge management.	No
PS6	Supplementary Measure 6 - Install secondary treatment at plants where this level of treatment is not required under the urban wastewater treatment directive.	No
PS7	Supplementary Measure 7 - Apply a higher standard of treatment (stricter emission controls) where necessary.	No

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Date Report Created 01/10/2009

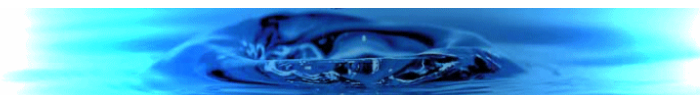


PS8	Supplementary Measure 8 - Upgrade the plant to remove specific substances known to impact on water quality status.	No
PS9	Supplementary Measure 9 - Install ultra-violet or similar type treatment.	No
PS10	Supplementary Measure 10 - Relocate the point of discharge.	No

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Physical Modifications Supplementary Measures Report

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

WaterBody Code: IE_SW_19_885



	Physical Modifications Supplementary Measures	Applicable
	Reduce	
SM1	Codes of Practice	Yes
SM2	Support for voluntary initiatives	Yes
	Remediate	
SM3	Channelisation impact remediation schemes	No
SM4	Channelisation investigation	No
SM5	Overgrazing remediation	No
SM6	Impassable barriers, impact confirmed, investigation into feasibility of remediation required	No
SM7	Impassable barriers investigation	Yes

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Unsewered Properties Supplementary Measures Report

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

WaterBody Code: IE_SW_19_885



Supplementary Measures for Unsewered Properties		Applicable
SP1	Amend building regulations	Yes
SP2	Establish certified expert panels for site investigation and certification of installed systems	Yes
SP3	Assess applications for new unsewered systems by applying risk mapping/decision support systems and codes of practice	Yes
SP4	Carry out an inspection programme in prioritised locations for existing systems and record results in an action tracking system	No
SP5	Enforce requirements for percolation	No
SP6	Enforce requirements for de-sludging	Yes
SP7	Consider connection to municipal systems	No

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Forestry Measures Report

WaterBody Category: Subbasin Waterbody

WaterBody Name: Laney, Trib of Lee

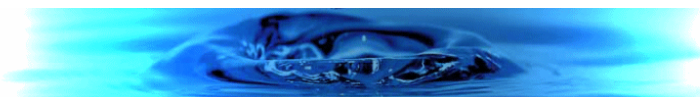
WaterBody Code: IE_SW_19_885



	Forestry Measures for Forestry	Applicable
SF1	Management Instruments - Ensure regulations and guidance are cross referenced and revised to incorporate proposed measures	No
SF2	Acidification - Avoid or limit afforestation on 1st and 2nd order stream catchments in acid sensitive areas	No
SF3	Acidification - Revise the Acidification Protocol to ensure actual minimum alkalinities are detected and revise boundary conditions for afforestation in acid sensitive areas	No
SF10	Pesticide Use - Pre-dip trees in nurseries prior to planting out	No
SF11	Pesticide Use - Maintain registers of pesticide use	No
SF12	Acidification - Restructure existing forests to include open space and structural diversity through age classes and species mix, including broadleaves	No
SF13	Acidification - Mitigate acid impacts symptomatically using basic material	No
SF14	Acidification - Manage catchment drainage to increase residence times and soil wetting	No
SF15	Acidification - Implement measures to increase stream production.	No
SF16	Eutrophication - Establish riparian zone management prior to clearfelling	No
SF17	Eutrophication and Sedimentation - Enhance sediment control	No
SF18	Eutrophication - Manage catchment drainage to increase residence times and soil wetting, including no drainage in some locations	No
SF19	Sedimentation - Establish riparian zone management prior to clearfelling	No
SF20	Sedimentation - Enhance sediment control	No
SF21	Sedimentation - Manage catchment drainage to increase residence times and soil wetting, including no drainage in some locations	No
SF22	Hydromorphology - Enhance drainage network management, minimise drainage in peat soils	No
SF23	Pesticide Use - Develop biological control methods	No

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Date Report Created 01/10/2009



SF4	Eutrophication and Sedimentation - Avoid or limit forest cover on peat sites	No
SF5	Eutrophication and Sedimentation - Change the tree species mix on replanting	No
SF6	Eutrophication and Sedimentation - Limiting felling coup size	No
SF7	Eutrophication and Sedimentation - Establish new forest structures on older plantation sites	No
SF8	Hydromorphology - Audit existing drainage networks in forest catchments	No
SF9	Pesticide Use - Reduce pesticide usage	No

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SITE SYNOPSIS

SITE NAME: MULLAGHANISH TO MUSERAMORE MOUNTAINS SPA

SITE CODE: 004162

The Mullaghanish to Museramore Mountains SPA comprises a substantial part of the Boggeragh/Derrynasaggart Mountains. It is divided roughly into two sectors by the R582 road between Macroom and Millstreet. Most of the site is over 200 m in altitude, rising to heights of 475 m in the eastern sector (Muserabeg) and 462 m in the western sector (Knockullane). Several important rivers rise within the site, notably the Foherish and Awboy. The site is underlain by Old Red Sandstone.

The site consists of a variety of upland habitats, though approximately one-third is afforested. The coniferous forests include first and second rotation plantations, with both pre-thicket and post-thicket stands present. The principal tree species present are Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (*Pinus contorta*). Almost one-third of the site is unplanted blanket bog and heath, with both wet and dry heaths present. The vegetation is characterised by such species as Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Bilberry (*Vaccinium myrtillus*), Common Cottongrass (*Eriophorum angustifolium*), Deergrass (*Scirpus cespitosus*) and Purple Moor-grass (*Molinia caerulea*). The remainder of the site is mostly rough grassland that is used for hill farming. This varies in composition and includes some wet areas with rushes (*Juncus* spp.) and some areas subject to scrub encroachment.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier.

This SPA is a stronghold for Hen Harrier. A survey in 2005 resulted in 5 confirmed breeding pairs, which represents over 3% of the national total. A similar number had been recorded in the 1998-2000 period. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the Birds Directive. The early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage up to c. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey.

The site also supports a breeding population of Merlin, a species that is also listed on Annex I of the E.U. Birds Directive. The population size is not well known but is likely to be one or two pairs.

The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity.

Overall, the site provides excellent nesting and foraging habitat for breeding Hen Harrier and is an important stronghold for the species.

Agglomeration details

Leading Local Authority	Cork County Council
Co-Applicants	
Agglomeration	Ballinagree
Population Equivalent	248
Level of Treatment	Tertiary
Treatment plant address	Ballynagree West Ballinagree Macroom Co. Cork
Grid Ref (12 digits, 6E, 6N)	136781 / 080680 (Verified using GPS)
EPA Reference No:	

Contact details

Contact Name:	Patricia Power
Contact Address:	Water Services Section Cork County Council Southern Division Carrigrohane Road Cork
Contact Number:	021-4276891
Contact Fax:	021-4276321
Contact Email:	patricia.power@corkcoco.ie

Consent of publication requires prior approval of the EPA. This application publication requires prior approval of the EPA.

THIS APPLICATION HAS NOT BEEN SUBMITTED

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

Discharge Point Code: SW-1

Local Authority Ref No:	SW1BAGR	
Source of Emission:	Primary Discharge	
Location:	Ballynagree West	
Grid Ref (12 digits, 6E, 6N)	137178 / 080415 (Verified using GPS)	
Name of Receiving waters:	Laney River	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	None	
Flow Rate in Receiving Waters:	0.11	m ³ .sec ⁻¹ Dry Weather Flow
	0.1973	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	55.8 m ³	Maximum/day	167.4 m ³
Maximum rate/hour	6.98 m ³	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.00065 m ³ /sec		

THIS APPLICATION HAS NOT BEEN SUBMITTED

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	= 25	
Electrical Conductivity (@ 25°C)	µS/cm	Grab	= 1000	
Suspended Solids	mg/l	Grab	= 35	5.86
Ammonia (as N)	mg/l	Grab	= 8	1.34
Biochemical Oxygen Demand	mg/l	Grab	= 25	4.19
Chemical Oxygen Demand	mg/l	Grab	= 125	20.93
Total Nitrogen (as N)	mg/l	Grab	= 15	14.23
Nitrite (as N)	mg/l	Grab	< 0.1	0.017
Nitrate (as N)	mg/l	Grab	= 10	1.67
Total Phosphorous (as P)	mg/l	Grab	= 2	0.33
OrthoPhosphate (as P)	mg/l	Grab	= 1	0.17
Sulphate (SO ₄)	mg/l	Grab	= 80	13.39
Phenols (Sum)	µg/l	Grab	< 0.1	0.017

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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THIS APPLICATION HAS NOT BEEN SUBMITTED

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	< 0.01	0.0017
Dichloromethane	µg/l	Grab	< 1	0.17
Simazine	µg/l	Grab	< 0.01	0.0017
Toluene	µg/l	Grab	< 0.28	0.047
Tributyltin	µg/l	Grab	= 0	0
Xylenes	µg/l	Grab	< 0.73	0.122
Arsenic	µg/l	Grab	= 0.4	0.067
Chromium	µg/l	Grab	< 20	3.35
Copper	µg/l	Grab	< 20	3.35
Cyanide	µg/l	Grab	< 5	0.84
Flouride	µg/l	Grab	= 70	11.72
Lead	µg/l	Grab	< 20	3.35
Nickel	µg/l	Grab	< 20	3.35
Zinc	µg/l	Grab	< 20	3.35
Boron	µg/l	Grab	< 20	3.35
Cadmium	µg/l	Grab	< 20	3.35
Mercury	µg/l	Grab	< 0.03	0.005
Selenium	µg/l	Grab	= 8	1.34
Barium	µg/l	Grab	< 20	3.35

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.

THIS APPLICATION HAS NOT BEEN SUBMITTED

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

Discharge Point Code: SW-2

Local Authority Ref No:	SW2BAGR	
Source of Emission:	Storm Water Overflow	
Location:	Ballynagree West	
Grid Ref (12 digits, 6E, 6N)	137178 / 080415 (Verified using GPS)	
Name of Receiving waters:	Laney River	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	None	
Flow Rate in Receiving Waters:	0.11	m ³ .sec ⁻¹ Dry Weather Flow
	0.25	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		

THIS APPLICATION HAS NOT BEEN SUBMITTED

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	20367

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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)	136847 / 079954 (Verified using GPS)

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	17/11/09					
pH		= 6.9			Grab	2	Electrochemical
Temperature	= 0				Grab	0.5	Electrochemical
Electrical Conductivity (@ 25°C)		= 76			Grab	0.5	Electrochemical
Suspended Solids		< 2.5			Grab	0.5	Gravimetric
Ammonia (as N)		< 0.1			Grab	0.02	Colorimetric
Biochemical Oxygen Demand		< 1			Grab	0.06	Electrochemical
Chemical Oxygen Demand		< 21			Grab	8	Digestion & Colorimetric
Dissolved Oxygen	= 0				Grab	0.2	ISE
Hardness (as CaCO ₃)	= 0				Grab	1	Titrimetric
Total Nitrogen (as N)		= 11.5			Grab	0.5	Digestion & Colorimetric
Nitrite (as N)		< 1			Grab	0.1	Colorimetric
Nitrate (as N)		= 0.86			Grab	0.5	Colorimetric
Total Phosphorous (as P)		< 0.05			Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)		< 0.05			Grab	0.02	Colorimetric
Sulphate (SO ₄)		< 30			Grab	30	Turbidimetric
Phenols (Sum)		< 0			Grab	0.1	GC-MS2

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 of 01/01/09 and 0 where no results are available, TBT testing not required
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THIS APPLICATION HAS NOT BEEN SUBMITTED

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)	136847 / 079954 (Verified using GPS)

Parameter	Results (µg/l)			Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	17/11/09				
Atrazine		< 0.01		Grab	0.96	HPLC
Dichloromethane		< 1		Grab	1	GC MS1
Simazine		< 0.01		Grab	0.01	HPLC
Toluene		< 0.28		Grab	0.02	GC MS1
Tributyltin	= 0			Grab	0.02	GC MS1
Xylenes		< 1		Grab	1	GC MS1
Arsenic		< 0.17		Grab	0.96	ICP-MS
Chromium		< 20		Grab	20	ICP-OES
Copper		< 20		Grab	20	ICP-OES
Cyanide		< 5		Grab	5	Colorimetric
Flouride		= 31		Grab	100	ISE
Lead		< 20		Grab	20	ICP-OES
Nickel		< 20		Grab	20	ICP-OES
Zinc		< 20		Grab	20	ICP-OES
Boron		< 20		Grab	20	ICP-OES
Cadmium		< 20		Grab	20	ICP-OES
Mercury		< 0.03		Grab	0.2	ICP-MS
Selenium		= 0.8		Grab	0.74	ICP-MS
Barium		< 20		Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn default of 01/01/09 and 0 where no results are available, TBT testing 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)	138964 / 082998 (Verified using GPS)

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	17/11/09					
pH		= 6.9			Grab	2	Electrochemical
Temperature	= 0				Grab	0.5	Electrochemical
Electrical Conductivity (@ 25°C)		= 63			Grab	0.5	electrochemical
Suspended Solids		< 2.5			Grab	0.5	Gravimetric
Ammonia (as N)		< 0.1			Grab	0.5	Colorimetric
Biochemical Oxygen Demand		< 1			Grab	0.06	electrochemical
Chemical Oxygen Demand		< 21			Grab	8	Digestion & Colorimetric
Dissolved Oxygen	= 0				Grab	0.2	ISE
Hardness (as CaCO ₃)	= 0				Grab	1	titrimetric
Total Nitrogen (as N)		= 1.04			Grab	0.5	digestion+colorimetric
Nitrite (as N)		< 0.1			Grab	0.1	Colorimetric
Nitrate (as N)		= 0.65			Grab	0.5	Colorimetric
Total Phosphorous (as P)		< 0.05			Grab	0.05	digestion+colorimetric
OrthoPhosphate (as P)		< 0.05			Grab	0.05	Colorimetric
Sulphate (SO ₄)		< 30			Grab	30	Turbidimetric
Phenols (Sum)	= 0				Grab	0.1	GC-MS2

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 of 01/01/09 and 0 where no results are available, TBT testing not required
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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)	138964 / 082998 (Verified using GPS)

Parameter	Results (µg/l)			Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	17/11/09				
Atrazine	= 0			Grab	0.96	HPLC
Dichloromethane	= 0			Grab	1	GC MS1
Simazine	= 0			Grab	0.01	HPLC
Toluene	= 0			Grab	0.02	GC MS1
Tributyltin	= 0			Grab	0.02	GC MS1
Xylenes	= 0			Grab	1	GC MS1
Arsenic	= 0			Grab	0.96	ICP-MS
Chromium		< 20		Grab	20	ICP-OES
Copper		< 20		Grab	20	ICP-OES
Cyanide	= 0			Grab	5	Colorimetric
Flouride		= 25		Grab	100	ISE
Lead		< 20		Grab	20	ICP-OES
Nickel		< 20		Grab	20	ICP-OES
Zinc		< 20		Grab	20	ICP-OES
Boron		< 20		Grab	20	ICP-OES
Cadmium		< 20		Grab	20	ICP-OES
Mercury	= 0			Grab	0.03	ICP-MS
Selenium	= 0			Grab	0.74	ICP-MS
Barium		= 51		Grab	20	ICP-OES

Additional Comments:	default of 01/01/09 and 0 where no results are available, TBT testing not required
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THIS APPLICATION HAS NOT BEEN SUBMITTED

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,	Application Form	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,	Application Form	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,	Application Form	Yes
(d)	state the population equivalent of the agglomeration to which the application relates,	Application Form	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,	Application Form	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.	Application Form	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,	Application Form	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,	Not Applicable	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,	Application Form	Yes
(j)	give particulars of the nearest downstream drinking water abstraction point or points to the discharge point or points,	Application Form	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,	Application Form	Yes
(l)	give detail of compliance with relevant monitoring requirements and treatment standards contained in any applicable Council Directives of Regulations,	Application Form	Yes
(m)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.	Application Form	Yes
(n)	Any other information as may be stipulated by the Agency.	Application Form	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,	Not Applicable	Yes
(b)	where appropriate, a copy of the notice given to a relevant water services authority under Regulation 13,	Not Applicable	Yes
(c)	Such other particulars, drawings, maps, reports and supporting documentation as are necessary to identify and describe, as appropriate -	Attachments A & B	Yes
(c) (i)	the point or points, including storm water overflows, from which a discharge or discharges take place or are to take place, and	Attachments A & B	Yes
(c) (ii)	the point or points at which monitoring and sampling are undertaken or are to be undertaken,	Attachments A & B	Yes
(d)	such fee as is appropriate having regard to the provisions of Regulations 38 and 39.	See Cover Letter	Yes

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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.	Included	Yes
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.	Included	Yes
2	2 hardcopies of application provided or 2 CD versions of application (PDF files) provided.	Included	Yes
3	1 CD of geo-referenced digital files provided.	Included	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
3	2 CD versions of EIS, as PDF files, provided.	Included	Yes
1	EIA provided if applicable	Included	Yes
2	2 hardcopies of EIS provided if applicable.	Included	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	Application Form	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,	Application Form	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 discharge point or points to which the application relates,	Application Form	Yes
(d)	state the population equivalent of the agglomeration to which the application relates,	Application Form	Yes
(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,	Application Form	Yes
(f)	specify the content and extent of the waste water discharge, the level of treatment provided and the flow and type of discharge,	Application Form	Yes
(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,	Application Form	Yes
(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,	Application Form	Yes
(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,	Not Applicable	Yes
(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,	Application Form	Yes
(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,	Application Form	Yes
(l)	give details of any designation under any Council Directive or Regulations that apply in relation to the receiving waters,	Application Form	Yes
(m)	give details of compliance with any applicable monitoring requirements and treatment standards,	Application Form	Yes
(n)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work,	Application Form	Yes
(o)	give any other information as may be stipulated by the Agency, and	Application Form	Yes
(p)	be accompanied by such fee as is appropriate having regard to the provisions of Regulations 38 and 39.	See Cover Letter	Yes