This is a draft document and is subject to revision.

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

Waste Water Discharge Licence Application Form

EPA Ref. Nº: *(Office use only)*	

Environmental Protection Agency
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Tracking Amendments to Draft Application Form

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

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

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

CONTENTS

ABOUT THIS APPLICATION FORM

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

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

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

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

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

PROCEDURES

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

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

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

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

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

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

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

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

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

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

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

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

SECTION A: NON-TECHNICAL SUMMARY

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

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

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

A description of:

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

Supporting information should form **Attachment Nº A.1**

SECTION A: NON-TECHNICAL SUMMARY

Buttevant is located on the main Cork-Limerick (N20), 11km north of Mallow and 7km west of Doneraile. The village is located in an area, which is generally referred to as the 'Goldenvale', which comprise an extensive area of predominately flat or undulating topography along the Blackwater valley. The census of 1996 indicated a population of 1,070, while the census of 2002 showed a population of 987

The Waste Water Works and the Activities Carried Out Therein

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

Buttevant WWTP is designed for a Population Equivalent (PE) of 3,150 which was commissioned in early 2009. Activated Sludge is the process employed at the Buttevant waste water treatment plant. Influent initially is pumped from either of the Pumping Stations in operation to the inlet works at the plant. The inlet works consists of 2 Nr automatic screens followed by a grit trap and grit classifier. From the inlet works influent gravitates to the inlet sump, from which the influent is pumped forward via duty/standby pumps to one of the Sequential Batch Reactors. The system is designed to allow fill and aeration for a preset time and once the preset time for fill and aerate is complete, settlement stage commences. Following settlement, the treated effluent is discharged from the balance tank to the outfall works, which consists of an open channel flume and a composite sampler.

Flows of up to 3 DWF will be pumped from the inlet sump into the SBR for treatment, flows in excess of 3 DWF will overflow to the storm water tank from the inlet sump. The storm water tank is equipped with an emergency storm overflow line that shall allow flow to the outfall chamber. After storm water conditions have abated the contents of the storm tank shall return by gravity to the inlet sump.

Sludge is wasted to the on site Picket Fence Thickener. In addition, the sludge shall be accepted from other WWTP's in the locality for sludge thickening.

The reduction in the phosphorous is carried out by the addition of Ferric Sulphate.

The new commissioned WWTP is treating effluent from a population equivalent of 1,700

Buttevant WWTP is operated and maintained by Electrical and Pump Services Ltd (EPS) on behalf of Cork County Council. This Operation & Maintenance Contract consists of a bundle of three number WWTP's, which consist of the WWTP for the villages of Buttevant, Doneraile and Kilbrin. The Operation & Maintenance Contract for these plants is a 20 year contract.

The sources of emissions from the waste water works

The pollution load for the Buttevant agglomeration arises from the following areas:

- Domestic population

- Commercial premises
- School & crèches
- Infiltration

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

Currently the WWTP is receiving dry weather flows (DWF) in the order of 400m^3/d, which equates to a PE of 1,700.

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

The final effluent is discharged to the Awbeg River, which is adjacent to the wastewater treatment plant site. The maximum DWF existing WWTP is in the order of 400m^3/d.

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

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

The treatment works consists of the following elements:

- Inlet Works
- Forward Feed Sump
- Aeration Tank
- Settling Tank
- Storm Tank
- Picket Fence Thickener
- Outfall to Awbeg River

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

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

A complete new WWTP was recently commissioned for the village, replaced an overloaded Percolating Filter system at the same site. In addition to the commissioning of the new WWTP, the collection system for the village was also upgraded, thereby reducing infiltration to the network and also the upgrading of the collection system resulted in the removal of emergency overflow points on the sewerage lines.

There are no further works envisaged to be undertaken on Bweeng WWTP in the near future.

Measures planned to monitor emissions into the environment

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

The Cork County Council Environmental Department located in Inniscarra takes samples from the River Bride upstream and downstream of the wastewater treatment plant approximately 6 times per year. Samples of the influent and effluent are also taken at these times.
The new wastewater treatment plant shall be equipped with automatic samplers on the inlet, overflow and outlet lines.

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

List of Attachments include the following:

- Location Map Scale 1:50,000 Attachment A1 Map 1
- Site Location Map of WWTP & Pumping Stations Attachment A1 Map 2
- Site Layout of WWTP Attachment A1 Map 3

SECTION B: GENERAL

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

B.1 Agglomeration Details

Name of Agglomeration:	Buttevant & Environs

Applicant's Details

Name and Address for Correspondence

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

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

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

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

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

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

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

Co-Applicant's Details

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

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

Design, Build & Operate Contractor Details

Name*:	Electrical & Pump Services (EPS) Ltd
Address:	Mallow Business Park
	Quartertown
	Mallow
	Co. cork
Tel:	022-31200
Fax:	022-31250
e-mail:	sjefferies@epsireland.com

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

Attachment B.1 should contain appropriately scaled drawings / maps (≤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*:	Sean Jefferies
Address:	Waterhouse,
	Buttevant,
	Co. Cork
Grid ref (6E, 6N)	154564 E; 108924N
Level of Treatment	Secondary
Primary Telephone:	086-1701887
Fax:	022-31250
e-mail:	sjefferies@epsireland.com

***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 (≤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.

Type of Discharge	300mm diameter concrete outfall pipe from wastewater treatment plant. Open pipe
Unique Point Code	SW – 01 BUTT
Location	WWTP site Waterhouse, Buttevant
Grid ref (6E, 6N)	154528E, 108856N

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

Attachment included	**Yes**	**No**
	√	

B.4 Location of Secondary Discharge Point(s)

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

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

Attachment B.4 should contain appropriately scaled drawings / maps (≤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	Emergency overflow – 450mm diameter concrete pipe with flap valve
Unique Point Code	SW 02 - BUTT
Location	Pumping Station Nr 1 along Doneraile Road
Grid ref (6E, 6N)	154401E, 109309N

Type of Discharge	Emergency overflow – 225 diameter concrete pipe, open ended pipe
Unique Point Code	SW 03 - BUTT
Location	Pumping Station Nr 2 along Doneraile Road
Grid ref (6E, 6N)	154424E, 109282N

Type of Discharge	Emergency overflow – 225mm diameter PVC open ended pipe
Unique Point Code	SW 04 - BUTT
Location	Pumping Station Nr 3 Business Park, out Liscarroll Rd
Grid ref (6E, 6N)	153986E, 109800N

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

Attachment included	**Yes**	**No**
	√	

B.6 Planning Authority

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

Name:	Cork County Council
Address:	Planning Department
	County Hall
	Carriagrohane Road

	Cork
Tel:	021 4276891
Fax:	021 4867007
e-mail:	Planninginfo@corkcoc.ie

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

has been obtained	√	***is being processed***	
is not yet applied for		***is not required***	

Local Authority Planning File Reference Nº:	Not Applicable

Attachment B.6 should contain ***the most recent*** planning permission, including a copy of ***all*** conditions, and where an EIS was required, copies of any such EIS and any certification associated with the EIS, should also be enclosed. Where planning permission is not required for the development, provide reasons, relevant correspondence, *etc.*

Attachment included	**Yes**	**No**
	√	

B.7 Other Authorities

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

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

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

Within the SFADCo Area	**Yes**	**No**
		√

B.7 (ii) Health Services Executive Region

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

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

B.7 (iii) Other Relevant Water Services Authorities

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

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

Relevant Authority Notified	**Yes**	**No**
		√

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

Attachment included	**Yes**	**No**
		√

B.8 Notices and Advertisements

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

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

Attachment included	**Yes**	**No**
	√	

B.9 (i) Population Equivalent of Agglomeration

TABLE B.9.1 POPULATION EQUIVALENT OF AGGLOMERATION

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

Population Equivalent	**1,900**
Data Compiled (Year)	**2006**
Method	**Hydraulic Flow**

B.9 (ii) Pending Development

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

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

The current population equivalent being treated at Buttevant WWTP is 1700 based on hydraulic flow assessments.

All developments with granted planning permission and all developments under construction have been included in the agglomeration. The additional p.e due to the granted planning permissions is estimated to be in the order of 200 p.e. There are currently one recently planning permission in relation to non domestic activities. This planning permission was for the construction of 24 Nr light industrial / Warehouses at the Business Park along the Liscarroll Road.

With the completion of the recently commissioned 3,150 p.e WWTP the plant shall be capable of accommodating additional hydraulic and organic loading without posing an environmental risk to the receiving water

B.9 (iii) Fees

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

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

Appropriate Fee Included	Yes	No
	√	

B.10 Capital Investment Programme

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

Recently the WWTP was upgraded at a cost of €2 M and the collection system for the village of Buttevant was also upgraded at a cost of €2.25 M. The collection system works involved the laying of 5.5 km of sewer pipes (foul,

storm and foul rising mains), in addition two nr Pumping Stations were constructed and with the upgrade of the main village pumping station. These projects were upgraded under the Water Services Investment Programme 2002 -2006. No further works are listed to be carried out under the current Water Services Investment Programme 2007 -2009

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

Attachment included	**Yes**	**No**
	√	

B.11 Significant Correspondence

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

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

Attachment included	**Yes**	**No**
		√

B.12 Foreshore Act Licences.

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

Attachment B.12 should contain the most recent licence issued under the Forsehore 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**
		√

SECTION C: INFRASTRUCTURE & OPERATION

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

C.1 Operational Information Requirements

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

C.1.1 Storm Water Overflows

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

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

C.1.2 Pumping Stations

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

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

General Description of the WWTP

Article I. Introduction

E.P.S. here under outline our proposed process design and supporting calculations in respect to the Waste Water Treatment Plant at Buttevant.

The treated effluent to comply with the standards shown in the following table:

Parameter	Effluent Limit
BOD	25 mg/L
Suspended Solids	35 mg/L
Total Phosphorous	2.0 mg/L
Sludge Thickness	20% DS

TABLE 1 – EFFLUENT LIMITS DISCHARGE

Article II. Plant Description

The Wastewater Treatment Works shall be designed for an ultimate design flow of 90 m^3/h (25l/s - 3DWF) to serve a Population Equivalent of aprox. 3,150 PE.

Design basis for upgrade is as per following table:

PE	3,150
gBOD/PE.d	60
Design BOD Load	(3,150 x 60)/1,000 = 189 kg BOD/day
l/PE.d	225
Design Hydraulic flow	(3,150 x 225)/1,000 = 709 m^3/day
Full Flow to treatment (3DWF)	(720 m^3/day x 3)/24 h/d = 88.6 m^3/hr ≈ 90 m^3/hr = 25l/s

TABLE 2 – DESIGN BASIS

The E.P.S. proposal is based on Sequential Batch Reactor (SBR) Treatment plant with equipment necessary for the efficient operation of the plant. The following provisions are incorporated in the design:

1. Provision for inlet sump complete with 2 No. Pumps (Duty/Standby) each with a flow rate of 90 m^3/h (3 DWF)
2. Automated (6mm) Inlet Fine Screen and Grit Removal for a max flow rate of 176.5 m^3/h (49 l/s - 6DWF) including screenings washing/dewatering and screenings disposal facility, influent flow measurement and automatic sampler.
3. Grit Classifier handling a max flow rate of 176.5 m^3/h (49 l/s - 6DWF)
4. Provision for Storm tank, emergency overflow, flow measurement and automatic sampler.
5. The Biological Treatment includes 2 No. Sequential Batch Reactor
6. Provision is made for Chemical dosing for Phosphorous removal
7. Provision is made for Chemical dosing for Foaming control
8. 1 No. Balance Tank
9. Provision of 14 days on site Sludge Picket Fence Thickener based on 3% DS
10. Provision of 3 days on site Sludge Acceptance Tank/Emergency Storage for imported liquid and thickened sludge's
11. The Dewatering System includes 1 No. Centrifuge and Poly Make Unit
12. Final Effluent flow measurement and automatic sampler
13. Provision is made for future expansion including Tertiary Treatment such as Sand Filter

Article III. Functional Description

F01 Inlet Works

The maximum incoming flow to the inlet works is 176.5 m^3/h (49 L/s). The inlet works comprises of 2 No. Automatic Screens, 1 No. Manual screen, 1 No. Grit Trap and 1 No. Grit Classifier.

The screen is supplied with a screening tray with a water supply to clean and convey screenings into a disposal bin. Water supply to the screens is controlled by a solenoid valve.

All screenings are washed, separated and deposited in skips for removal off site.

Ultrasonic sensors provide level measurement in the screen channels for control of the automatic screens. The transmitters for the flow meters on the two rising mains are mounted in the main control panel in the Control building, and will be complete with local flow indication.

Flows of up to 3 DWF will be pumped from the inlet sump into the Biological Treatment stream based on 2 No. Sequential Batch Reactor. Flows in excess of 3 DWF will overflow to the storm water tank from the inlet sump.

The storm water tank is equipped with an emergency storm overflow line that shall allow flow to the outfall chamber. This flow can be measured by an electro magnetic flow meter installed on the overflow line. After storm flow conditions ceases, the contents of the storm tank will return to the inlet sump by gravity flow through a flap valve installed in the inlet sump.

F02 Biological Treatment

The E.P.S. proposal shall be based on the Sequential Batch Reactors Process.

The system is based around two reaction vessels. These SBR tanks act as an aeration /settlement tank. All foul sewage flows to the inlet sump and is pumped forward by duty/standby pumps and delivered to one of the two SBR Tanks. The sewage is aerated by a diffused air system supplied by a duty air blower mounted within an acoustic enclosure external to the tank.

The system is designed to allow fill and aeration for a preset time. Once the preset time for fill and aeration is complete, the settlement stage commences. Once the preset settlement time expires supernatant is discharged by a floating

arm draw-off assembly, which is connected to an outlet valve at the base of the tank, the cycle can then be repeated. The treated effluent is discharged to an effluent outfall chamber.

A SBRs standard operation consist of a series of processes:

1. Fill - incoming screened and de-gritted raw sewage with the biological mass in the SBR
2. Fill/Aeration - the aeration system supplies the oxygen by a series of blowers. The oxygen brings the biological mass from a latent state to a food-consuming active state
3. Aeration/React Cycle - during this phase the raw sewage flow ceases and is transferred to the second SBR. The biological mass now breaks down the remaining sewage and consumes it as food
4. Settle - the blower shuts down and the biological mass begins to settle. The biological mass continues to use oxygen and goes to a latent state when all the oxygen is consumed
5. Draw/Decant - After settling occurs, a clear liquid is left to be discharged
6. Sludge Wasting - At the end of the process cycle a percentage of the biological mass is pumped from the SBRs. This maintains the correct concentration of biomass within the SBR.

Air is supplied by blowers of sufficient size to provide free air to each tank at final design loading. Two duty and one common standby blower will supply the two SBR tanks. Blowers are roots type, rotary positive displacement type with guarded "V" belt connections to the motors.

The proposed surplus sludge system consists of 2 No. WAS pumps (duty/standby) for each SBR tank. Surplus sludge is pumped into the Sludge Holding Tank at 0.75% to 1%DS via these pumps. The sludge is thickened within a PFT by gravity to 2-3%DS and dewatered with a centrifuge to 20% DS.

The supernatant from the Sludge Holding Tank overflows by gravity to the inlet sump for recycle through the process.

F03 Chemical Treatment

Phosphorous exists in three main forms in wastewater; ortho-phosphate, polyphosphate and organic phosphate. During aerobic treatment, the later two forms are converted to ortho-phosphate, which is the easiest form to precipitate using chemical addition.

E.P.S. proposes to remove phosphorous using chemical dosing of Ferric Sulphate. The Chemical Dosing location for the chemical precipitation of phosphorous shall be proposed at the SBR tank i.e. simultaneous precipitation, because polyphosphates and organic phosphorous are less easily removed than orthophosphorus.

F04 Final Effluent

Final effluent prior to discharge from the balance tank to an outfall is subject to outflow measurement by a flume and sampling by a composite flow proportional wastewater sampler.

F05 Picket Fence Thickener

The sludge thickener is an efficient method to gravity concentrate and decants waste sludge's.

Wasted sludge's shall have a solids content of approximately 0.75% DS.

The rake, as it moves through the sludge's, provides avenues for the liquid supernatant to move upward as the solids settle downward within the tank.

F06 Sludge Acceptance Tank

Imported sludge's shall be screened and weighted before entering the acceptance Tank.

Acceptance tank shall be complete with a sludge mixer.

Imported sludge's shall be pumped into the PFT by 2 No. duty/standby pumps for thickening stage.

Article IV. Principle Process Units

F01 Pump Sump

Pump Sump	2.1m dia x 5m deep
	2 No. Inlet Pumps
	(Duty/Standby)
	Flow = 90 m3/h

F02 Storm Tank

Storm Tank	V = 177 m3
	8m dia x 4 m deep
	2 h RT @ 3 DWF
	1 no. mixer

F03 Inlet Screens and Grit Trap

Screen & Grit	2 No. Screens (Duty/Standby)
	1 No. Grit Removal (Duty)
	Max. Flow = 176.5 m3/h
	6mm screen
	Screenings Washer and Compaction
	Sealed Skip
	By-pass Manual raked 10mm Screen

F04 Grit Classifier

Grit Classifier	1 No. Grit Classifier (Duty)
	Max. Flow = 176.5 m3/h
	Grit Washer

F05 SBR

SBR (each)	V = 775 m3
	13.65 m dia x 5.6m side wall
	0.3m freeboard
	Decant depth = 1.65 m
	Max. Decant flow = 241.3 m3/hr
	MLSS = Variable from 2.5g/l to 3.5g/l

F06 Blowers

Blowers		3 No. Blowers (2Duty/1Standby)
		624 Nm3/h
	each	312 Nm3/h @ 600 mbar

F07 Sludge Acceptance Tank

Sludge Acceptance Tank	Volume = 34 m^3
& Emergency	3d Storage

Storage

1 No. Mixer

1 No. Weighbridge

1 No. Screen for liquid sludges

F08 PFT

PFT Volume = 105m³

3.5 d Storage

5.97 m dia x 4.264 m side wall

SA = 28 m^2

Feed Flow = 15 m3/h @ 0.75%DS

F09 WAS Pumps

WAS

2 No. WAS Pumps (Duty/Standby)

Flow = 15 m3/h @ 0.75%DS

F10 Dewatering

Centrifuge 1 No. Duty Centrifuge

Feed Flow = 3.5 m3/h @ 3%DS

Sludge Cake

Flow rate = 1.15 m3/d @

20%DS

1 No Skip

F11 Ferric Dosing

Ferric Dosing

2 m3 IBC

Bund

Storage Capacity = approx. 30 d

2 No. Dosing Pump

Flow = 38 l/d = 2.8 l/h

Article V. Supporting Design calculations

F01 Storm tank

3 DWF = 90 m^3/h = 25 L/s

Flow Rate:	90 m^3/h = 25 L/s
Tank Volume:	177 m^3
Retention Time:	177 m^3/ 90 m^3/h = 2 h @ 3 DWF
Storm Tank Dimensions:	∅ 8 m x 4 m side wall

F02 Inlet Pumps and Inlet Sump

3 DWF = 90 m^3/h = 25 L/s

No. Pumps Required:	2 No. (Duty/Standby)
Flow Rate:	25 L/s
Sump Volume:	17.3 m^3
Dimensions:	∅ 2.1 m x 5 m side wall

F03 Inlet Screen

6 DWF = 176.5 m^3/h = 49 L/s

No. Required:	2 No. Automatic Screens (Duty Cycling) 1No. Manual Screen
Flow Rate:	49 L/s
Screening Size:	6 mm
other	Screenings washer and compaction 10 mm by-Pass Screen Sealed Skip Level sensor

F04 Grit Trap

6 DWF = 176.5 m^3/h = 49 L/s

No. Required:	1 No. (Duty)
Flow Rate:	49 L/s

F05 Grit Classifier

6 DWF = 176.5 m^3/h = 49 L/s

No. Required: 1 No. (Duty)

Flow Rate: 49 L/s

F06 Design Calculation - Sequential Batch Reactor

(a) Typical Cycle Operational Sequence

Percentage (%) of		Operating Sequence	Description	Air
Max.Volume	Cycle Time			
25 to 100	25	Fill	Add Substrate	Off
100	35	Aeration	Reaction Time	On/Cycle
100	20	Settle	Clarify	Off
100 to 35	15	Draw	Remove Effluent	Off
35 to 25	5	Idle/waste	Waste Sludge	Off

(b) During Normal Sequence – Dry Weather Flow

DWF = 30 m^3/h

BOD Load = 189 kg BOD/d

MLSS = 3,000 mg/L

SVI = 120 mg/l

F/M Ratio = 0.096 kg BOD/kg MLSS

Cycle Times: Dry weather = 8 hrs

Wet weather = 5.2hrs

Fill/Aerate = 4 h (which one or more hours can be combined with aeration i.e. Fill/Aerate phase)

Aerate = 2 h

Settle = 1 h

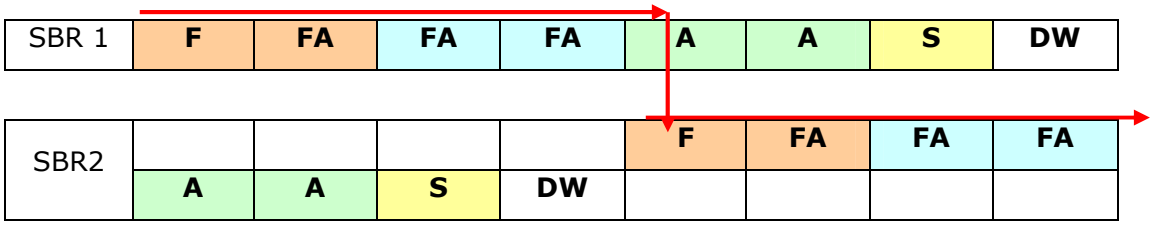
Decant	= 1h (including 20 min for wasting)
TOTAL	= 8 h/Cycle
No. of Cycles /Tank	= 3 Cycles/Tank.d
Total No. Cycles	= 3 Cycles/Tank.d x 2 no. SBR = 6 Cycles/d

No. Tanks Required	2
SBR Volume (each)	775
Dimensions	13.65 m Ø X5.6m
Fill Volume/Cycle	116 m^3 (at continuous DWF)
Decant Depth	794 mm
Sludge Age	17.2 days
Decant Time	1 h
Decant Rate	116m^3/hr
Aeration/day/tank	15 hours (based on an aeration duration of 5.0 hours per cycle, 3 cycles per tank per day)
α	0.6
β	0.95
Oxygen Transfer factor	1.2
Carbonacous oxygen requirement	189 kg BOD/day x 1.2/(0.6x0.95) = 397.9 kg O_2/d
Nitrigenous oxygen requirement	29.6 kg N/day X 4.3 (kg O_2/ kg N) = 127.28 kg O_2 /day
Total oxygen requirement	524.28 kg/day
Aeration required per hour	524.28/15 hours (actual aeration) = 34.95 kg O_2 / hr
Peaking Factor	1.3
Aeration requirement including peaking	45.43 kg O_2 / hr
Aeration flowrate requirement	=45.43 kg O_2 / hr (O_2 conc in Air x average water depth) = 45.43/0.018 X 4.04 = 624 Nm^3/hr
No. of Duty Blowers	2
Flow rate required per Blower	312 Nm^3/hr

Each SBR tank will contain the following mechanical and electrical equipment

1 No. Ultrasonic level sensor
1 Floating arm draw off/winch assembly
2 No.uPVC lateral pipework grids c/w diffuser network
1 No. Dissolved oxygen monitor
2 No. Sludge wasting pump

(i) Cycle sequence – 8 h Cycle/SBR/day



Legend:

F = Fill

FA = Fill and Aerate

S = Settle

DW = Decant and Waste

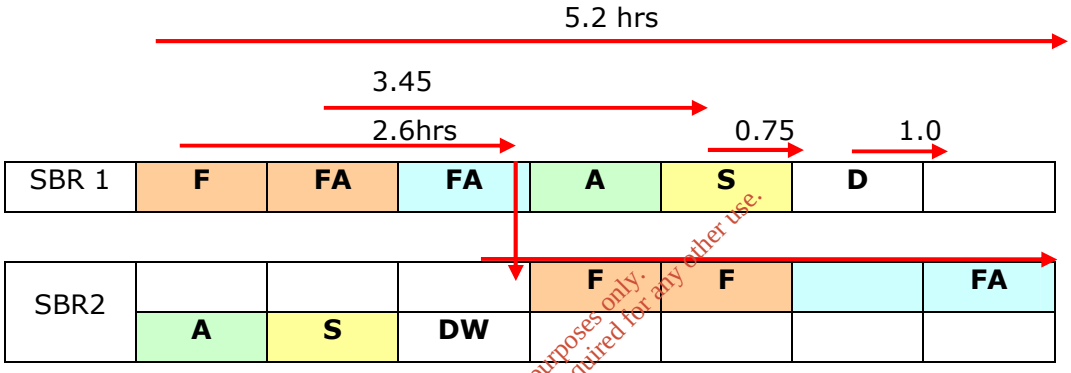
(c) During Peak Sequence – Storm Weather Flow

DWF	= 89 m^3/h
BOD Load	= 189 kg BOD/d
MLSS	= 2,500 mg/L
SVI	= 120 mg/l
F/M Ratio	= 0.05 kg BOD/kg MLSS
No. of Cycles /Tank	= 4.6 Cycles/Tank.d
Total No. Cycles Cycles/d	= 4.6 Cycles/Tank.d x 2 no. SBR = 9.2

Cycle Times:

Fill	= 2.6 h (which can be combined with aeration i.e Fill/Aerate phase)
Aerate	= 3.45 hr (which can be combined with fill phase)
Settle	= 0.75 hr
Decant	= 1.0 h (including for 7.5 min of wasting)
TOTAL	= 1 h/Cycle

(i) Cycle sequence – 5.2 h Cycle/SBR/day



Legend:

F = Fill

S = Settle

FA = Fill and Aerate

DW = Decant and Waste

No. of cycles/Tank	4.6 cycles per tank per day
Total no. of cycles	4.6 X 2 tanks = 9.2 cycles per day
SBR volume (each)	775 m^3
Dimensions	Ø 13.65m X 5.6m side wall
Fill volume per cycle	Up to a maximum of 241m^3
Decant depth	Up to a maximum of 1.65m
Sludge Age	17 days when maximum tank capacity is utilised
Decant Time	1 hour
Decant Rate	Up to a maximum of 241 m^3/hr
Aeration/day/tank	15.87 hours (cased on an aeration duration of 3.45 hours per cycle, 4.6 cycles per tank per day)
α	0.6
β	0.95
Oxygen Transfer Factor	1.2
Carbonacous Oxygen Requirement	189 kg BOD/day x 1.2/(0.6x0.95) = 397 kg O_2/day
Nitrogenous Oxygen Required	29.6kg N/day X 4.3 (kg O_2 / kg N) = 127.28 kg O_2 /day
Total Oxygen Requirement	524.28/15.89 hours (actual aeration) = 32.99 kg/hr
Peaking Factor	1.3
Aeration requirement including peaking factor	42.89 kg/hr
Aeration Flow rate	(42.89 kg O_2 /hr)/ O_2 conc in air x average aeration depth) = 42.89/0.018 X 4.47m = 536 Nm^3/hr
Aeration Flow rate	(42.89 kg O_2 /hr)/ O_2 conc in air x average aeration depth) = 42.89/0.018 X 4.47m = 536 Nm^3/hr
No. of Duty Blowers	2
Flow rate required per Blower	268 Nm^3/hr

(d) Sludge Production - WAS

BOD load	189 kg BOD/d
Kg D.S./kg BOD	1.2
Sludge yield	(189 kg BOD/d) x 1.2 = 227 kg/d
WAS @ 0.75%DS	(227 kg/d) / 7.5 = 30.3 m^3/d

(i) WAS Pumps

No. required	2 No. (Duty/Standby)
Flow Rate	(30.3 m^3/d) / 2 h/d = 15 m^3/h
% DS	0.75 %DS

F07 Phosphorous Removal

Phosphorous Influent	5.66 kg P/d (8 mg/l)
Phosphorous Effluent Limit	1.5 kg P/d (2 mg/l)
Fe required for P removal	1 mol Fe/ 1 mol P
Chemical Treatment	38 L Ferric Solution/d
40% pump stroke	(38 L/d x 1.4)/24h/d = 2.8 l/h

Storage Volume	2 m3
Storage Type	Twin IBC
Aprox Storage Capacity	30 day

F08 Picket Fence Thickener

(a) Indigenous Sludge

BOD load	189 kg BOD/d
Kg D.S./kg BOD	1.2

Sludge yield	(189 kg BOD/d) x 1.2 = 227 kg/d
PFT Feed @ 0.75%DS	(227 kg/d) / 7.5 = 30.3 m^3/d
@ 3%	(227 kg/d) / 30 = 7.6 m^3/d
Volume of PFT Storage Tank	105 m^3
Dimensions	Ø 5.97 m x 4.264 m side wall
Retention time	(105 m^3)/ (7.6 m^3/d) = 14 days

Note: ρ is assumed at 1,000kg/m^3

(b) Imported Sludge

1 day	10 m^3 sludge/d
Volume of Sludge Acceptance Tank	34 m^3
Dry Solids	3%
Retention time	3 days

Note: ρ is assumed at 1,000kg/m^3

F09 Sludge Dewatering

No. Centrifuge Required	1 No. (Duty)
Type of Feed Pumps	
2 No. Feed Flow Rate	3.5 m^3/h @ 3 %DS
Feed Sludge	3%DS
Outlet Sludge	>20%DS

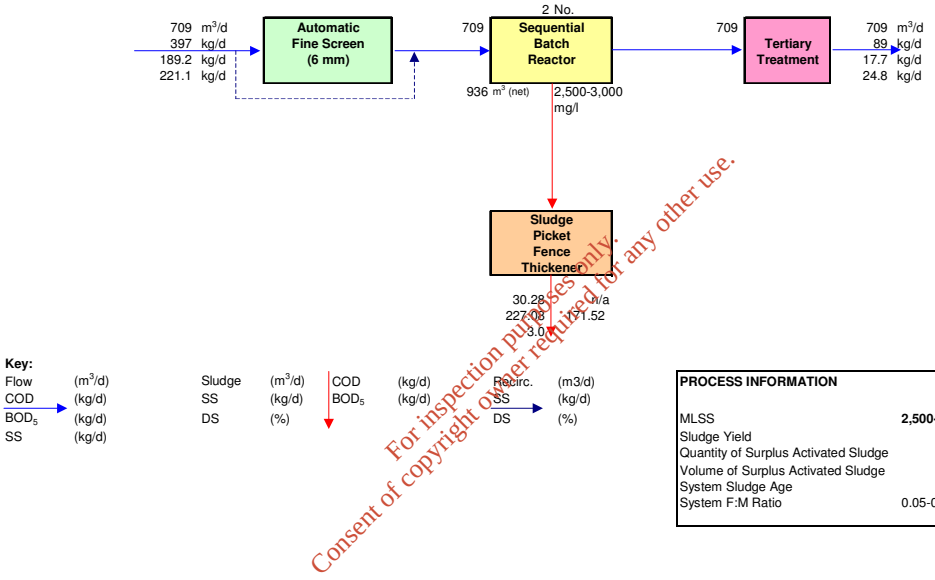
Article VI. Mass Balance

Buttevant WWTP

MASS BALANCE - Carbonaceous

Design Flows			Design Loads			
PE	3,150		COD	560 mg/l	396.9	kg/d
	225	L/pe.d	BOD_5	267 mg/l	189.2	kg/d
DWF	709	m^3/d	SS	312 mg/l	221.1	kg/d
FFT	3.00	DWF	NH_3-N	25 mg/l	17.7	kg/d
3 DWF	2,160	m^3/d	TKN	42 mg/l	n/a	kg/d
3 DWF	25.00	l/s	TP	8 mg/l	5.7	kg/d

Final Effluent Standard			
COD	125.0 mg/l	88.6	kg/d
BOD_5	25 mg/l	17.7	kg/d
SS	35 mg/l	24.81	kg/d
NH_3-N	5.0 mg/l	3.54	kg/d
TN	15 mg/l	10.6	kg/d
TP	2 mg/l	1.4	kg/d



PROCESS INFORMATION		
MLSS	**2,500-3,000**	mg/l
Sludge Yield	1.2	(kgDS/kgBOD)
Quantity of Surplus Activated Sludge	227	kg/d
Volume of Surplus Activated Sludge	30.3	m^3/d
System Sludge Age	17.0	days
System F:M Ratio	0.05-0.096	days

Description of Pumping Stations located within the Agglomeration

There are 5 Nr Pumping Stations located within the Agglomeration of Buttevant, which are situated at the following locations:

1. Doneraile Rd Pumping Station - Old
2. Doneraile Rd Pumping Station – New
3. Business Park Rd Pumping Station
4. Ard Bhaile Pumping Station
5. Broadway Pumping Station

Doneraile Rd Pumping Station – Old

Grid Reference: 154401E, 109309N

This pumping station is the primary pumping station for the village of Buttevant. All influent arising from the western side of the Awbeg River gravitates to this pumping station, from where the raw sewerage is pumped to the WWTP site on the eastern side of the Awbeg River. This pumping station was upgraded as part of the recent Collection System upgrade Contract.

The Pumping Station consists of the following elements:

- Effluent gravitates from the village into a xx sump
- 2 Nr 68L/Sec submersible duty / standby pumps which are operated on ultrasonic probes
- Provision for a third pump is allowed
- 450mm diameter concrete emergency overflow pipe from the sump to the adjacent river. A Disc Screen is fitted on the overflow line.
- The overflow pipe has a flap valve fitted on the pipe at entry via the headwall to the Awbeg River

Doneraile Rd Pumping Station – New

Grid Reference: 154424E, 109282N

This pumping station is located at the entrance to the WWTP site. All influent arising from the eastern side of the Awbeg River gravitates to this pumping station, from where the raw sewerage is pumped to the nearby WWTP site. This pumping station caters for approximately 25 dwelloings along the Doneraile Road. This pumping station was constructed as part of the recent Collection System upgrade Contract.

- Sump has dimensions of 1.9m diameter & 5m deep
- 2 Nr Duty / Standby Pumps controlled by ultrasonic probes
- 225mm conctrete Emergency overflow to the adjacent Awbeg River
- Flap valve fitted on end of overflow pipe

Business Park Rd Pumping Station

Grid Reference: 153986E, 109080N

This pumping station is located at the end of the Business Park along the Licassoll Road. This pumping station was upgraded as part of the recent Collection System upgrade Contract.

- Sump has dimensions of 1.9m diameter & 5m deep
- 2 Nr Duty / Standby Pumps controlled by ultrasonic probes
- 225mm PVC Emergency overflow to the adjacent Awbeg River

Ard Bhaile Pumping Station

Grid Reference: E, N

This pumping station is located at the end of the Ard Bhaile Housing Estate along the Kanturk Road. This pumping station was installed as part of the housing estate development of 113 dwellings

- Sump has dimensions of 1.9m diameter & 3.5m deep
- 2 Nr Duty / Standby Pumps controlled by floats
- No Overflow

Broadway Pumping Station

Grid Reference: 154401E, 109309N

This pumping station is located in the Knockbarry area. This pumping station caters for approximately 30 houses.

- Sump has dimensions of 2.2m x 1.8m x 2m
- 1 Nr Duty Pumps controlled by floats
- No Overflow

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

Attachment included	**Yes**	**No**
	√	

C.2 Outfall Design and Construction

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

Primary Discharge Point, SW-01 Buttevant

Type of Discharge	300mm diameter concrete outfall pipe from wastewater treatment plant. Open pipe
Unique Point Code	SW – 01 BUTT
Location	WWTP site Waterhouse, Buttevant. The plant is approximately 500m from the N20
Grid ref (6E, 6N)	154528E, 108856N

The primary discharge point, SW-01 Buttevant, is the main outlet from Buttevant Wastewater Treatment Plant. The outlet runs in a south-westerly direction of approximately 350m from the plant site. The point of discharge is a 300mm open ended pipe which discharges to the Awbeg River.

Storm Water Overflow Point, SW-02 Buttevant

Type of Discharge	Emergency overflow – 450mm diameter concrete pipe with flap valve
Unique Point Code	SW 02 - BUTT
Location	Pumping Station Nr 1 along Doneraile Road, which is located approximately 100m from the N20
Grid ref (6E, 6N)	154401E, 109309N

The secondary discharge point, SW-02 Buttevant, is a 450mm concrete overflow pipe, with a disc screen on the line. The outlet from the pumping station runs in an easterly direction for a distance of 8m to the Awbeg River. A flap valve is fitted on the head wall at the entry point to the river.

Storm Water Overflow Point, SW-03 Buttevant

Type of Discharge	Emergency overflow – 225 diameter concrete pipe, open ended pipe
Unique Point Code	SW 03 - BUTT
Location	Pumping Station Nr 2 along Doneraile Road which is located approximately 160m from the N20
Grid ref (6E, 6N)	154424E, 109282N

The secondary discharge point, SW-03 Buttevant, is a 225mm concrete overflow pipe. The outlet from the pumping station runs in a westerly direction for a distance of 10m to the Awbeg River.

Storm Water Overflow Point, SW-04 Buttevant

Type of Discharge	Emergency overflow – 225mm diameter PVC open ended pipe
Unique Point Code	SW 04 - BUTT
Location	Pumping Station Nr 3 Business Park, out Liscarroll Rd, which is

	approximately 1km from the village centre
Grid ref (6E, 6N)	153986E, 109800N

The secondary discharge point, SW-04 Buttevant, is a 225mm PVC overflow pipe. The outlet from the pumping station runs in an easterly direction for a distance of 10m to join a storm overflow pipe, from the outlet heads in a northerly direction for a distance of 50m to the Awbeg River.

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

Attachment included	**Yes**	**No**
		√

SECTION D: DISCHARGES TO THE AQUATIC ENVIRONMENT

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

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

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

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

D.1 Discharges to Surface Waters

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

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

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

Attachment included	**Yes**	**No**

D.2 Tabular Data on Discharge Points

Applicants should submit the following information for each discharge point:

Table D.2:

PT_CD	PT_TYPE	LA_NAME	RWB_TYPE	RWB_NAME	DESIGNATION	EASTING	NORTHING
SW-01 - BUTT	Primary	Cork County Council	River	Awbeg River		154528	108856
SW-02 – BUTT	Storm	Cork County Council	River	Awbeg River		154401	109309
SW-03 - BUTT	Storm	Cork County Council	River	Awbeg River		154424	109282
SW-04 - BUTT	Storm	Cork County Council	River	Awbeg River		153986	109800

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 E.1(i) via the following web based link: http://78.137.160.73/epa_wwd_licensing/.

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

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

E.2. Monitoring and Sampling Points

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

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

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

Details of any accreditation or certification of analysis should be included. **Attachment E.2** should contain any supporting information.

Attachment included	**Yes**	**No**

E.3. Tabular data on Monitoring and Sampling Points

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

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
SW01	Primary	SAMPLING	154564	108924	N
aSW01u	u/s	Sampling	154440	109306	N
aSW01d	d/s	Sampling	156707	108241	N

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

E.4 Sampling Data

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

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

Attachment E.4 should contain any supporting information.

Attachment included	**Yes**	**No**

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

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

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

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

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

- Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

- Details of all monitoring of the receiving water should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables F.1(i)(a) & (b) should be completed for the primary discharge point. Surface water monitoring locations upstream and downstream of the discharge point shall be screened for those substances listed in Tables F.1(i)(a) & (b). Monitoring of surface water shall be carried out at not less than two points, one upstream from the discharge location and one downstream.

- For discharges from secondary discharge points Tables F.1(ii)(a) & (b) should be completed. Furthermore, provide summary details and an assessment of the impacts of any existing or proposed emissions on the surface water or ground (aquifers, soils, sub-soils and rock environment), including any impact on environmental media other than those into which the emissions are to be made.

- Provide details of the extent and type of ground emissions at the works. For larger discharges to groundwaters, e.g., from Integrated Constructed Wetlands, large scale percolation areas, etc., a comprehensive report must be completed which should include, inter alia, topography, meteorological data, water quality, geology, hydrology, and hydrogeology. The latter must in particular present the aquifer classification and vulnerability. The Geological Survey of Ireland Groundwater Protection Scheme Dept of the Environment and Local Government, Geological Survey of Ireland, EPA (1999) methodology should be used for any such classification. This report should also identify all surface water bodies and water wells that may be at risk as a result of the ground discharge.

- Describe the existing environment in terms of water quality with particular reference to environmental quality standards or other

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

- Provide a statement as to whether or not emissions of main polluting substances (as defined in the *Dangerous Substances Regulations S.I. No. 12 of 2001*) to water are likely to impair the environment.

- In circumstances where water abstraction points exist downstream of any discharge describe measures to be undertaken to ensure that discharges from the waste water works will not have a significant effect on faecal coliform, salmonella and protozoan pathogen numbers, e.g., Cryptosporidium and Giardia, in the receiving water environment.

- Indicate whether or not emissions from the agglomeration or any plant, methods, processes, operating procedures or other factors which affect such emissions are likely to have a significant effect on –

  (a) a site (until the adoption, in respect of the site, of a decision by the European Commission under Article 21 of Council Directive 92/43/EEC for the purposes of the third paragraph of Article 4(2) of that Directive) —

    (i) notified for the purposes of Regulation 4 of the Natural Habitats Regulations, subject to any amendments made to it by virtue of Regulation 5 of those Regulations,

    (ii) details of which have been transmitted to the Commission in accordance with Regulation 5(4) of the Natural Habitats Regulations, or

    (iii) added by virtue of Regulation 6 of the Natural Habitats Regulations to the list transmitted to the Commission in accordance with Regulation 5(4) of those Regulations,

  (b) a site adopted by the European Commission as a site of Community importance for the purposes of Article 4(2) of Council Directive 92/43/EEC[1] 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/EEC[2];

  [1]Council 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)

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

- Describe, where appropriate, measures for minimising pollution over long distances or in the territory of other states.

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

The plant is performing satisfactorily at present and operating within the requirements of the following legislation. As the plant and the collection system has been recently upgraded there are no improvements planned at present for the Buttevant Wastewater Treatment Plant.

Water Quality Standards

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

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

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

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

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

The SWRBD has proposed water quality standards for the Awbeg River under a water quality / catchments management plan. The Awbeg is classified as Poor ecological quality status on the ground of biological quality data. Note also this is located in a Margaritifera margaritifera (freshwater pearl mussel) which is a protected area and for such sites the water quality standards that need to be

achieved will be higher than for other areas as these are a species of high conservation importance.

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

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

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

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

The Awbeg River is not a designated Sensitive Area under the Urban Wastewater Treatment Regulations 2001 (S.I. 254 of 2001). The River Blackwater downstream of Mallow Railway to Ballyduff Bridge is a designated Sensitive Area. This is not within 2km of any discharge point from Buttevant Wastewater Treatment wastewater works.

Downstream of the discharge points, the Awbeg River traverses through Doneraile and Castletownroche villages. Water is not abstracted from the Awbeg River for any of these villages. However three Public Water Supplies are located adjacent to the Awbeg River. The nature of the source of these three supplies is a Spring Supply.

The Three Spring Supplies are shown is the table below:

Name	Volume	Source Type	Easting	Northing
Doneraile - Clogher	2000m^3/d	Spring	166488	107193
Castletownroche Nr 1	650m^3/d	Spring	168350	103520
Castletownroche Nr 1	600m^3/d	Spring	168450	103590

Areas of Conservation

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

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

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

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

The Blackwater River Site Synopsis is included in this attachment.

Natural Heritage Areas
The Awbeg River does flow through a Proposed Natural Heritage Areas (NHA). Natural Heritage Areas are the basic designation for wildlife. An NHA is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection.

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

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

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

Receiving Water Quality Requirement

Water Quality analysis data for the Awbeg River was obtained from Cork County Council. The EPA also takes samples from a number of locations along the Awbeg River, however some of these are located after Doneraile and Castletownroche WWTP's discharge point. In the vicinity of the treatment plant, three nr monitoring stations are relevant to Buttevant WWTP. These stations are the flowing:

- *Bridge d/s of Scart Bridge – upstream of Buttevant WWTP discharge point by approximately 7km*
- *Buttevant Bridge – upstream of Buttevant WWTP discharge point by approximately 400m. This station is adjacent to Doneraile Rd Pumping stations*
- *Br N of Cahermeee House – downstream of Buttevant WWTP discharge point by approximately 4km*

Table F1-1: Biological Quality Rating for Awbeg River – Upstream & Downstream of Discharge

Sampling Location	**EPA Biological Quality Rating (Q values)**			
	1995 -1997	**2001 – 2003**	**2006**	**Target**
Br d/s of Scart Br	3 - 4	4	4	4
Buttevant Br	3	3	3	3-4
Br N of Cahermee house	3-4	3-4	N/D	4

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

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

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

Table F1-2: Receiving Water Quality Limiting Values

Parameter	**Water Quality Standard (mg/l)**
Chromium	30
Copper	30
Lead	10
Nickel	50
Zinc	100

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

Effluent Standards

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

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

Parameter	**Effluent Standards (mg/l)**	**Actual Concentrations* (mg/l)**
Biological Oxygen Demand (BOD)	25	85.11
Suspended Solids (SS)	35	75

**Actual Concentration is the average effluent concentrations recorded at the outlet of the WWTP by Cork County Council Wastewater Laboratory during the period Mar '06 to Oct '08.*

From Table 4 above, it is evident that treated effluent from the old Buttevant wastewater treatment plant was not compliant with the quality of effluent standards set out in the above legislation. The New Wastewater Treatment Plant is being commissioned in early 2009 and as a result the effluent standards will be in compliance with the regulations.

Assimilative Capacity of the Receiving Water – Data relates to the old WWTP (new WWTP commissioned in early 2009, as such data could not be included due requirement to submit data by deadline required.)

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

Median flow of River = 1.98 m^3/sec
Median oPO_4-P in River (upstream) = 0.05 mg/L

Average volume of discharge = 0.005 m^3/sec
Median value for oPO_4-P in discharge = 2.86 mg/L

$$C_{final} = \frac{(1.98 \times 0.05) + (0.005 \times 2.86)}{1.98 + 0.005}$$

C_{final} = 0.057 mg/L oPO_4-P

The increase in Orthophosphate due to the discharge of the **old Buttevant WWTP** is 7 μg/L.

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

Flow of River (95%) = 0.16 m^3/sec
Average BOD in River (upstream) = 1.31 mg/L

Average volume of discharge = 0.005 m^3/sec
Average BOD in discharge = 85.11 mg/L

$$C_{final} = \frac{(0.16 \times 1.31) + (0.005 \times 85.11)}{0.16 + 0.005}$$

C_{final} = 3.85 mg/L BOD

The increase in BOD due to the discharge of **old Buttevant WWTP** is 2.36 mg/L.

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

Flow of River (95%) = 0.16m^3/sec
Average Suspended Solids in River (upstream) = 7.92mg/L

Average volume of discharge = 0.005 m^3/sec
Average Suspended Solids in discharge = 75 mg/L

$$C_{final} = \frac{(0.16 \times 7.92) + (0.005 \times 75)}{0.16 + 0.005}$$

C_{final} = 9.95 mg/L Suspended Solids

The increase in Suspended Solids due to the discharge of **old Buttevant WWTP** is 2.03 mg/L.

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

50% Median flow of River = 1.98 m^3/sec
Median TPO_4-P in River (upstream) = 0.2 mg/L

Average volume of discharge = 0.005 m^3/sec
Median TPO_4-P in discharge = 4.25 mg/L

$$C_{final} = \frac{(1.98 \times 0.2) + (0.005 \times 4.25)}{1.98 + 0.005}$$

C_{final} = 0.21 mg/L TPO_4-P

The increase in Total Phosphate due to the discharge of **old Buttevant WWTP** is 10 μg/L.

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

Flow of River (95%) = 0..16 m^3/sec
Average Total Nitrogen in River (upstream) = 3.22mg/L

Average volume of discharge = 0.005 m^3/sec
Average Total Nitrogen in discharge = 34.7 mg/L

$$C_{final} = \frac{(0.16 \times 3.22) + (0.005 \times 34.7)}{0.16 + 0.005}$$

C_{final} = 4.17 mg/L Total Nitrogen

The increase in Total Nitrogen due to the discharge of **old Buttevant WWTP** is 0.95 mg/L.

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

Flow of River (95%) = 0.16 m^3/sec
Average Sulphate in River (upstream) = 30 mg/L

Average volume of discharge = 0.005 m^3/sec
Average Sulphate of discharge = 30 mg/L

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

$$C_{final} = \frac{(0.16x\ 30) + (0.005\ x\ 30)}{0.16 + 0.005}$$

C_{final} = 30 mg/L Sulphate

The increase in Sulphate due to the discharge of **old Buttevant WWTP** is 0mg/L.

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

Flow of River (95%) = 0.16 m^3/sec
Average Ammonia-N in River (upstream) = 0.1 mg/L

Average volume of discharge = 0.005 m^3/sec
Average Ammonia-N in discharge = 16.27 mg/L

Average Ammonia-N in River (downstream) = 0.1mg/L

$$C_{final} = \frac{(0.16x\ 0.1) + (0.005\ x\ 16.27)}{0.16 + 0.005}$$

C_{final} = 0.59 mg/L Ammonia

The increase in Ammonia due to the discharge of **old Buttevant WWTP** is 0.49mg/L.

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

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

Discharges in proximity of Wastewater Works

Water quality analysis data presented in Tables 5 & 6 below was recorded by Cork County Council wastewater laboratory and covers a sampling period from April 2008 to July 2008.

Table F1-5: Upstream Water Quality

Parameter	**Upstream Monitoring Station**				
	23/03/06	**12/04/06**	**04/05/06**	**28/09/06**	**17/07/08**
Ph	8	8.2	8.2	7.6	7.9
BOD	<1.0	1.4	1.3	1.5	1.0
SS	15	<2.5	<2.5	4	21
Ammonia	<0.1	<0.1	<0.1	<0.1	<0.1
Ortho-Phosphate	-	-	-	<0.05	<0.05

Table F1-6: Downstream Water Quality

Parameter	**Downstream Monitoring Station**				
	23/03/06	**12/04/06**	**04/05/06**	**28/09/06**	**17/07/08**
Ph	8.1	8.2	8.3	7.6	7.9
BOD	<1.0	1.6	1.4	1.6	1.0
SS	-	-	-	-	3
Ammonia	<0.1	<0.1	<0.1	<0.1	<0.1
Ortho-Phosphate	-	-	-	-	0.06

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

Attachment included	**Yes**	**No**

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

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

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

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

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

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

Attachment F.2 should contain any supporting information.

SECTION G: PROGRAMMES OF IMPROVEMENTS

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

G.1 Compliance with Council Directives

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

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

The plant is operating satisfactory at present and is operating within the requirements of the relevant legislation, outlined above. Recent improvements include the construction and commissioning of the new 3,150 PE WWTP and laying of new sewer collection system.

Water Framework Directive 2000/60/EC

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

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

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

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

- *Identify pressures on water bodies and assess risk of not achieving compliance with the Water Framework Directive*

- *Prepare a Characterisation Report*
- *Identify Heavily Modified (HMWB) and Artificial Water Bodies (AWB)*
- *Establish risk to waters from Hazardous Substances*
- *Establish data management system and GIS*
- *Prepare programme of measures*
- *Review of monitoring needs*
- *Design monitoring programme*
- *Prepare River Basin Management Strategy*
- *Assist public participation in the project*
- *Prepare printed reports*
- *Assist capacity building*

The EPA also takes samples from one location along the Awbeg River downstream (d/s) of the WWTP (prior to discharge of Doneraile agglomeration). These are located at the following:

- *Br N of Cahermee house 4km d/s of discharge*

Table G1-1: Upstream Water Quality

Parameter	**Upstream Monitoring Station**				
	23/03/06	**12/04/06**	**04/05/06**	**28/09/06**	**17/07/08**
Ph	8	8.2	8.2	7.6	7.9
BOD	<1.0	1.4	1.3	1.5	1.0
SS	15	<2.5	<2.5	4	21
Ammonia	<0.1	<0.1	<0.1	<0.1	<0.1
Ortho-Phosphate	-	-	-	<0.05	<0.05

Table G1-2: Downstream Water Quality

Parameter	**Downstream Monitoring Station**				
	23/03/06	**12/04/06**	**04/05/06**	**28/09/06**	**17/07/08**
Ph	8.1	8.2	8.3	7.6	7.9
BOD	<1.0	1.6	1.4	1.6	1.0
SS	-	-	-	-	3
Ammonia	<0.1	<0.1	<0.1	<0.1	<0.1
Ortho-Phosphate	-	-	-	-	0.06

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

Birds Directive 79/409/EEC

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

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

Groundwater Directives 2006/118/EC

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

Doneraile – Clogher, Castletownroche Nr 1 and Castletownroche 2 are the closest PWS that utilise ground water for medium sized water supplies.

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

Drinking Water Directives 80/778/EEC

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

Urban Waste Water Treatment Directive 91/271/EEC

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

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

The Buttevant Wastewater Treatment Plant was commissioned in 2009 and was designed to treat effluent to a 25/35ppm standard.

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

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

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

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

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

Article 4(2)(a) states that all discharges into Sensitive Areas require more stringent treatment than secondary treatment. The Awbeg River is not a designated Sensitive Area. The River Blackwater downstream of Mallow Railway Bridge to Ballyduff Bridge is designated a Sensitive Area. This is not within 2km of any discharge point form the Buttevant wastewater treatment works.

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

Shellfish Directive 79/923/EEC

The Awbeg River is not a designated Shellfish Area under the Shellfish Waters Regulations, S.I. 200 of 1994. The River Blackwater, into which the River Flesk flows (after joining the River Bride), is also not designated under these regulations.

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Habitats Directive 92/43/EEC

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

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

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

The Blackwater River Site Synopsis is included in this attachment.

Environmental Liabilities Directive 2004/35/EC

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

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

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

Bathing Water Directive 76/160/EEC

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

Dangerous Substances Directive 2006/11/EC

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

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

Attachment included	**Yes**	**No**
	√	

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

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

Receiving Water Quality Requirement based on Phosphorus Regulations 2008

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

The EPA have three number stations on the Awbeg River, upstream along the Awbeg the Q value of the river is 4 at the two locations. , while downstream of the River the Q value is 3-4. Doneraile & Castletownroche agglomerations discharge downstream of Buttevant Agglomeration.

Effluent Standards

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

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

Table G2-3: Phosphorus Levels in Influent to WWTP

Parameter	Inlet Monitoring Station	
	09/07	**07/08**
Ortho-Phosphate	4.49	4.46

Table G2-4: Phosphorus Levels in Effluent from WWTP

Parameter	Outlet Monitoring Station	
	09/07	**07/08**
Ortho-Phosphate	3.14	3.74

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.

Recently the WWTP was upgraded at a cost of €2 M and the collection system for the village of Buttevant was also upgraded at a cost of €2.25 M. The collection system works involved the laying of 5.5 km of sewer pipes (foul, storm and foul rising mains), in addition two nr Pumping Stations were constructed and with the upgrade of the main village pumping station. These projects were upgraded under the Water Services Investment Programme 2002 -2006. No further works are listed to be carried out under the current Water Services Investment Programme 2007 -2009

With these recent improvements to the collection system and WWTP it will ensure that discharges from the agglomeration will not result in significant environmental pollution.

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

Attachment included	Yes	No
	√	

G.4 Storm Water Overflow

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

There are programme of improvements planned on the Storm Overflows within the Agglomeration.

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

Attachment included	**Yes**	**No**
		√

SECTION H: DECLARATION

Declaration

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

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

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

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

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

Print signature name: _____

Position in organisation:_____

SECTION I: JOINT DECLARATION

Joint Declaration [Note1]

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

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

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

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

Lead Authority

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

Print signature name: _____

Position in organisation:_____

Co-Applicants

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

Print signature name: _____

Position in organisation:_____

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

Print signature name: _____

Position in organisation:_____

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

Agglomeration details

Leading Local Authority	Cork County Council
Co-Applicants	
Agglomeration	Buttevant
Population Equivalent	1900
Level of Treatment	Tertiary
Treatment plant address	Buttevant WWTP, Waterhouse, Doneraile Road, Buttevant
Grid Ref (12 digits, 6E, 6N)	154564 / 108924
EPA Reference No:	

Contact details

Contact Name:	Frank Cronin
Contact Address:	Water Services North, Cork County Council, Anabella, Mallow, Co. Cork.
Contact Number:	022 21123
Contact Fax:	022-21983
Contact Email:	Frank.cronin@corkcoco.ie

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

Discharge Point Code: SW-1

Local Authority Ref No:	SW01-BUTT	
Source of Emission:	Buttevant Wastewater Treatment Plant	
Location:	Waterhouse, Buttevant	
Grid Ref (12 digits, 6E, 6N)	154528 / 108856	
Name of Receiving waters:	River Awbeg	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	U/S of Salmoid Water	
Flow Rate in Receiving Waters:	0.11	$m^3.sec^{-1}$ Dry Weather Flow
	0.16	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)		

Emission Details:

(i) Volume emitted			
Normal/day	418 m^3	Maximum/day	2508 m^3
Maximum rate/hour	104.5 m^3	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.00484 m^3/sec		

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	24 hr composite	= 9	
Temperature	°C	24 hr composite	< 30	
Electrical Conductivity (@ 25°C)	µS/cm	24 hr composite	= 1000	
Suspended Solids	mg/l	24 hr composite	= 35	87.8
Ammonia (as N)	mg/l	24 hr composite	= 0	0
Biochemical Oxygen Demand	mg/l	24 hr composite	= 25	62.7
Chemical Oxygen Demand	mg/l	24 hr composite	= 125	313.5
Total Nitrogen (as N)	mg/l	24 hr composite	= 15	37.62
Nitrite (as N)	mg/l	24 hr composite	= 0	0
Nitrate (as N)	mg/l	24 hr composite	= 0	0
Total Phosphorous (as P)	mg/l	24 hr composite	= 2	5.02
OrthoPhosphate (as P)	mg/l	24 hr composite	= 1.7	4.3
Sulphate (SO_4)	mg/l	24 hr composite	= 0	0
Phenols (Sum)	µg/l	24 hr composite	= 0	0

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

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	24 hr composite	= 0	0
Dichloromethane	µg/l	24 hr composite	= 0	0
Simazine	µg/l	24 hr composite	= 0	0
Toluene	µg/l	24 hr composite	= 0	0
Tributyltin	µg/l	24 hr composite	= 0	0
Xylenes	µg/l	24 hr composite	= 0	0
Arsenic	µg/l	24 hr composite	= 0	0
Chromium	µg/l	24 hr composite	= 0	0
Copper	µg/l	24 hr composite	= 0	0
Cyanide	µg/l	24 hr composite	= 0	0
Flouride	µg/l	24 hr composite	= 0	0
Lead	µg/l	24 hr composite	= 0	0
Nickel	µg/l	24 hr composite	= 0	0
Zinc	µg/l	24 hr composite	= 0	0
Boron	µg/l	24 hr composite	= 0	0
Cadmium	µg/l	24 hr composite	= 0	0
Mercury	µg/l	24 hr composite	= 0	0
Selenium	µg/l	24 hr composite	= 0	0
Barium	µg/l	24 hr composite	= 0	0

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

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

Discharge Point Code: SW-2

Local Authority Ref No:	SW02-BUTT	
Source of Emission:	Storm overflow at Pumping Station	
Location:	Doneraile Road	
Grid Ref (12 digits, 6E, 6N)	154401 / 109309	
Name of Receiving waters:	Awbeg	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	U/S of Salmoid Water	
Flow Rate in Receiving Waters:		$m^3.sec^{-1}$ Dry Weather Flow
		$m^3.sec^{-1}$ 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		

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

Discharge Point Code: SW-3

Local Authority Ref No:	SW03-BUTT	
Source of Emission:	Storm overflow at Pumping Station	
Location:	Doneraile Road	
Grid Ref (12 digits, 6E, 6N)	154424 / 109282	
Name of Receiving waters:	Awbeg	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	U/S of Salmoid Water	
Flow Rate in Receiving Waters:		$m^3.sec^{-1}$ Dry Weather Flow
		$m^3.sec^{-1}$ 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		

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

Discharge Point Code: SW-4

Local Authority Ref No:	SW04-BUTT	
Source of Emission:	Storm overflow at Pumping Station	
Location:	Business PArk, Liscarrol Road	
Grid Ref (12 digits, 6E, 6N)	153986 / 109800	
Name of Receiving waters:	Awbeg	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	U/S of Salmoid Water	
Flow Rate in Receiving Waters:		$m^3.sec^{-1}$ Dry Weather Flow
		$m^3.sec^{-1}$ 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		

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	152570

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
SW-3			Yes
SW-4			Yes

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)	156717 / 108214

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	23/03/06	12/04/06	04/05/06	28/09/06			
pH	= 8.1	= 8.2	= 8.3	= 7.6	Grab	2	Electrochemical
Temperature					Grab	0	Electrochemical
Electrical Conductivity (@ 25°C)					Grab	0.5	Electrochemical
Suspended Solids					Grab	0.5	Gravimetric
Ammonia (as N)	< 0.1	< 0.1	< 0.1	< 0.1	Grab	0.02	Colorimetric
Biochemical Oxygen Demand	< 1	= 1.6	= 1.4	= 1.6	Grab	0.06	Electrochemical
Chemical Oxygen Demand	< 21		< 21		Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as $CaCO_3$)					Grab	0	Titrimetric
Total Nitrogen (as N)	= 3.61	= 3.75	= 2.8	= 5.1	Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0	Colorimetric
Nitrate (as N)					Grab	0.5	Colorimetric
Total Phosphorous (as P)	< 0.2	< 0.2	< 0.2	< 0.2	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)					Grab	0.02	Colorimetric
Sulphate (SO_4)					Grab	30	Turbidimetric
Phenols (Sum)					Grab	0.1	GC-MS 2

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

Additional Comments:	

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	10/04/08	13/06/08	17/07/08	24/09/08			
pH			= 7.9		Grab	2	Electrochemical
Temperature					Grab	0	Electrochemical
Electrical Conductivity (@ 25°C)			= 465		Grab	0.5	Electrochemical
Suspended Solids		< 2.5	= 3		Grab	0.5	Gravimetric
Ammonia (as N)		< 0.1	< 0.1		Grab	0.02	Colorimetric
Biochemical Oxygen Demand		= 1.23	< 1		Grab	0.06	Electrochemical
Chemical Oxygen Demand			< 21		Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as $CaCO_3$)					Grab	0	Titrimetric
Total Nitrogen (as N)		= 4.4	= 3.2		Grab	0.5	Digestion & Colorimetric
Nitrite (as N)			= 0.022		Grab	0	Colorimetric
Nitrate (as N)			= 2.72		Grab	0.5	Colorimetric
Total Phosphorous (as P)			< 0.2		Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05	< 0.05	= 0.06	< 0.05	Grab	0.02	Colorimetric
Sulphate (SO_4)			< 30		Grab	30	Turbidimetric
Phenols (Sum)			< 0.1		Grab	0.1	GC-MS 2

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

Additional Comments:	

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	09/10/08	01/01/09	07/01/09	22/01/09			
pH			= 7.9	= 7.6	Grab	2	Electrochemical
Temperature			= 4.5	= 6.6	Grab	0	Electrochemical
Electrical Conductivity (@ 25°C)			= 562	= 406	Grab	0.5	Electrochemical
Suspended Solids			= 5	= 10	Grab	0.5	Gravimetric
Ammonia (as N)			< 0.05	= 0.09	Grab	0.02	Colorimetric
Biochemical Oxygen Demand			< 2	< 2	Grab	0.06	Electrochemical
Chemical Oxygen Demand			< 21	= 31	Grab	8	Digestion & Colorimetric
Dissolved Oxygen		= 0			Grab	0	ISE
Hardness (as $CaCO_3$)		= 0			Grab	0	Titrimetric
Total Nitrogen (as N)			= 3.6	= 2.5	Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0	Colorimetric
Nitrate (as N)					Grab	0.5	Colorimetric
Total Phosphorous (as P)			= 0.08	= 0.09	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05		= 0.07	= 0.06	Grab	0.02	Colorimetric
Sulphate (SO_4)					Grab	30	Turbidimetric
Phenols (Sum)					Grab	0.1	GC-MS 2

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

Additional Comments:	

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)	156717 / 108214

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	13/06/08	17/07/08	01/01/09	07/01/09			
Atrazine		< 0.01			Grab	0.96	HPLC
Dichloromethane		< 1			Grab	1	GC-MS1
Simazine		< 0.01			Grab	0.01	HPLC
Toluene		< 1			Grab	0.02	GC-MS1
Tributyltin			= 0		Grab	0.02	GC-MS1
Xylenes		< 1			Grab	1	GC-MS1
Arsenic		= 1			Grab	0.96	ICP-MS
Chromium	< 20	< 20		< 20	Grab	20	ICP-OES
Copper	< 20	< 20		< 20	Grab	20	ICP-OES
Cyanide		< 5			Grab	5	Colorimetric
Flouride		= 80			Grab	100	ISE
Lead	= 25	= 26		< 20	Grab	20	ICP-OES
Nickel	< 20	< 20		< 20	Grab	20	ICP-OES
Zinc	< 20	< 20		< 20	Grab	20	ICP-OES
Boron	< 20	< 20		< 20	Grab	20	ICP-OES
Cadmium	< 20	< 20		< 20	Grab	20	ICP-OES
Mercury		= 0.4			Grab	0.2	ICP-MS
Selenium		= 1			Grab	0.74	ICP-MS
Barium	= 27	= 33		< 20	Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn no requirement for TBT analysis as the discharge is to freshwaters

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	22/01/09						
Atrazine					Grab	0.96	HPLC
Dichloromethane					Grab	1	GC-MS1
Simazine					Grab	0.01	HPLC
Toluene					Grab	0.02	GC-MS1
Tributyltin					Grab	0.02	GC-MS1
Xylenes					Grab	1	GC-MS1
Arsenic					Grab	0.96	ICP-MS
Chromium	< 20				Grab	20	ICP-OES
Copper	< 20				Grab	20	ICP-OES
Cyanide					Grab	5	Colorimetric
Flouride					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					Grab	0.2	ICP-MS
Selenium					Grab	0.74	ICP-MS
Barium	< 20				Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn no requirement for TBT analysis as the discharge is to freshwaters

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)	154440 / 109306

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	23/03/06	12/04/06	04/05/06	28/09/06			
pH	= 8	= 8.2	= 8.2	= 7.6	Grab	2	Electrochemical
Temperature					Grab	0	Electrochemical
Electrical Conductivity (@ 25°C)					Grab	0.5	Electrochemical
Suspended Solids	= 15	< 2.5	< 2.5	= 4	Grab	0.5	Gravimetric
Ammonia (as N)	= 0.1	< 0.1	< 0.1	< 0.1	Grab	0.02	Colorimetric
Biochemical Oxygen Demand	< 1	= 1.4	= 1.3	= 1.5	Grab	0.06	Electrochemical
Chemical Oxygen Demand	= 21		< 21		Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as $CaCO_3$)					Grab	0	Titrimetric
Total Nitrogen (as N)	= 3.57	= 3.76	= 2.5	= 5.2	Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0	Colorimetric
Nitrate (as N)					Grab	0.5	Colorimetric
Total Phosphorous (as P)	< 0.2	< 0.2	< 0.2	< 0.2	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)					Grab	0.02	Colorimetric
Sulphate (SO_4)					Grab	30	Turbidimetric
Phenols (Sum)					Grab	0.1	GC-MS 2

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

Additional Comments:	

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	10/04/08	13/06/08	17/07/08	24/09/08			
pH			= 7.9		Grab	2	Electrochemical
Temperature					Grab	0	Electrochemical
Electrical Conductivity (@ 25°C)			= 442		Grab	0.5	Electrochemical
Suspended Solids		< 2.5	< 2.5		Grab	0.5	Gravimetric
Ammonia (as N)		< 0.1	< 0.1		Grab	0.02	Colorimetric
Biochemical Oxygen Demand		= 1.66	= 1		Grab	0.06	Electrochemical
Chemical Oxygen Demand			< 21		Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as $CaCO_3$)					Grab	0	Titrimetric
Total Nitrogen (as N)		= 1.2	= 3.1		Grab	0.5	Digestion & Colorimetric
Nitrite (as N)			= 0.0187		Grab	0	Colorimetric
Nitrate (as N)			= 1.94		Grab	0.5	Colorimetric
Total Phosphorous (as P)		< 0.2	< 0.2		Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05	< 0.05	= 0.06	< 0.05	Grab	0.02	Colorimetric
Sulphate (SO_4)			< 30		Grab	30	Turbidimetric
Phenols (Sum)			< 0.1		Grab	0.1	GC-MS 2

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

Additional Comments:	

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	09/10/08	01/01/09	07/01/09	22/01/09			
pH			= 7.9	= 7.5	Grab	2	Electrochemical
Temperature			= 3	= 6.5	Grab	0	Electrochemical
Electrical Conductivity (@ 25°C)			= 533	= 385	Grab	0.5	Electrochemical
Suspended Solids			= 2	= 12	Grab	0.5	Gravimetric
Ammonia (as N)			< 0.05	= 0.06	Grab	0.02	Colorimetric
Biochemical Oxygen Demand			= 2	< 2	Grab	0.06	Electrochemical
Chemical Oxygen Demand			= 13	= 25	Grab	8	Digestion & Colorimetric
Dissolved Oxygen		= 0			Grab	0	ISE
Hardness (as $CaCO_3$)		= 0			Grab	0	Titrimetric
Total Nitrogen (as N)			= 3	= 2.3	Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0	Colorimetric
Nitrate (as N)					Grab	0.5	Colorimetric
Total Phosphorous (as P)			= 0.08	= 0.07	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05		= 0.06	= 0.06	Grab	0.02	Colorimetric
Sulphate (SO_4)					Grab	30	Turbidimetric
Phenols (Sum)					Grab	0.1	GC-MS 2

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

Additional Comments:	

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)	154440 / 109306

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	13/06/08	17/07/08	01/01/09	07/01/09			
Atrazine		< 0.01			Grab	0.96	HPLC
Dichloromethane		< 1			Grab	1	GC-MS1
Simazine		< 0.01			Grab	0.01	HPLC
Toluene		< 1			Grab	0.02	GC-MS1
Tributyltin			= 0		Grab	0.02	GC-MS1
Xylenes		< 1			Grab	1	GC-MS1
Arsenic		= 1			Grab	0.96	ICP-MS
Chromium	< 20	< 20		< 20	Grab	20	ICP-OES
Copper	< 20	< 20		< 20	Grab	20	ICP-OES
Cyanide		< 5			Grab	5	Colorimetric
Flouride		= 340			Grab	100	ISE
Lead	= 26	= 26		< 20	Grab	20	ICP-OES
Nickel	< 20	< 20		< 20	Grab	20	ICP-OES
Zinc	< 20	< 20		< 20	Grab	20	ICP-OES
Boron	< 20	< 20		< 20	Grab	20	ICP-OES
Cadmium	< 20	< 20		< 20	Grab	20	ICP-OES
Mercury		< 0.2			Grab	0.2	ICP-MS
Selenium		= 1			Grab	0.74	ICP-MS
Barium	= 32	= 39		= 25	Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn no requirement for TBT analysis as discharge is to freshwaters

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	22/01/09						
Atrazine					Grab	0.96	HPLC
Dichloromethane					Grab	1	GC-MS1
Simazine					Grab	0.01	HPLC
Toluene					Grab	0.02	GC-MS1
Tributyltin					Grab	0.02	GC-MS1
Xylenes					Grab	1	GC-MS1
Arsenic					Grab	0.96	ICP-MS
Chromium	< 20				Grab	20	ICP-OES
Copper	< 20				Grab	20	ICP-OES
Cyanide					Grab	5	Colorimetric
Flouride					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					Grab	0.2	ICP-MS
Selenium					Grab	0.74	ICP-MS
Barium	< 20				Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn no requirement for TBT analysis as discharge is to freshwaters

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.

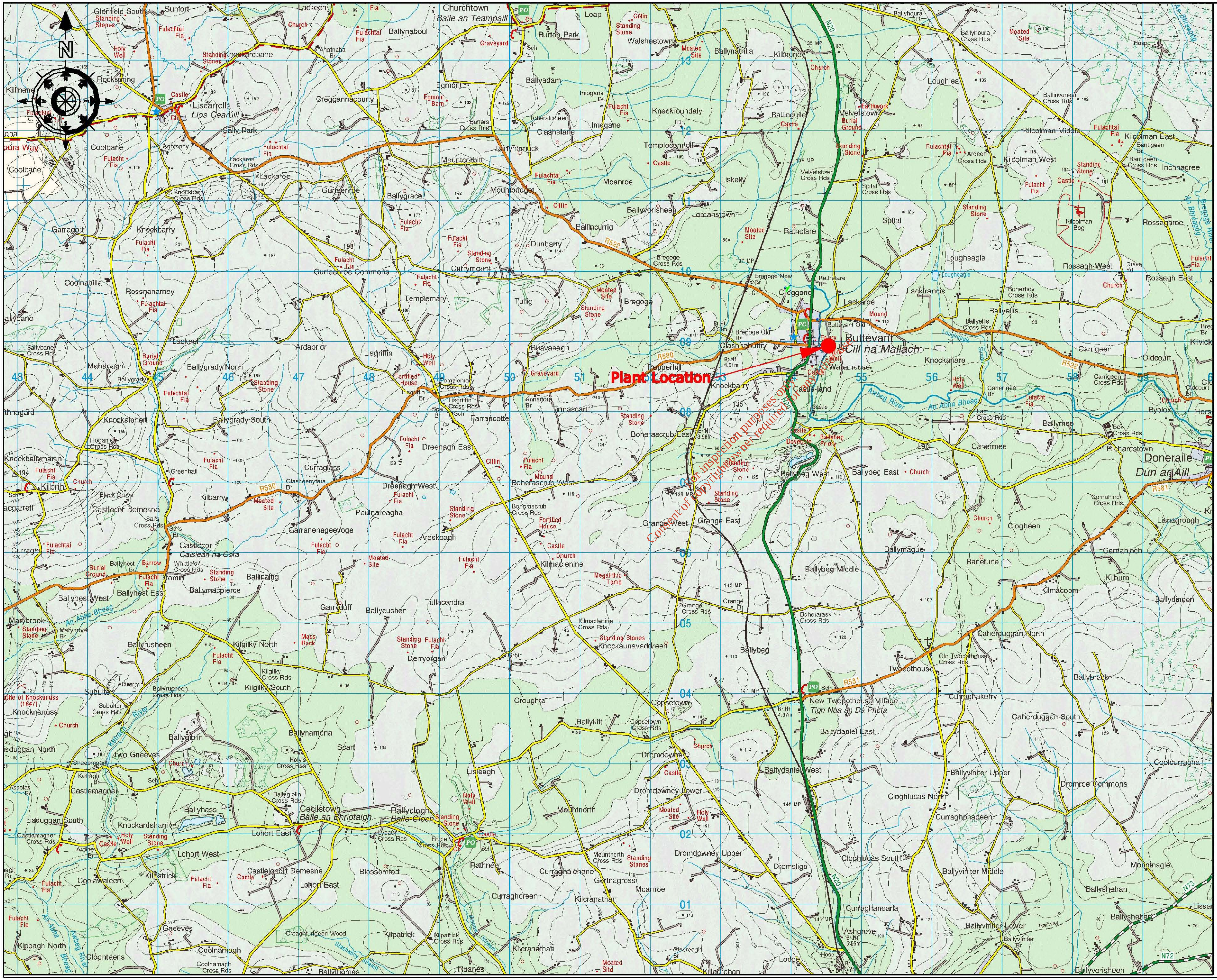
In each case, refer to the attachment number(s), of your application which contains(s) the information requested in the appropiate sub-article.

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,	B.1	Yes
(b)	give the name of the water services authority in whose functional area the relevant waste water discharge takes place or is to take place, if different from that of the applicant,	Not Applicable	Yes
(c)	give the location or postal address (including where appropriate, the name of the townland or townlands) and the National Grid reference of the location of the waste water treatment plant and/or the waste water discharge point or points to which the application relates,	B.2	Yes
(d)	state the population equivalent of the agglomeration to which the application relates,	B. 9 (i),	Yes
(e)	specify the content and extent of the waste water discharge, the level of treatment provided, if any, and the flow and type of discharge,	C, D	Yes
(f)	give details of the receiving water body, including its protected area status, if any, and details of any sensitive areas or protected areas or both in the vicinity of the discharge point or points likely to be affected by the discharge concerned, and for discharges to ground provide details of groundwater protection schemes in place for the receiving water body and all associated hydrogeological and geological assessments related to the receiving water environment in the vicinity of the discharge.	F.1	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,	E.3	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,	E.4	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,	G.3	Yes
(j)	give particulars of the nearest downstream drinking water abstraction point or points to the discharge point or points,	Not Applicable	Yes
(k)	give details, and an assessment of the effects, of any existing or proposed emissions on the environment, including any environmental medium other than those into which the emissions are, or are to be made, and of proposed measures to prevent or eliminate or, where that is not practicable, to limit any pollution caused in such discharges,	F.1	Yes
(l)	give detail of compliance with relevant monitoring requirements and treatment standards contained in any applicable Council Directives of Regulations,	E1, E4	Yes
(m)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.	G1	Yes
(n)	Any other information as may be stipulated by the Agency.	Not Applicable	Yes
Regulation 16(3) **Without prejudice to Regulation 16 (1) and (2), an application for a licence shall be accompanied by -**		**Attachment Number**	**Checked by Applicant**
(a)	a copy of the notice of intention to make an application given pursuant to Regulation 9,	B.8	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 -	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	B3, B5	Yes
(c) (ii)	the point or points at which monitoring and sampling are undertaken or are to be undertaken,	E.3	Yes
(d)	such fee as is appropriate having regard to the provisions of Regulations 38 and 39.	B.9 (iii)	Yes

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 agancy.		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.		
2	2 hardcopies of application provided or 2 CD versions of application (PDF files) provided.		
3	1 CD of geo-referenced digital files provided.		
Regulation 17 **Where a treatment plant associated with the relevant waste water works is or has been subject to the European Communities (Environmental Impact Assessment) Regulations 1989 to 2001, in addition to compliance with the requirements of Regulation 16, an application in respect of the relevant discharge shall be accompanied by a copy of an environmental impact statement and approval in accordance with the Act of 2000 in respect of the said development and may be submitted in an electronic or other format specified by the Agency**		**Attachment Number**	**Checked by Applicant**
1	EIA provided if applicable		Yes
2	2 hardcopies of EIS provided if applicable.		Yes
3	2 CD versions of EIS, as PDF files, provided.		Yes

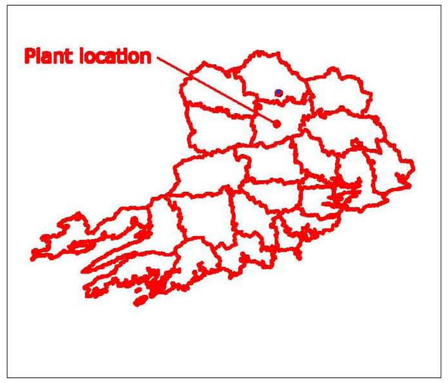
ANNEX 1: TABLES / ATTACHMENT

Attachment	Description
A1 Map 1	1:50,000 Location Map
A1 Map 2	Site Location of WWTP & Pumping Stations
A1 Map 3	Wastewater Treatment Plant – Site Layout
B1 Map 4	Agglomeration
B2 Map 5	Layout of Waste Water Treatment Plant
B3 Map 6	Location of Primary Discharge Point SW01 Butt
B3 Map 7	Location of Sampling Points
B4	Not Applicable
B5 Map 8	Location of Storm Water Overflow Point SW02, SW03 & SW04 Butt
B6	Part VIII Planning
B7	Not Applicable
B8 Map 9	Location of Site Notice
B8	Notice & Advertisement
B10	WSIP Programme
B 11	Not Applicable
B 12	Not Applicable
C1 Map 10	Layout Wastewater Treatment Plant
C1 Drg 1	Schematic of Wastewater Treatment Plant
C2	Not Applicable
D1	Influent Results
Section D2	Discharge Points
E2	
Section E3	Monitoring & Sampling Points
E4	
F1	Laboratory Test Results SAC Blackwater River Site Synopsis
F2	Not Applicable
G1	SAC Blackwater River Site Synopsis WSIP Programme
G2	WSIP Programme Laboratory Test Results
G3	WSIP Programme
G4	Not Applicable



NOTES

1. Dimensions are not to be scaled from drawing. For any discrepancies found consult with the design office.
2. This drawing is to be read in conjunction with the Specification.
3. This drawing is to be read in conjunction with all other contract drawings.



Key Map

No.	Date	Drwn	Surv	Chkd	Revision Description

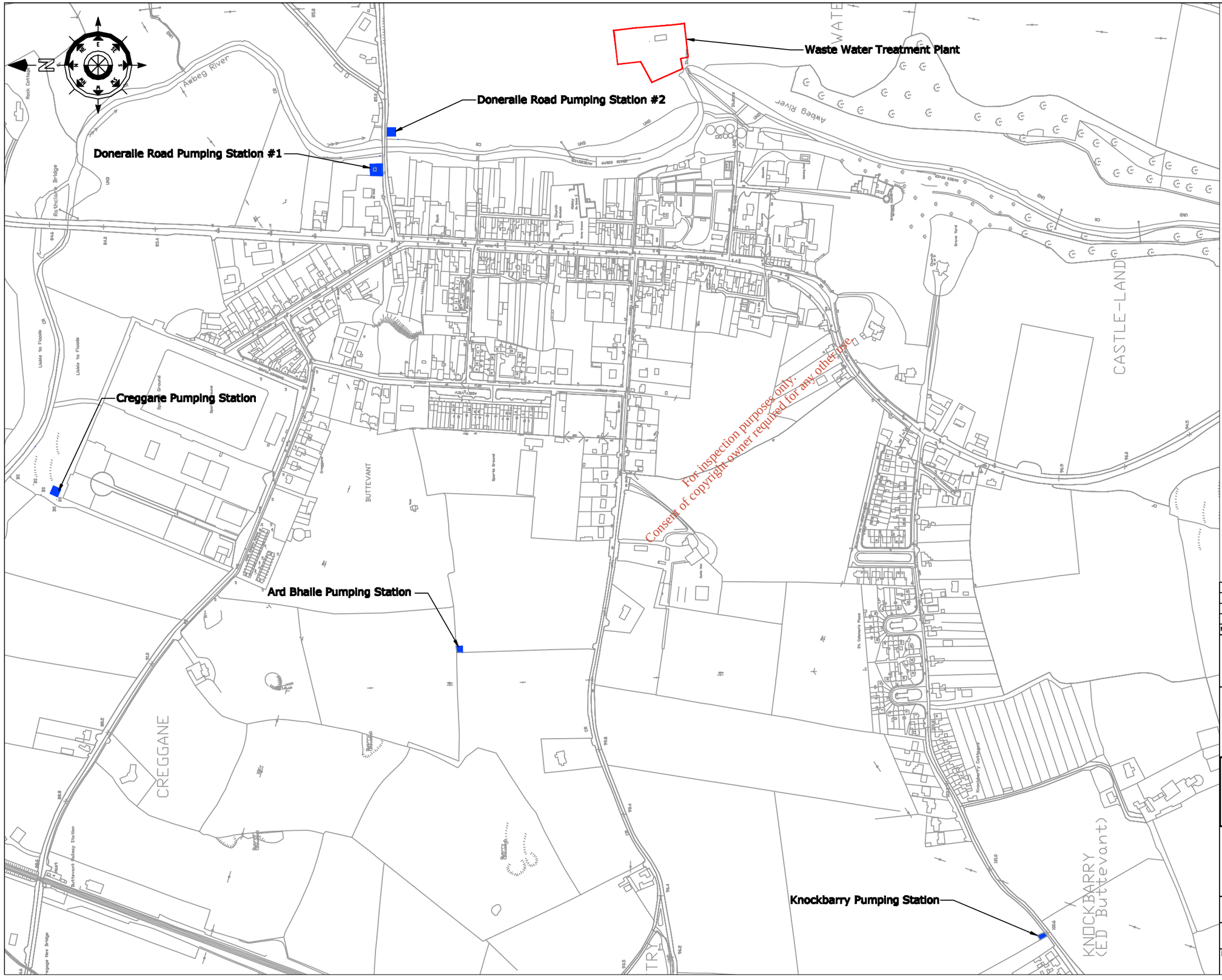
Cork County Council,
Northern Division.

N. O'KEEFFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
Buttevant & Environs
Waste Water Discharge
Licence Application

Drawing Title:
Location Map
Scale - 1:50,000
Attachment A1 - Map 1

Scales:	Surveyed by:	Drawn by:
1:50,000 @ A3	D.L.	D.L.
Designed by:	**Checked by:**	**Date:**
F.J.	F.C.	August 2008
Drawing number:		**Rev:**
A1 - Map 1		-



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No.	Date	Drwn	Surv	Chkd	Revision Description

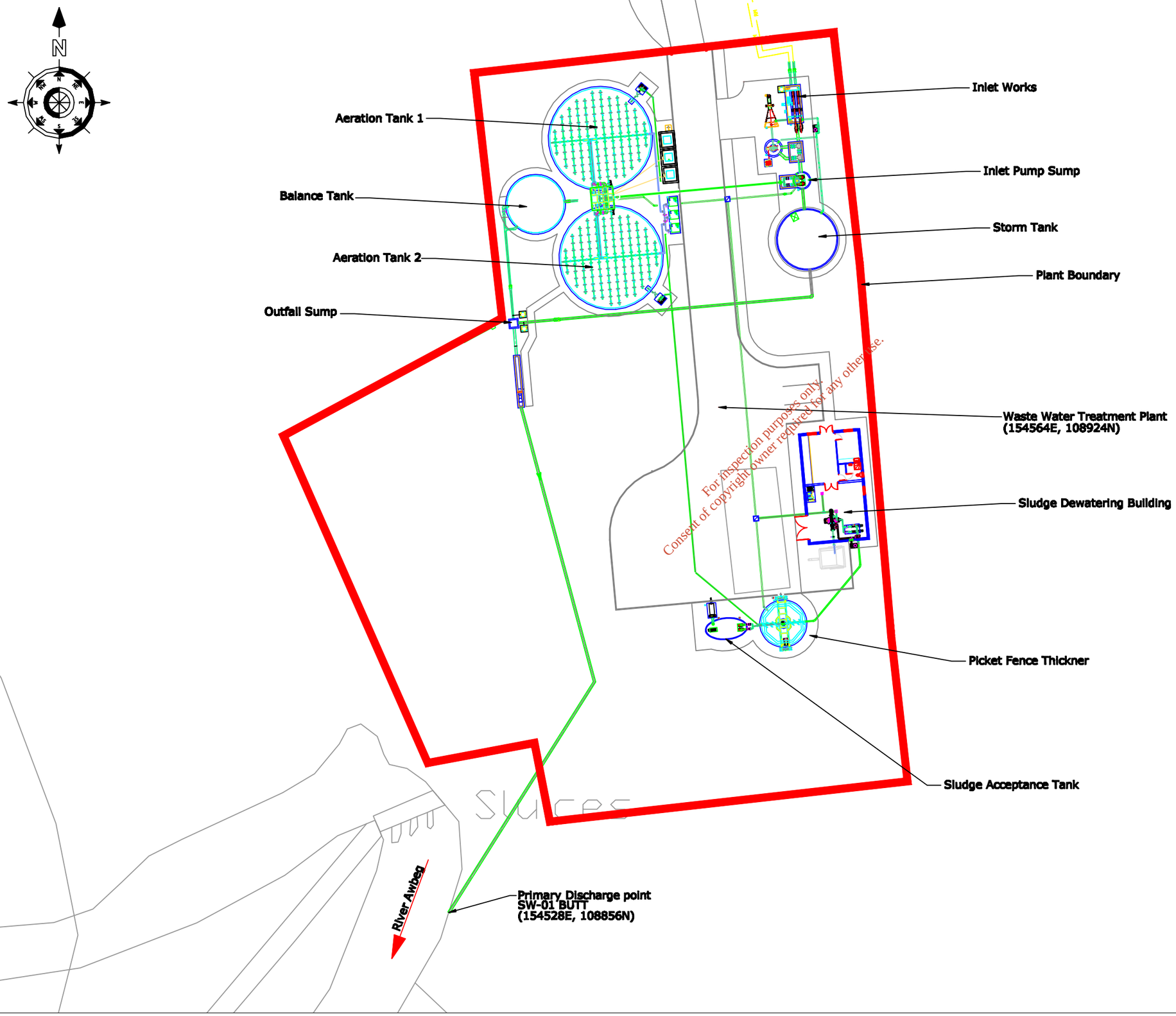
Cork County Council,
Northern Division.

N. O'KEEFFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
Buttevant & Environs
Waste Water Discharge
Licence Application

Drawing Title:
Site Locations of W.W.T.P.
& Pumping Stations
Attachment A1 - Map 2

Scales:	Surveyed by:	Drawn by:
1:5000 @ A3	D.L.	D.L.
Designed by:	Checked by:	Date:
F.J.	F.C.	August 2008
Drawing number:		Rev:
A1-Map2		-



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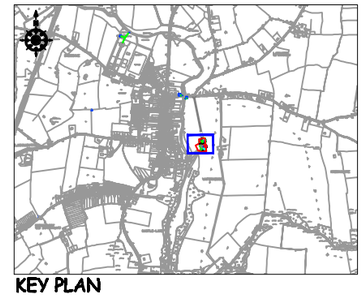


KEY PLAN

No.	Date	Drwn	Surv	Chkd	Revision Description

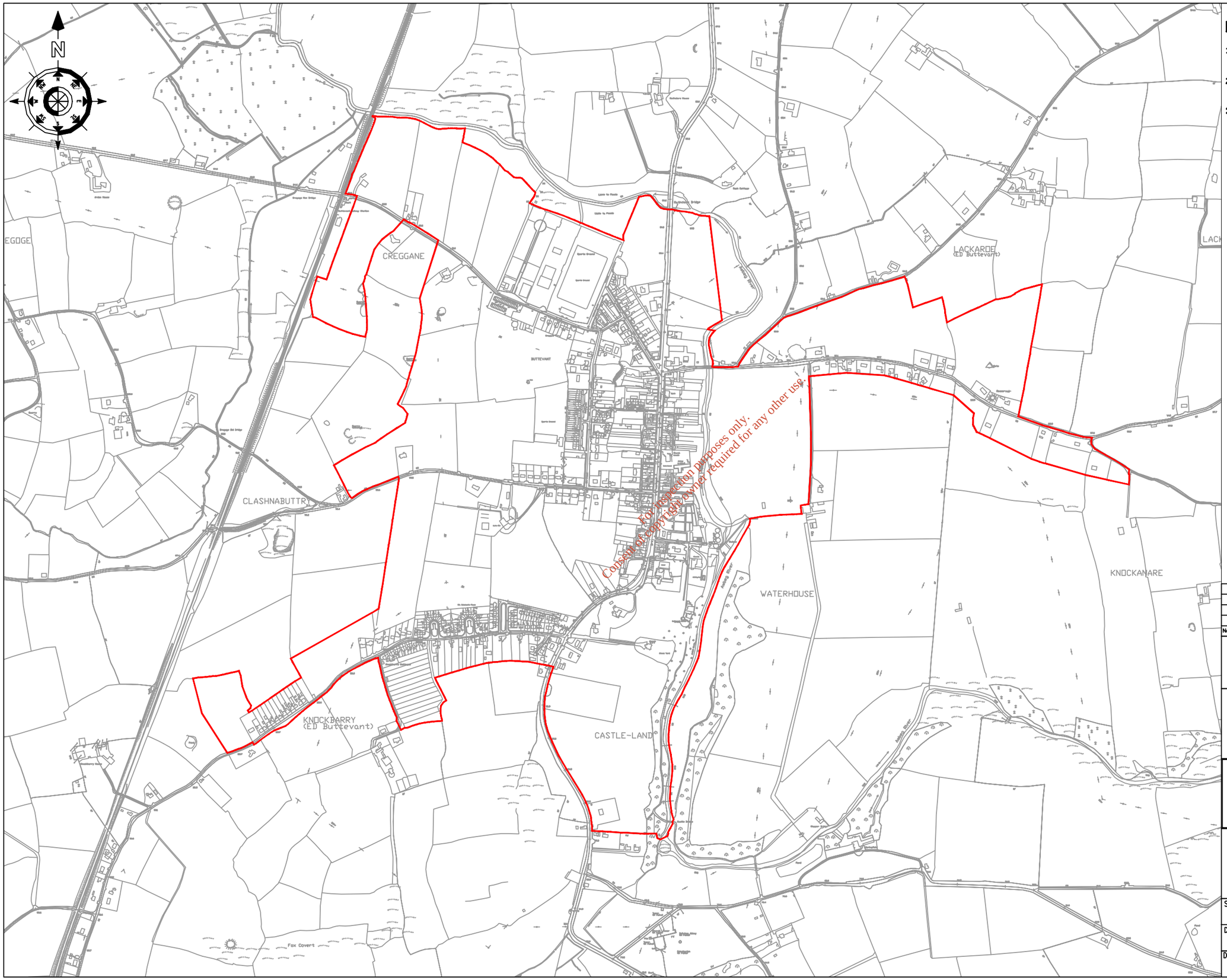
Cork County Council,
Northern Division.

N. O'KEEFFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
Buttevant & Environs
Waste Water Discharge
Licence Application

Drawing Title:
Waste Water Treatment Plant
Site Layout
Attachment A1 - Map 3

Scales:	Surveyed by:	Drawn by:
1:500 @ A3	D.L.	D.L.
Designed by:	**Checked by:**	**Date:**
F.J.	F.C.	August 2008
Drawing number:		**Rev:**
A1 - Map 3		-



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No.	Date	Drwn	Surv	Chkd	Revision Description

Cork County Council,
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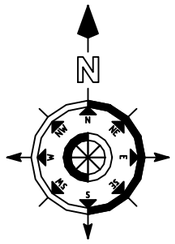
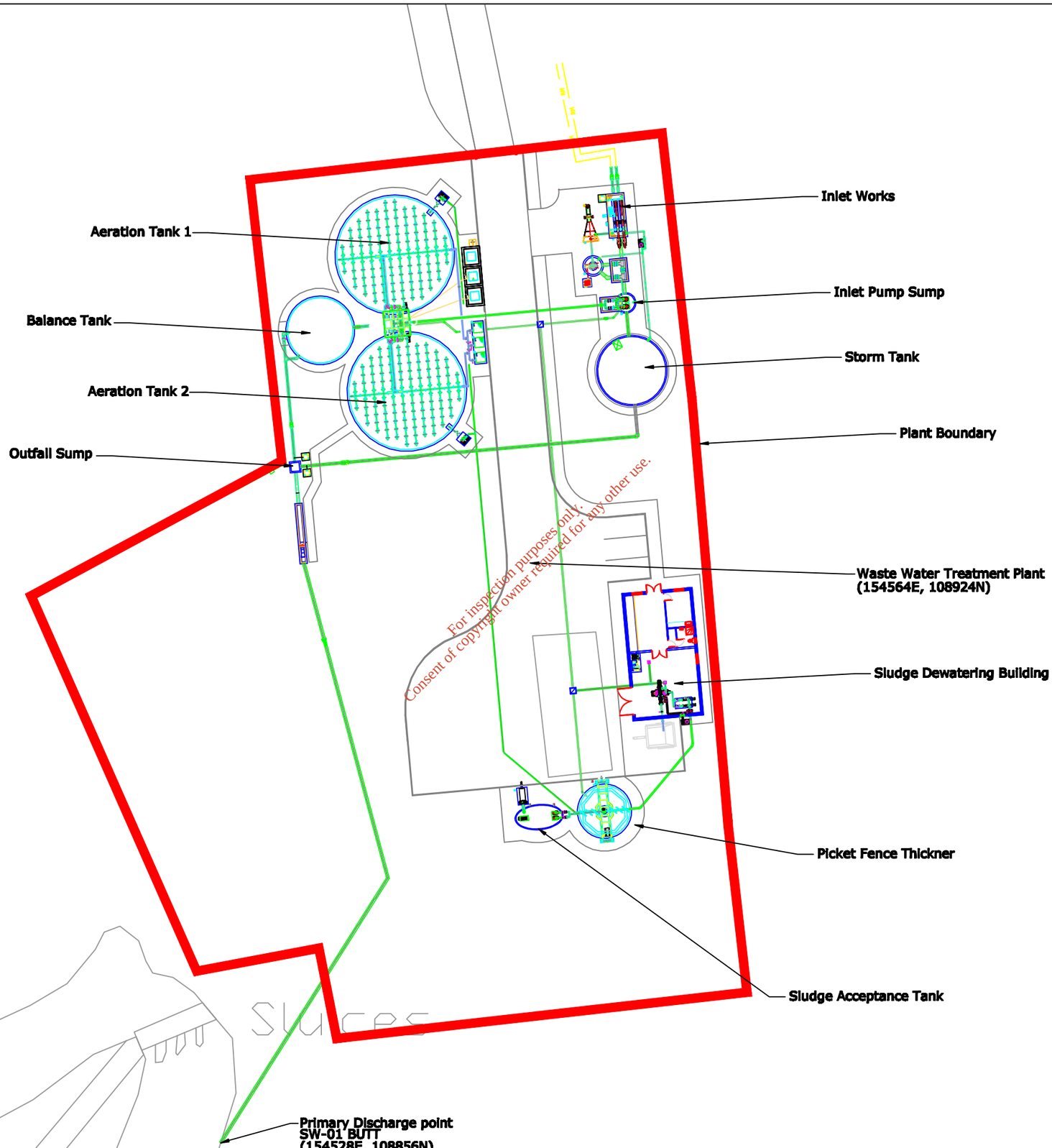
N. O'KEEFFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
Buttevant & Environs
Waste Water Discharge
Licence Application

Drawing Title:
Agglomeration Boundary
Attachment B1 - Map 4

Scales:	Surveyed by:	Drawn by:
1:10,000 @ A3	D.L.	D.L.
Designed by:	**Checked by:**	**Date:**
F.J.	F.C.	August 2008
Drawing number:		**Rev.**
B1 - Map 4		-





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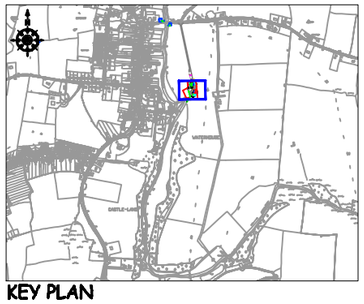

KEY PLAN

No.	Date	Drwn	Surv	Chkd	Revision Description

Cork County Council,
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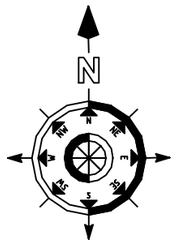
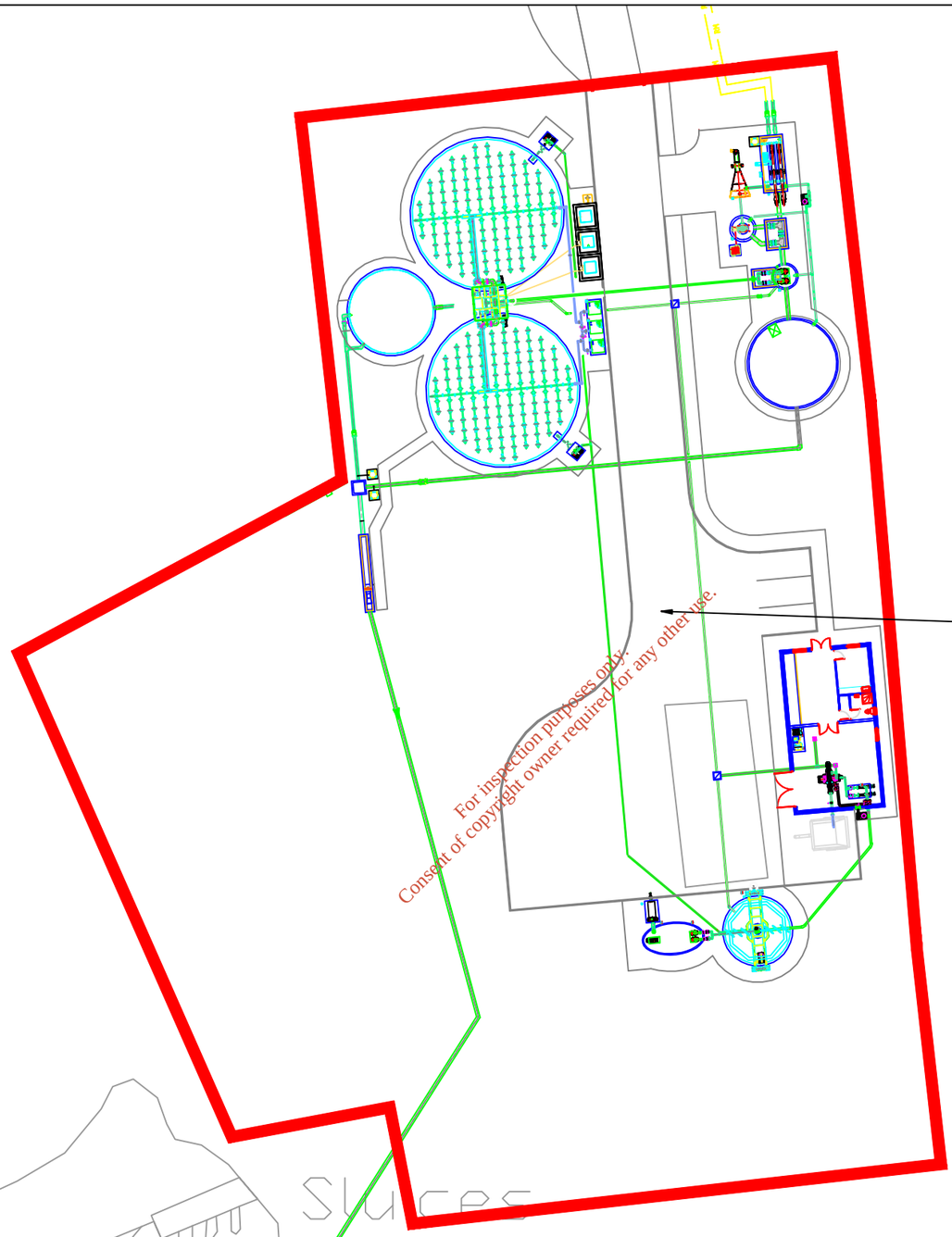
N. O'KEEFFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
Buttevant & Environs
Waste Water Discharge
Licence Application

Drawing Title:
Layout of Waste Water Treatment Plant
Attachment B2 - Map 5

Scales:	Surveyed by:	Drawn by:
1:500 @ A3	D.L.	D.L.
Designed by:	**Checked by:**	**Date:**
F.J.	F.C.	August 2008
Drawing number:		**Rev:**
B2 - Map 5		-





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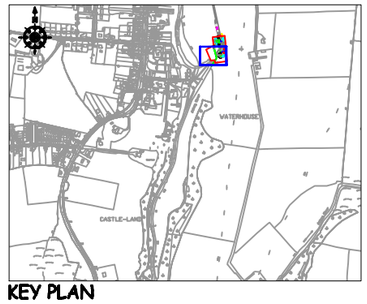


KEY PLAN

No.	Date	Drwn	Surv	Chkd	Revision Description

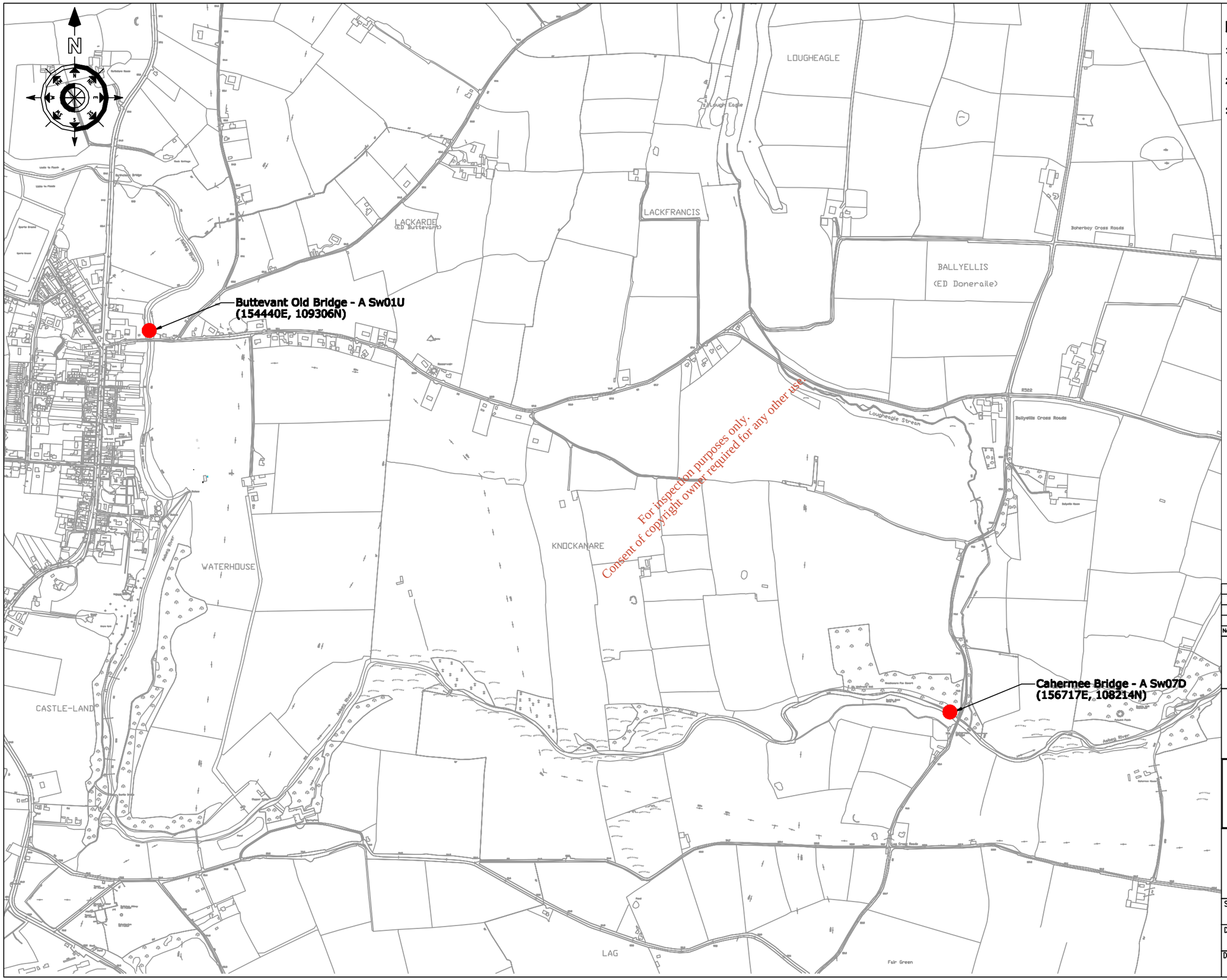
Cork County Council,
Northern Division.

N. O'KEEFFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
Buttevant & Environs
Waste Water Discharge
Licence Application

Drawing Title:
Location of Primary Discharge Point SW01 - Butt
Attachment B3 - Map 6

Scales:	Surveyed by:	Drawn by:
1:500 @ A3	D.L.	D.L.
Designed by:	**Checked by:**	**Date:**
F.J.	F.C.	August 2008
Drawing number:		**Rev:**
B3 - Map 6		-



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No.	Date	Drwn	Surv	Chkd	Revision Description

Cork County Council,
Northern Division.

N. O'KEEFFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
Buttevant & Environs
Waste Water Discharge
Licence Application

Drawing Title:
Locations of sampling points
Attachment B3 - Map 7

Scales:	Surveyed by:	Drawn by:
1:10,000 @ A3	D.L.	D.L.
Designed by:	**Checked by:**	**Date:**
F.J.	F.C.	August 2008
Drawing number:		**Rev.**
B3-Map 7		-