CORK COUNTY COUNCIL

WESTERN DIVISION

WATER SERVICES

Courthouse, Skibbereen, Co. Cork

APPLICATION FOR WASTE

WATER DISCHARGE LICENCE

COURTMACSHERRY

Application Form
28th February 2009

CORK COUNTY COUNCIL

WESTERN DIVISION

WATER SERVICES

Courthouse, Skibbereen, Co. Cork

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

Dear Sir / Madam,

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

The following documentation is enclosed:

- 1 No. signed original in hardcopy
- 1 No. copy in hardcopy
- 2 No. CD-ROM with all documentation in electronic searchable PDF (OCR'd format)
- 1 No. CD-ROM with GIS Data, Tabular Data

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

Declan Groarke
Senior Executive Engineer

This is a draft document and is subject to revision.

Waste Water Discharge Licence Application Form

EPA Ref. Nº: *(Office use only)*	

Environmental Protection Agency
PO Box 3000, Johnstown Castle Estate, Co. Wexford
Lo Call: 1890 335599 Telephone: 053-9160600 Fax: 053-9160699
Web: www.epa.ieEmail: info@epa.ie

Tracking Amendments to Draft Application Form

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

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

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

CONTENTS

ANNEX 1: TABLES/ATTACHMENTS

ANNEX 2: CHECKLIST

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.

Waste Water Works and Activities Carried Out Therein

Introduction

Courtmacsherry village is situated at the mouth of an estuary leading to Courtmacsherry Bay. The River Argideen discharges into this estuary with the village of Timoleague at its western end. To the south of Courtmacsherry the land rises to hilly terrain consisting of good pasture and grazing lands.

Existing Situation

Existing Waste Water Treatment Plant

The existing wastewater treatment plant in Courtmacsherry consists of a septic tank located in the village centre on the coastal side of the street and approximately 280 metres west of Courtmacsherry Pier. This treats the sewage from the domestic and non-domestic flows of the village and environs and discharges from its storage chamber on a lunar cycle to the tidal channel 172 metres to the north-east in Courtmacherry Harbour. This harbour is part of the estuary which is designated as a Special Area of Conservation and a proposed National Heritage Area.

The main collection system and septic tank were constructed in 1984/1985. The design parameters for the septic tank were 500 pe and 5.5 hours detention for 3 times dry weather flow (DWF) with retention time of 12 hours for average flows. A storm overflow facility exists at the entrance manhole to the septic tank. This screened overflow bypasses septic tank and discharges through outfall and will

be upgraded when this tank is converted to a pumping station as described below.

The current capacity and operation of the Courtmacsherry treatment system is inadequate to meet the current needs of the village. Upgrading of the treatment system is required to meet the peak summer demand when aquatic activity in the vicinity is also at its highest.

At the western end of the village St. Joseph's Place estate consisting of 15 houses has its own septic tank as due to ground topography it could not gravitate to main septic tank. This small tank discharges to the low water channel of the estuary. It is proposed to divert the flow from the estate to Harbour Court Estate pump station to west to discharge to main septic tank which is proposed to be converted to a major pump station as part of scheme upgrade.

Pumping Stations

There are two pumping stations (PSs) in the network. The first PS, known as the Lodge Pumping Station is located adjacent to the Courtmacsherry Hotel at the eastern side of the village and is maintained by the County Council. It collects flows from properties to the east of the village and lifts flows locally westward to the head of the main 300 mm diameter gravity sewer at the junction of Main Street and Ramsey Hill. The overflow at this station acts as both storm and emergency overflow. The second PS is a private pumping station and serves the residential development of Harbour Court, and adjoining estate directly west of Harbour Court which has its own waste water treatment plant (to be decommissioned when scheme upgraded). Both estates are located at the western end of the village. The PS receives and delivers foul flows to the head of the 225 mm diameter sewer at St. Joseph's Place and thence to main septic tank.

The Proposal

A preliminary report has been carried out for the joint upgrading of Courtmacsherry and Timoleague Sewerage Schemes and is awaiting approval by the DOEHLG. In this report it is proposed to construct a new waste water treatment plant on a greenfield site 0.25 km to the west of the village and 0.5 km to the east of Ballynamona House. It is proposed that this plant will also serve the village of Timoleague. The waste water treatment plant will be phased to cater for a load from Courtmacsherry of 2,500 for the year 2015 (Phase 1) and 2,980 pe for horizon year 2030 (Phase 2) with sewer network designed for 3,746 pe for horizon year 2055.

The existing septic tank in Courtmacsherry shall be converted into a pumping station, referred to as Harbour PS, and will deliver Formula A flows to the WWTP, via a 1.0 km rising main ensuring that spills do not exceed 7 times in 1 year.

The existing pumping station, referred to as Lodge PS adjacent to the Courtmacsherry Hotel will require upgrading to accommodate future development on the eastern side of the village and to limit storm overflow spill incidences to the Bay to a maximum of seven in number per annum.

Strengthening and augmentation of the existing foul/combined system will be required to address lack of capacity (under future loading conditions) and isolated instances of poor sewer condition. It is recommended that the existing

300mm diameter sewer in Main Street, Courtmacsherry be upsized to 450mm diameter for a length of approximately 750 metres in Phase 1.

Foul sewers will be required to provide for future development areas in the villages and the environs. Storm sewers will be required to convey surface water run-off from future development areas. It is envisaged that these sewers will be undertaken in Phase 2.

Waste Water Treatment Plant

A preliminary report has been carried out for the joint upgrading of Courtmacsherry and Timoleague Sewerage Schemes and is awaiting approval by the DOEHLG. It is proposed that the waste water treatment plant will be constructed as part of a DBO bundle of schemes. The chosen contractor will then design, build and operate the plant for a set period of years.

Under Phase 1 the proposed Waste Water Treatment Plant will be designed and constructed in a modular form for a population equivalent of 4,000 pe to cater for Courtmacsherry and Timoleague. The sewer network will be upgraded and expanded to service existing catchment area.

Phase 2 which is expected to be constructed by 2015 is to include for the modular expansion of the Waste Water Treatment Plant to serve the ultimate design population of 5,000 pe. The sewer network will then be expanded to service future development outside the existing catchment area.

It is considered that the appropriate treatment for the villages would be to adopt the treatment systems, which as a minimum result in compliance with the treatment standards outlined below.

The minimum treatment standards adopted as per the Second Schedule of the Urban Wastewater Treatment Directive for the village are as follows:

Biochemical Oxygen Demand (BOD)	**25 mg/l**
Chemical Oxygen Demand (COD)	**125 mg/l**
Total Suspended Solids (TSS)	**35 mg/l**

All wastewater treatment processes for use with municipal waste involve the use of biological processes to eliminate organic pollution in the receiving waters. The primary objective of biological wastewater treatment processes is the conversion of biodegradable organic materials into microbial biomass, which can be separated by appropriate solids/liquid separation processes, such as sedimentation, flotation etc.

A typical plant would consist in this case of screening, aeration, settlement with return of sludge and sludge treatment and removal. It is proposed that UV disinfection be installed at the WWTP due to the fact that Courtmacsherry Bay is used as an amenity area for fishing and water sports.

The WWTP will include storm water storage and will be designed so that the treated effluent can gravitate down to the existing septic tank and discharge through the existing outfall pipe.

Sources of Emissions from the Waste Water Works

The proposed WWTP will have to deal with a total loading (organic and hydraulic) from the following sources:

- Domestic population
- Commercial Sector
- Institutional Sector

The most significant loading in terms of quantity is the domestic population generated load which varies significantly due to local tourism.

	PE 2006	PE 2030	PE 2055
Domestic & Non- Domestic (*Holiday Homes/ B&B residents*) Summer Population	1,205	2,410	3,060
Commercial	143	529	633
Institutional	32	41	53
Total	**1,380**	**2,980**	**3,746**

For the purposes of this application the relevant pe chosen for the licence period is 2,000 being the pe estimated at end of that period.

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 Estuary forms an integral part of the landscape of Courtmacsherry/Timoleague. The estuary runs from the mouth of the Ardigeen River at Timoleague as far as 'Wood Point' which is the so named headland area approximately 4.5km east of Courtmacsherry Harbour. The estuary is a valued angling location, although this activity has declined over the last decade. It is anticipated that recent dredging of the harbour at Courtmacsherry should assist in reviving sea angling within the area. On the southern side of the estuary there are a number of areas used by bathers. The main bathing area is located east of Courtmacsherry Hotel.

The existing treatment plant at Courtmacsherry consisting of septic tank and holding tank releasing effluent on falling tide is insufficient to cater for present summer loadings and with regard to compliance with Urban Waste Water Directive effluent standards. It is envisaged that the proposed new waste water treatment plant will ensure a major improvement in quality of effluent thus lessening the effects of the emissions on the environment.

The current relevant standards were applied to the overflows from the pumping stations and using the hydraulic model it was decided to limit storm overflows from the pumping stations to Courtmacsherry Bay to 7 (seven) spills per bathing season or flows in excess of Formula A, which ever is more stringent. Storm tanks will be required at the WWTP. It is also proposed to screen to 6mm and separate gross solids from the incoming flows.

The minimum treatment standards adopted as per the Second Schedule of the Urban Wastewater Treatment Directive for the village are as follows:

Biochemical Oxygen Demand (BOD)	**25 mg/l**
Chemical Oxygen Demand (COD)	**125 mg/l**
Total Suspended Solids (TSS)	**35 mg/l**

It is proposed that UV disinfection be installed at the WWTP due to the fact that Courtmacsherry Bay is used as an amenity area for fishing and water sports.

The following table outlines the hydraulic loading on the WWTP and consequently on the aqueous environment:

Description	2005	2030	2055
Hydraulic Loading – 1DWF (m^3/day)	310	665	843

As part of the Preliminary Report for the upgrading of the Courtmacsherry Scheme an Ecology Report was carried out and the following are some of the findings of that report:

The entire Courtmacsherry estuary has very extensive green algae cover which is particularly notable during low water when it can be seen covering virtually all intertidal sand and mud flats. During the dive survey, massive amounts of algae were observed drifting on the current. The abundance of algae appears to be at least partially a result of currently inadequate treatment of waste water discharge into the bay.

Bathymetric modelling demonstrated that there would be sufficient tidal movement and flushing at this location of the outfall to prevent build up of effluent concentrations during flood tide. No significant impact on marine fauna would be expected at this location.

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

It is proposed that the waste water treatment plant will be constructed as part of a Design, Build and Operate (DBO) bundle of schemes. It is envisaged that this offers the following advantages

- more buildable designs,
- innovative solutions to design issues,
- improved guarantee of enhanced operational performance.

Consequently, newer technologies will be more likely to be used to optimize treatment thus ensuring compliance with the necessary effluent standards.

Other technologies would include UV treatment to disinfect the effluent and suitable telemetry and control techniques to monitor operations of the scheme.

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

It is likely that under the DBO contract for Courtmacsherry Wastewater Treatment Plant, a Performance Management System will be required. Such a system would provide a uniform approach to dealing with performance

management issues, including procedures for dealing with plant operation, and in particular for dealing with emergencies or failure to meet treated effluent standards. Failure to meet the specified treated effluent standards may result in final penalties to the operating contractor. As a result, the risk of environmental pollution from the treatment plant should be reduced.

Measures planned to monitor emissions into the environment

It is likely that under the Employers Requirements for Operation & Maintenance of the Works for Courtmacsherry Wastewater Treatment Plant, the Contractor will be obliged to implement in full, the requirements of a 'Performance Management System'. In providing this service, the Contractor would monitor the wastewater treatment plant assets and operations, which would include undertaking sampling, monitoring and analysis of the wastewater and sludge. Long term monitoring of the estuary and the final effluent from the treatment plant will also be undertaken to determine compliance or otherwise with the quality objectives set for the scheme.

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

Attachment included	Yes	No
	√	

SECTION B: GENERAL

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

B.1 Agglomeration Details

Name of Agglomeration:	Courtmacsherry

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:	Courthouse,
	Skibbereen
	Co. Cork
Tel:	028-21299
Fax:	028-21995
e-mail:	declan.groarke@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*:	Mr Declan Groarke, SEE
Address:	Water Services, Western Division,
	Cork Co. Co,
	The Courthouse, Skibbereen
	Co Cork
Tel:	(028) 21299
Fax:	(028) 21995
e-mail:	declan.groarke@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:	
Tel:	
Fax:	
e-mail:	

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

Design, Build & Operate Contractor Details

Name*:	**NOT APPLICABLE**
Address:	
Tel:	
Fax:	
e-mail:	

*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*:	John Conroy, SEE
Address:	Courtmacsherry Septic Tank
	Main Street,
	Courtmacsherry
	Co. Cork
Grid ref (6E, 6N)	E150569 N042742
Level of Treatment	Primary
Primary Telephone:	023 33347
Fax:	023 33147
e-mail:	john.conroy@corkcoco.ie

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

Attachment B.2 should contain appropriately scaled drawings / maps (≤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	E.g. Diffuser, Lunar Valve, Non-return flap valve etc. Non-return flap valve
Unique Point Code	SW01COUR
Location	Courtmacsherry Harbour
Grid ref (6E, 6N)	E150732 N042818

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	E.g. Diffuser, Lunar Valve, Non-return flap valve etc. Open Pipe
Unique Point Code	SW02COUR
Location	Courtmacsherry Estuary
Grid ref (6E, 6N)	E150106 N042711

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.

Lodge Pump Station Storm Overflow

Type of Discharge	Flap Valve
Unique Point Code	SW03COUR
Location	Courtmacsherry Harbour
Grid ref (6E, 6N)	E151498 N042565

Septic Tank and Proposed Harbour Pump Station Storm Overflow

Type of Discharge	Diffuser
Unique Point Code	SW04COUR
Location	Courtmacsherry Harbour
Grid ref (6E, 6N)	E150732 N042818

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:	Norton House
	Skibbereen
	Co. Cork
Tel:	028 40340
Fax:	028 21660
e-mail:	

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:	Area Headquarters
	Hospital Grounds
	Skibbereen
Tel:	028-40400
Fax:	028-21006
e-mail:	

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:	
Tel:	
Fax:	

e-mail:

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	**1,380 (Existing)**
Data Compiled (Year)	**2004**
Method	**House Count**

By interpolating between years 2004 and 2030 population equivalent at end of licence period will be 2000.

Population Equivalent	**2,980 (Proposed- year 2030)**
Data Compiled (Year)	**2005**
Method	**Development Plan**

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.

Calculated p.e. to be contributed to the waste water works as a result of planning permissions granted:

Most permitted developments to provide their own waste water treatment plants discharging to public sewer until upgrade of main waste water treatment plant. Other development pe = 20

Percentage of projected pe to be contributed by the non-domestic activities = 80%

Ability of the waste water works to accommodate this extra hydraulic and organic loading without posing an environmental risk to the receiving water habitat:

It is envisaged that the upgraded waste water treatment will be in place by the time that above development takes place.

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 €)
Discharges from agglomerations with a population equivalent of 1,001 to 2,000	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.

Waste Water Treatment Plant

The current capacity and operation of the Courtmacsherry treatment system is inadequate to meet the current needs of the village. Upgrading of the treatment system is required to meet the peak summer demand when aquatic activity in the vicinity is also at its highest.

It is proposed to construct a new waste water treatment plant on a greenfield site 0.25 km to the west of the village. It is proposed that this plant will also serve the village of Timoleague. The waste water treatment plant will be phased to cater for a load from Courtmacsherry of 2,500 for the year 2015 (Phase 1) and 2,980 pe for horizon year 2030 (Phase 2) with sewer network designed for 3,746 pe for horizon year 2055

The preferred option for the outfall is to be located at the existing outfall point. It is proposed that UV disinfection be installed at the WWTP due to the fact that Courtmacsherry Bay is used as an amenity area for fishing and water sports. The treated effluent quality standard for the Courtmacsherry Waste Water Treatment Plant is to comply with the E.U. Urban Waste Water Treatment Directive Standards. Which are as follows:

- **BOD** **25mg/l**
- **COD** **125mg/l**
- **Total Suspended Solids** **35mg/l**

Detailed design of the proposed treatment plant has not yet been carried out. A typical plant would consist in this case of screening, aeration, settlement with return of sludge and sludge treatment and removal and will also include storm water storage.

Tertiary treatment to remove phosphorus and total nitrogen may also be required in the future if the population increases above 10,000 PE or Courtmacsherry Bay gets designated sensitive water. It is recommended that sufficient land shall be obtained for the WWTP in order that additional process units can be added to the plant if this situation arises in the future.

The sludge disposal proposals for the Courtmacsherry Sewerage Scheme will be in accordance with the County Cork Sludge Management Plan.

Pumping Stations

The existing septic tank in Courtmacsherry shall be converted into a pumping station, referred to as Harbour PS, and will deliver flows to the WWTP, via a 1.0 km rising main. The design capacity of the pumping station is 70 l/s (25 Year Formula A; equivalent to 7 DWF). Overflows from the pumping stations to the Courtmacsherry Bay will not exceed 7 times per annum, indeed the hydraulic model demonstrates that the Harbour PS should only overflow under 1 in 5 year storm. Storage of 485m3 is required at the WWTP to store the difference between Formula A and full flow to treatment (43l/s) for 2 hours.

The existing pumping station, referred to as Lodge PS at the Courtmacsherry Hotel will require upgrading to accommodate future development on the eastern side of the village and to pump forward Formula A flow (25 l/s). Overflow spill incidences to the Bay are to be limited to a maximum of seven per annum.

Sewer Network

To meet the demands of proposed future developments within Courtmacsherry and its environs, upgrading and extending the existing sewer network will be required.

Approximately 2.2km of the sewer network in Courtmacsherry was surveyed under the CCTV Survey. In general the sewer network is in reasonable condition. There are some lengths of combined sewer which require structural rehabilitation.

Strengthening and augmentation of the existing foul/combined system will be required to address lack of capacity (under future loading conditions) and isolated instances of poor sewer condition. It is recommended that the existing 300mm diameter sewer in Main Street, Courtmacsherry be upsized to 450mm diameter for a length of approximately 750 metres in Phase 1.

Foul sewers will be required to provide for future development areas in the village and the environs. Storm sewers will be required to convey surface water run-off from future development areas. As these sewers will be developer driven they should be undertaken in Phase 2.

The likely timeframe for the carrying out of these works is as follows:

1. **Preparation of Brief** for the Appointment of Consulting Engineer for Scheme to go forward as Design, Build, Operate (DBO) Scheme by **June 2009**
2. **Approval of Brief** by DOEHLG – **Jan 2010**
3. **Appoint Consultant** – **June 2010**
4. **Design period + Receipt of Tenders** – **December 2012**
5. **Start construction** – **June 2013**
6. **Completion of Works** – **June 2014**

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.

Not Applicable

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.

Existing Waste Water Treatment Plant

The existing wastewater treatment plant in Courtmacsherry consists of a septic tank located in the village centre on the coastal side of the street and approximately 280 metres west of Courtmacsherry Pier. This treats the sewage from the domestic and non-domestic flows of the village and environs and discharges from its storage chamber on a lunar cycle to the tidal channel 172 metres to the north-east in Courtmacherry Harbour.

The main collection system and septic tank were constructed in 1984/1985. The design parameters for the septic tank were 500 pe and 5.5 hours detention for 3 times dry weather flow (DWF) with retention time of 12 hours for average flows. A storm overflow facility exists at the entrance manhole to the septic tank. This screened overflow bypasses septic tank and discharges through the outfall.

At present the septic tank is desludged at least once yearly with sludge disposed in accordance with the relevant Sludge Regulations.

At the western end of the village St. Joseph's Place estate consisting of 15 houses has its own septic tank as due to ground topography it could not gravitate to main septic tank. This small tank discharges to the low water channel of the estuary and it is proposed to divert the flow from the estate to pump station to west to discharge to main septic tank which is proposed to be converted to a major pump station as part of scheme upgrade.

Proposed Waste Water Treatment Plant

It is proposed to construct a new waste water treatment plant on a greenfield site 0.25 km to the west of the village and that this plant will also serve the village of Timoleague. The waste water treatment plant will be phased to cater for a load from Courtmacsherry of 2,500 for the year 2015 (Phase 1) and

2,980 pe for horizon year 2030 (Phase 2) with sewer network designed for 3,746 pe for horizon year 2055.

Detailed design of the proposed treatment plant has not yet been carried out. A typical plant would consist in this case of screening, aeration, settlement with return of sludge and sludge treatment and removal and will also include storm water storage.

The preferred option for the outfall is to be located at the existing outfall point. It is proposed that UV disinfection be installed at the WWTP due to the fact that Courtmacsherry Bay is used as an amenity area for fishing and water sports. The treated effluent quality standard for the Courtmacsherry Waste Water Treatment Plant is to comply with the E.U. Urban Waste Water Treatment Directive Standards. Which are as follows:

- BOD 25mg/l
- COD 125mg/l
- Total Suspended Solids 35mg/l

Tertiary treatment to remove phosphorus and total nitrogen may also be required in the future if the population increases above 10,000PE or Courtmacsherry Bay gets designated a sensitive water. It is recommended that sufficient land shall be obtained for the WWTP in order that additional process units can be added to the plant if this situation arises in the future.

The sludge disposal proposals for the Courtmacsherry Sewerage Scheme will be in accordance with the County Cork Sludge Management Plan.

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.

The following is an extract from the Preliminary Report prepared for the Upgrading of Courtmacsherry Sewerage Scheme regarding storm water overflows:

"Receiving Waters and Overflow Frequency

Under the proposed scheme, the new WWTP(s) and pumping stations will be required to deal with influent storm water from the combined sewer system(s). Storm water storage will therefore be provided at the WWTP site. Storm water pumping (and possibly storm water storage) will be investigated at some of the pumping stations. A number of regulations and guidelines govern the frequency and quality of storm water discharges from combined sewer systems into rivers and estuarial waters. These principally include the Urban

Wastewater Treatment Directive (UWWTD) and the DEHLG Procedures and Criteria in relation to Storm Water Overflows (1993).

Urban Waste Water Treatment Directive

The UWWTD provides a framework for action to deal with the pollution threat from urban and industrial wastewater. The principal requirement of the UWWTD is that:

"The design, construction and maintenance of collection systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding:

- *Volume and characterisation of urban waste water*
- *Prevention of leaks*
- *The limitation of pollution of receiving waters due to storm water overflows"*

In a footnote to the above requirements, the directive recognises that it is not possible in practice to construct collection systems and treatment plants in a way such that all wastewater can be treated during situations such as unusually heavy rainfall. As a result, it requires Member States to decide on measures to limit pollution from storm water overflows and suggests that such measures:

(i) could be based on:

- Dilution rates
- Capacity in relation to dry weather flow

(ii) could specify a certain acceptable number of overflows per year.

Assessment Criteria for Existing Overflows

In assessing the operation of an existing overflow, it must be determined if the overflow:

- causes significant visual or aesthetic impact and public complaints;
- causes deterioration in the quality of the receiving water;
- gives rise to failure in meeting the requirements of National Regulations on foot of EU Directives (Bathing Water etc.); or
- operates in dry weather.

The pumping and overflowing of storm water at the Lodge Pumping Station in Courtmacsherry would appear to be operating satisfactorily at present. With the predicted growth of population over the next 25 years, the Lodge PS and the proposed Pumping Stations and their associated overflows need to be designed to cope with the future loading. The above criteria do therefore not apply, as it is concerned

with "*Existing Overflows*". The design criteria for "*Upgrading Overflows/New Overflows*" are discussed below.

DEHLG "Procedures and Criteria in relation to Storm Water Overflows" (1993)

The DEHLG paper refers to the National Rivers Authority, UK (now the Environment Agency), which sets out standards for storm water overflows into and in close proximity to bathing areas and water contact/recreational use waters. These standards are summarised as follows:

- *"The maximum number of independent storm events discharged via the CSO must not, on average, exceed 3 per bathing season for identified bathing waters unless it can be shown that the design will achieve the water quality standards of the Bathing Water Directive for at least 98.2% of the time;*
- *The maximum number of independent storm events discharging via storm water overflows affecting water contact/recreational use waters must not, on average, exceed 7 times per bathing season;*
- *The soffit level of the overflow outfall must be located below the level of the low water mark of mean spring tides (MLWS); otherwise a spill frequency criterion of 1 spill in 5 bathing seasons will apply;*
- *Normally the incoming flow must exceed that calculated from "Formula A" before the storm water overflow spills unless there are high dilutions available;*
- *Discharge flows are required to be screened to at least 10mm and where the frequency of spill is greater than once per year, 80% of the volume should be screened to at least 6mm.*

Network models using the <InfoWorks> software package can be used to establish the storage volume requirements to meet the criteria for potential CSO spills to the identified bathing or recreational waters.

The type of screen used to achieve the requirements should be the screenings retention type and not of the removal type. That is, the screenings intercepted by the screen should be retained in the sewer system and not removed for separate disposal. This will reduce running and maintenance costs of screening at storm water overflows."

Design Criteria for Upgrading/New Overflows

The general criterion for the future design of Combined Sewer Overflows (CSOs) is defined by the DEHLG as 'an absence of visible signs of sewage derived debris (e.g oil slick, foaming etc.) and of deposits or algal growths caused by sewage discharge'. This requires that the

effects of organic/nutrient loads deposited in bed sediments must also be considered.

Design criteria for combined sewer overflows must take into consideration the following:

- Beneficial uses of receiving waters and corresponding standards and water quality objectives;
- The nature and strength of sewage including the effects of re-suspension and "first foul flush" effects which may increase rather than diminish sewage strength in the sewer with increasing flow, and policy in relation to industrial discharges to the sewer;
- The siting of overflow discharges and their potential for aesthetic nuisance; and
- The type of overflow and its efficiency in containing as far as possible floating debris and solids generally, i.e. maximum solids separation.

Overflow to Courtmacsherry Bay

Courtmacsherry Estuary is currently not designated as a bathing or contact/recreational use water. There are however a number of locations in the estuary where the waters are used by bathers. In deciding the minimum requirement with regard to frequency and quality of storm water spilling into the Estuary under the proposed system, due regard must be taken for current usage and any future re-designation of the Estuary to an amenity or recreational status. It is therefore prudent to set a minimum requirement now rather than redesigning the pumping regime in the future.

The Estuary forms an integral part of the landscape of Courtmacsherry / Timoleague. The estuary runs from the mouth of the Ardigeen River at Timoleague as far as 'Wood Point' which is the so named headland area approximately 4.5km east of Courtmacsherry Harbour. The estuary is a valued angling location, although this activity has declined over the last decade. It is anticipated that recent dredging of the harbour at Courtmacsherry should assist in reviving sea angling within the area. On the southern side of the estuary there are a number of areas used by bathers. The main bathing area is located east of Courtmacsherry Hotel.

It is therefore proposed to regard the Estuary as a designated contact/recreational water and apply the relevant DEHLG 'Procedures and Criteria in relation to Storm Water Overflows' (1993) standards as listed above regarding the allowable number of spills per annum. This can be summarised as follows:

- The maximum number of independent storm events discharging via storm water overflows affecting water

contact/recreational use waters must not, on average, exceed 7 times per bathing season;

- Normally the incoming flow must exceed that calculated from "Formula A" before the storm water overflow spills unless there are high dilutions available;
- Discharge flows are required to be screened to at least 10mm and where the frequency of spill is greater than once per year, 80% of the volume should be screened to at least 6mm.

Overflows from New / Upgraded Pumping Stations

This report recommends the construction of one new pumping station in Courtmacsherry (on the site of the existing Septic Tank) and upgrading of the existing pumping station, 'Lodge PS', near Courtmacsherry Hotel as part of the proposed sewerage scheme. These pumping stations will receive combined flows. Emergency storm water overflow facilities will therefore have to be designed as part of these new pumping stations. These new pumping stations will be required to take into account all the relevant guidelines and legislation pertinent at the time of construction.

Conclusions

In the context of Courtmacsherry Sewerage Scheme, the current relevant standards were applied to the overflows from the pumping stations, and these were then input to the hydraulic model. Using the model it was decided to limit storm overflows from the pumping stations to Courtmacsherry Bay to 7 (seven) spills per bathing season or flows in excess of Formula A, which ever is more stringent. Storm tanks will be required at the WWTP. The overall installation will comply fully with the criteria and guidelines discussed above.

It is also proposed to screen to 6mm and separate gross solids from the incoming flows.

Transfer of Flow from Courtmacsherry to the Waste Water Treatment Plant

Flows from the networks will require to be pumped to the WWTP because the location of the WWTP is at a considerably higher contour than the downstream section of the sewer networks. Sites for Pumping Stations were investigated and this is discussed in more detail in Section 13. It is recommended that a main pumping station 'Harbour PS' is constructed on the site of the existing Septic Tank, in Courtmacsherry (existing overflow at septic tank will be no longer required when converted to pumping station – likely timeframe – June 2014).

. As discussed in detail in Section 7 the receiving waters are defined as contact/recreational for the purposes of the Courtmacsherry and Timoelague Sewerage Scheme project. The guidelines outlined in the 'Urban Waste Water Treatment Directive (91/271/EEC), Procedures and Criteria in relation to Storm Water Overflows,'was

used to determine the number of spills per annum and storage required at each pumping station.

The following hydraulic modelling methodology is used in order to calculate the volume of storage required and the pump rate at each pump station to meet criteria discussed in detail in Section 7.

Rainfall event data (RED) files with a return probability of 1 in 7 times per annum, summer and winter storms were produced in *InfoWorks*;

- The Formula A pumping rate was calculated adding the dry weather flow, a population multiplier and twice the existing industrial trade effluent. This resulted in a pump rate capacity of 70 l/s at Harbour PS, (25 Year design horizon).

- The pumping rate required to only overflow 7 times in 1 bathing season was determined by adding all loading to the pumping station for the 1 in 7 times per annum synthetic storm. This resulted in a pump rate of 54 l/s at Harbour PS.

The UWWTD guidelines referred to above, stipulate Formula A as the minimum outflow setting and therefore the Formula A flows were adopted for the design pump capacity of Harbour PS. The models were tested to ensure that spills did not exceed the 7 times in 1 year storm.

The design capacity adopted for Courtmacsherry PS is 70 l/s, which is the Formula A flow. The hydraulic model demonstrated that with pump capacity of 70 l/s, the 7 times a year spill regime was not exceeded. The model demonstrates that overflow incidences at the Harbour PS should only occur under the 1 in 5 Year storm.

For the Design Option described below, overflows were modelled as an outfall. The flow to be pumped to the WWTP is regarded as the continuation flow at the overflow. All flows in excess of Formula A or 7 in 1 Year were diverted via an 'overflow' pipe. The volume of flow diverted for a 2 hour period, is the volume of storage required.

Design Option 1 - (Pump Forward Formula A from Harbour PS and 7 in 1 year from Timoleague PS; Provide Storage at WWTP)

Under Option 1 (preferred option), the Harbour PS will pump at a rate equivalent to Formula A and the Timoleague PS will pump at a rate greater than Formula A. Storage would be required to store the difference between the hydraulic capacities of Harbour PS and Timoleague PS and full flow to treatment at the WWTP. No storage

is required at the individual pump stations to comply with this overflow regime.

It is recommended that storage at the WWTP has a capacity capable of storing the difference between the total Formula A flow from Harbour PS and the Formula A flow from Timoleague PS and full flow to treatment (FFT at 3 DWF) for 2 hrs. Table 11.7 summarises the details of Option 1.

Table 11.7: Option 1
Formula A / 7 in 1 Year Pumping Rate; WWTP Storage

Harbour PS Rate (l/s)	Timoleague PS Rate (l/s)	FFT 3DWF (l/s)	WWTP Storage Volume (m3)	2 No. Storm Tank Dimensions * (m)
70	40	43	483	5 x 14

*** Assuming liquid depth of 4m**

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.

Existing Pumping Stations

Currently there are two existing pumping stations in Courtmacsherry.

Courtmacsherry Pump Station 1 – Lodge PS

The Lodge Pumping Station is located at the eastern end of the village, immediately west of Courtmacsherry Hotel. The pump station serves the eastern end of the village, namely Meadowlands, the Caravan Park and Courtmacsherry Hotel.

The pumping station lifts foul sewage, to the head of the main 300mm diameter gravity sewer at Manhole No. 5142 2402, which is located at the junction of Ramsey Hill and Main Street. This gravity sewer runs westwards for some 770m length before connecting into the Septic Tank.

This Pumping Station has a 225mm diameter concrete high-level emergency overflow, which discharges directly into the Courtmacsherry Harbour in the event that both pumps fail to operate. This emergency overflow ensures that the catchment is protected from flooding during pump failure. Model analysis

shows that this pumping station is operating satisfactorily. No overflow incidences were recorded during the Flow Survey.

Compound

The pumping station wet well comprises a submersible pump sump. The chamber is covered with hinged cover plates and the electrical power distribution and controls are housed in an overground kiosk. The kiosk is sited on the seawall west of Courtmacsherry Hotel.

Pump Protection

There is dry run protection on the pumps.

Configuration

The pumping station consists of 2 No. submersible pumps.

Pump 1 was replaced in late August 1999. Pump 1 is an EMU submersible pump, type FA08.52-185U+T171-4/8/S/N:542408 of cast iron construction with stainless steel shaft and screwed parts, fitted with a Vortex impeller capable of handling 80mm solids coupled to a 2.5KW motor with thermostats and 10m of cable. The electrical supply is 400-3-50.

Pump 2 was replaced in May 2000. Pump 2 is a KSB Amarex submersible pump, type F80-210/024UG-190.

The two pumps operate as duty / standby each capable of delivering 340 litres per minute (5.6 l/sec.) via a 100mm diameter rising main against a static head 5.90 metres. The length of the rising main is approximately 240 metres.

The delivery pipe work for the rising main is terminated in flanged and plain-ended pipes.

Pump Station 2 - Harbour Court Pump Station

In 1999 John Fleming Construction Ltd. built 42 No. houses at the west end of Courtmacsherry as part of a development known as Harbour Court. A pumping station serves this development discharging to public sewer. It also serves a subsequent adjoining development of 37 houses to west which has its own waste water treatment plant.

The sewage from the Harbour Court development is pumped to the head of the public gravity sewer. The gravity sewer is a 225mm diameter pipeline, which runs eastwards before terminating at the Septic Tank.

It is proposed to connect the sewer from 15 houses in St. Joseph's Place to this pump station also thereby allowing decommissioning of septic tank serving that development.

The pumping station consists of 2 No. submersible sewage pumps in cast iron construction. The two pumps operate as duty / standby.

The pump(s) have a capacity of 3.5 l/sec. and the static head is approximately 7 metres. The electrical supply is 400-3-50.

The pumping station is constructed of 1200mm diameter precast concrete rings, 2.8m deep overall approximately, with a 225mm diameter uPVC emergency

overflow pipe, which outfalls to the tidal area in the event of both pumps breaking down. The rising main is 80mm internal diameter Class C HDPE, which discharges into the existing public foul manhole, (in front of St. Joseph's Place / Church) which is located approximately 185m east of the Harbour Court development.

Proposed Pumping Stations

The design capacity adopted for proposed Harbour PS is 70 l/s, which is the Formula A flow. The hydraulic model demonstrated that with pump capacity of 70 l/s, the 7 times a year spill regime was not exceeded. The model demonstrates that overflow incidences at the Harbour PS should only occur under the 1 in 5 Year storm.

The minimum setting for the overflow is Formula A flow. The Formula A flows for Lodge PS and Harbour PS were calculated. The recommended design capacity of the pumping stations is as below:

- Lodge PS = 25 l/s
- Harbour PS = 70 l/s

The existing pumping station referred to as Lodge PS at the Courtmacsherry Hotel will require upgrading to accommodate future development on the eastern side of the village and to limit overflow spill incidences to the Bay to a maximum of seven number per annum. The rising main will also have to be replaced from 100mm to 150mm to accommodate phase 2 flows. The existing 300mm diameter gravity sewer that this pumping station discharges into will become hydraulically surcharged over time as detailed in Section 11. It is recommended that this section of pipework is upsized to 450mm diameter, the length of pipeline involved is 750 metres.

The proposed pumping stations and rising mains are summarised in Table 11.5 below.

Table 11.5: Proposed Pumping Stations and Rising Mains

PS Name	Location	Area Served (ha)	Capacity (l/s)	Pipe size Reqd. (mm)	To Node	Pipe Length (m)
Uprate Existing Lodge PS	Existing PS opp. Courtmacsherry Hotel	22	25	Re-use existing 100 – phase 1 & uprate to 150mm phase 2	5142 2402	240
Harbour PS	Harbour area, on site of ex. Septic Tank	81	70	250	WWTP	1,000

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.

The existing Septic/Holding Tank discharges on a lunar cycle to Courtmacsherry Harbour via a 300mm diameter sea outfall. The outfall pipe is approximately 170 metres long.

The following extract from the Preliminary Report for the upgrading of Courtmacsherry and Timoleague Sewerage Schemes carried out by J. B. Barry and Partners Ltd. deals with the proposed outfall details and location:

"In July 2004 Irish Hydrodata Limited conducted marine studies in Courtmacsherry Harbour. The study sought to provide detailed information on the marine environment in order to assist with the production of a hydrodynamic model for the area. Hydro Environmental Limited was commissioned by J.B. Barry and Partners Ltd. to develop a model to determine an optimum outfall and WWTP location.

The various aspects of the marine study included bathymetry, current measurements and measurement of wind and tidal level data. The study also included drogue and dye tracking exercises in order to establish tidal excursions and flow patterns at various stages of the tide. Water samples were also taken and analysed for various parameters.

Hydro Environmental Limited developed a model to determine an optimum outfall and WWTP location. A refined finite model of 15m by 15m was used to model Courtmacsherry Harbour. The study domain extended from Wood Point west to the mouth of the River Argideen at Timoleague.

Four potential outfall sites were investigated as part of the Outfall site selection process.

Table 14.1 – Potential Outfall Sites

	Easting	Northing	Reference
Outfall A	149100	043840	Midway in Estuary between Timoleague & Courtmacsherry
Outfall B	150732	042818	Courtmacsherry
Outfall C	152910	042350	Approaches west of Wood Point
Outfall D	147320	043540	Timoleague

Simulations were carried out modelling 3DWF (43 l/sec) faecal coliform loads at secondary treated concentration of 2.2 * 10^5 Counts/100ml. Simulations were carried out over repeating spring and neap tidal cycles.

The results indicate that Outfall B at the Existing outfall location meets all EU and Irish Legislation and is therefore the preferred option. The analysis shows that taking the outfall east of Courtmacherry Harbour to Outfall C has some minor additional benefits over Outfall B. Whilst taking the outfall further east of Wood Point into the open sea had no additional benefits due to an eddie effect at Wood Point. The model showed that discharging near Timoleague (Outfall D) would result in a considerable build-up of pollutants and would be an unsuitable discharge location. This meant that the WWTP at Timoleague would have to pump its final effluent to Courtmacsherry for final discharge or pump foul flows to a combined WWTP at Courtmacshery prior to discharge.

The model also confirm there was no requirement for a Lunar clock discharge and that a continuous flow from the WWTP would allow for sufficient dilution of the final effluent.

A structural survey on the alignment and structural integrity of the existing outfall in the Bay has been undertaken and has been found to be in good order, therefore it is recommended that the existing outfall pipeline be retained and reused as the discharge point from the proposed new WWTP. Cork County Council have requested that due to the location of this existing outfall that UV disinfection be included at the WWTP due to the fact that Courtmacsherry Bay is used as an amenity area for fishing and water sports. Even though this is not a designated bathing area and there is currently no aquaculture licences within Courtmacsherry Bay and therefore the Shellfish Directive is not applicable."

The secondary discharge from the septic tank serving St. Joseph's Place discharges at the shoreline at the western end of the village - grid reference E150106 N042711. The discharge is through an open 180 mm pipe. It is proposed that the effluent from this estate will be connected to the Harbour Court pumping station facilitating the removal of this outfall discharge.

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
Point Code Provide label ID's	Point Type (e.g., Primary/ Secondary/ Storm Water Overflow)	Local Authority Name (e.g., Donegal County Council)	Receiving Water Body Type (e.g., River, Lake, Groundwater, Transitional, Coastal)	Receiving Water Body Name (e.g., River Suir)	Protected Area Type (e.g., SAC, candidate SAC, NHA, SPA etc.)	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference

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.

Table D.2:

PT_CD	PT_TYPE	LA_NAME	RWB_TYPE	RWB_NAME	DESIGNATION	EASTING	NORTHING	VERIFIED
SW01COUR	Primary Discharge Pt.	Cork County Council	Transitional	Courtmacsherry Estuary	pNHA, cSAC	150732	042818	N
SW02COUR	Secondary Discharge Pt.	Cork County Council	Transitional	Courtmacsherry Estuary	pNHA, cSAC	150106	042711	N
SW03COUR	Proposed Storm Overflow	Cork County Council	Transitional	Courtmacsherry Estuary	pNHA, cSAC	151498	042565	N
SW04COUR	Proposed Storm Overflow	Cork County Council	Transitional	Courtmacsherry Estuary	pNHA, cSAC	150732	042818	N

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.

No composite sampling or continuous flow monitoring is in place at present on any of the discharge points. Sampling facilities and continuous flow meters will be provided when new Waste Water Treatment Plant is in place with likely timeframe for completion of works to be June 2014.

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
Point Code Provide label ID's assigned in section E of application	Point Type (e.g., Primary, Secondary, Storm Water Overflow)	Monitoring Type M = Monitoring S = Sampling	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Y = GPS used N = GPS not used

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
SW01COUR	Primary	S	150566	042741	N
SW01COUR	Primary Influent	S	151486	042471	N
aSW01d COUR	Receiving Water	M	150649	043103	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.

The following is an extract from the Preliminary Report carried out by J. B. Barry & Partners Consulting Engineers for the proposed Courtmacsherry & Timoleague Sewerage Schemes. This relates to the outfall location and its impact on environment.

"In July 2004 Irish Hydrodata Limited conducted marine studies in Courtmacsherry Harbour. The study sought to provide detailed information on the marine environment in order to assist with the production of a hydrodynamic model for the area. Hydro Environmental Limited was commissioned by J.B. Barry and Partners Ltd. to develop a model to determine an optimum outfall and WWTP location.

The various aspects of the marine study included bathymetry, current measurements and measurement of wind and tidal level data. The study also included drogue and dye tracking exercises in order to establish tidal excursions and flow patterns at various stages of the tide. Water samples were also taken and analysed for various parameters.

Hydro Environmental Limited developed a model to determine an optimum outfall and WWTP location. A refined finite model of 15m by 15m was used to model Courtmacsherry Harbour. The study domain extended from Wood Point west to the mouth of the River Argideen at Timoleague.

Four potential outfall sites were investigated as part of the Outfall site selection process.

Table 14.1 – Potential Outfall Sites

	Easting	Northing	Reference
Outfall A	149100	43840	Midway in Estuary between Timoleague & Courtmacsherry
Outfall B	150732	042818	Courtmacsherry
Outfall C	152910	42350	Approaches west of Wood Point
Outfall D	147320	43540	Timoleague

Simulations were carried out modelling 3DWF (43 l/sec) faecal coliform loads at secondary treated concentration of 2.2 * 10^5 Counts/100ml. Simulations were carried out over repeating spring and neap tidal cycles.

The results indicate that Outfall B at the Existing outfall location meets all EU and Irish Legislation and is therefore the preferred option. The analysis shows that taking the outfall east of Courtmacherry Harbour to Outfall C has some minor additional benefits over Outfall B. Whilst taking the outfall further east of Wood Point into the open sea had no additional benefits due to an eddy effect at Wood Point. The model showed that discharging near Timoleague (Outfall D) would result in a considerable build-up of pollutants and would be an unsuitable discharge location.

The model also confirms there was no requirement for a Lunar clock discharge and that a continuous flow from the WWTP would allow for sufficient dilution of the final effluent.

A structural survey on the alignment and structural integrity of the existing outfall in the Bay has been undertaken and has been found to be in good order, therefore it is recommended that the existing outfall pipeline be retained and reused as the discharge point from the proposed new WWTP. Cork County Council has requested that due to the location of this existing outfall that UV disinfection be included at the WWTP due to the fact that Courtmacsherry Bay is used as an amenity area for fishing and water sports even though this is not a designated bathing area. As there are currently no aquaculture licences within Courtmacsherry Bay therefore the Shellfish Directive is not applicable."

- 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.

The Secondary Discharge is from a septic tank serving the fifteen houses of St. Joseph's Place at western end of village. This discharges via an outfall to the shoreline. It is proposed to decommission this tank and outfall and divert the flow to the pumping station serving the Harbour Court estate at the time of scheme upgrade.

- 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.

No discharges to groundwater take place in the agglomeration.

- 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.

Courtmacsherry Estuary into which the discharges takes place is a Special Area of Conservation and a proposed National Heritage Area.

The following is an extract from the Preliminary Report carried out by J. B. Barry & Partners Consulting Engineers for the proposed Courtmacsherry & Timoleague Sewerage Schemes. This relates to the outfall location and its impact on environment.

"**Courtmacsherry Bay**

The Argideen River flows fourteen miles to the estuary at Timoleague and joins the sea at the village of Courtmacsherry. The Courtmacsherry estuary is quite shallow at the western (Timoleague) end, with deeper water near Courtmacsherry itself.

Courtmacsherry Bay and estuary has a number of beneficial uses including:

- **Amenity:** The estuary offers attractive scenic views from Courtmacsherry and Timoleague.
- **Angling:** Courtmacsherry has established itself as one of Ireland's premier Sea Angling resorts. The clean Atlantic waters warmed by the Gulf Stream add to the prolific marine life and species of fish, which live off the shore. Shore fishing is also carried out in the Estuary for bass, bot and harder.

- **Swimming:** The estuary is used for swimming at the eastern end of Courtmacsherry village.

- **Receiving Water**: The estuary is the receiving water for discharges from the Courtmacsherry septic tank.

Courtmacsherry Bay is subject to extensive algal growths see Figure 7.2, which on decaying in warm weather produces a strong smell. These growths generally consist of two or more algae, manifesting as extensive greening of the mudflats. Wave action causes these growths and other seaweeds/algae at sea to loosen and become deposited onshore where they rot in warm weather causing strong smells.

Agricultural run-off from surrounding farms is one of the main diffuse sources of nutrients in Courtmacsherry Bay.

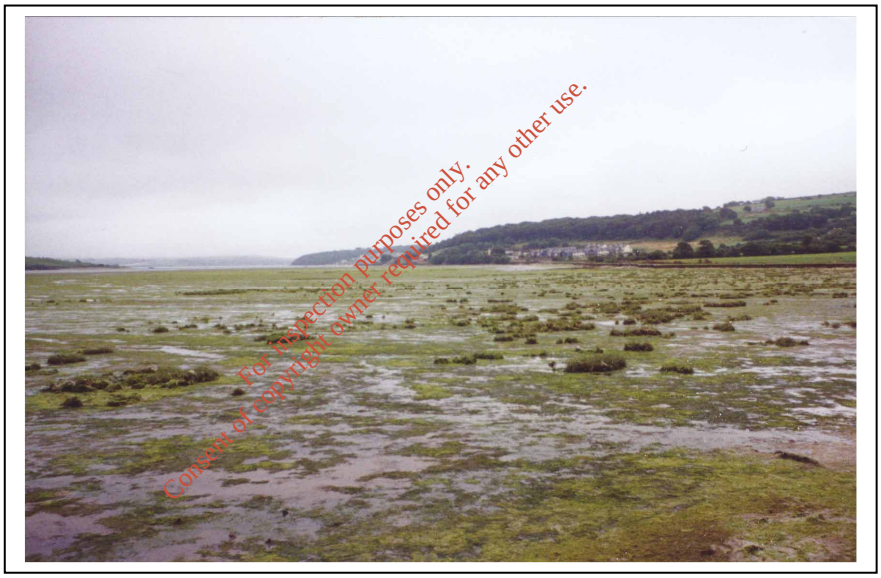

Figure 7.2: Algal Growths – Courtmacsherry Bay

The quality of estuarine and coastal waters is usually monitored by a number of government and regulatory agencies, including EPA, Coastal Local Authorities, the Marine Institute's Fisheries Research Centre (FRC), various arms of the Department of the Marine and Natural Resources and the Radiological Protection Institute of Ireland.

Cork County Council has limited water quality data available on Courtmacsherry Estuary and Bay. Water samples were taken by Cork County Council on the 23rd of July 2003 at Courtmacsherry Bay and were found to be below the standards (i.e. within the limits) for the Quality of Bathing Water Directive (76/160/EC) Guideline Levels, National Limit Values and the more stringent Blue Flag Criteria. The results are shown below in Table 7.5.

Table 7.5: Courtmacsherry Water Samples by Cork County Council

Date	Total Coliforms / 100ml	Faecal Coliforms / 100ml	Faecal Streptococci / 100ml
23 July 2003	43	12	24
Quality of Bathing Water Directive Guideline Values (lower limit)	500	100	-
NLVs	5,000	1,000	-

As part of the Marine Survey undertaken by JB Barry & Partners Ltd., water samples were taken at seven locations within the survey area. The locations are as follows;

1. Coolmain
2. Burren Quay
3. Argideen River
4. Timoleague Estuary
5. Courtmacsherry Strand
6. Wood Point
7. Broadstrand Bay

These locations are shown in Appendix 2.13. The results of the analysis are presented below.

(Sample 1 = Coolmain; Sample 2 = Burren Quay; Sample 3 = Argideen River; Sample 4 = Timoleague Estuary; Sample 5 = Courtmacsherry Strand; Sample 6 = Wood Point; Sample 7 = Broadstrand Bay)

Under the Quality of Bathing Waters Regulations 1992 (S.I No. 155 of 1992) (EC Directive concerning the quality of Bathing Waters in Ireland (76/160/EEC)) the samples taken at Burren Quay, Timoleague River and Timoleague Estuary exceed the guide value of 500/100mls of Total Coliforms. The Total Coliform level at Wood Point is also high at 488 MPN/100mls.

The EPA has developed a set of criteria for evaluating the key features of eutrophication in Irish Estuaries, Bays and near shore Coastal Waters. These criteria are laid out in the EPA Book 'Water Quality in Ireland 2001 – 2003'.

The water samples taken at seven locations were analysed for various criteria. Table 7.6 below shows the sample analyses results;

Table 7.6 - Courtmacsherry Water Samples – August 5th 2004

Sample	pH	BOD (mg O_2/l)	SS (mg/l)	Salinity (ppt)	Total Ammonia (mg N/l)	Ortho-phosphate (mg P/l)	Total Phosphorus (mg P/l)	Nitrite (mg N/l)	Nitrate (mg N/l)
1				34.2	0.035				0.051
2				33.9	0.040				0.055
3				22.4	0.026				0.980
4	7.98	4.0	236	29.5	0.038	0.017	0.290	0.008	0.277
5	8.22	1.3	19.3	34.1	0.041	0.004	0.031	0.000	0.067
6	8.14	1.6	8.2	33.9	0.039	0.004	0.023	0.001	0.041
7				33.6	0.037				0.056

Sample	Total Ammonia (mg N/l)	NH_3 (mg N/l)	NH_4 (mg N/l)	DIN (mg N/l)	Total Coliform MPN/100mls	E-Coli MPN/100 mls
1	0.035	0.00175	0.03325	0.08425	184	31
2	0.040	0.002	0.038	0.093	816	250
3	0.026	0.0013	0.0247	1.0047	840	284
4	0.038	0.0019	0.0361	0.3211	630	378
5	0.041	0.00205	0.03895	0.10595	250	79
6	0.039	0.00195	0.03705	0.07905	488	117
7	0.037	0.00185	0.03515	0.09115	117	71

Molybdate Reactive Phosphorus (MRP) - *for this report ortho-phosphate will be compared to Molybdate Reactive Phosphorus (MRP) as they are almost the same.*

Dissolved Inorganic Nitrogen (DIN) – *sum of Nitrate, Nitrite (Total Organic Nitrogen, TON) and Ammonium*

The analysis results are discussed below.

Sample 1 - **Coolmain**

Salinity: 34.2ppt
Dissolved Inorganic Nitrogen: 0.084 mg N/l
MRP: No Data

On comparison with the EPA Criteria for evaluating eutrophication in Irish estuaries, Bays and Nearshore Coastal Waters, which is included within the EPA book "Water Quality in Ireland – 2001 – 2003".

On the 5th of August 2004, Coolmain had a salinity of 34.2ppt and a DIN of 0.084 mg/l N. The EPA states that a water sample with a salinity of 34ppt should have a DIN value of 0.314mg/l N or less in

order to prevent eutrophication. As Coolmain had a DIN value of 0.084 mg/l N eutrophication is not thought to be a problem.

Sample 2 – **Burren Quay**

Salinity:	33.9ppt
Dissolved Inorganic Nitrogen:	0.093 mg N/l
MRP:	No Data

Burren Quay had a salinity of 33.9ppt and a DIN of 0.093 mg/l N. The EPA states that a water sample with a salinity of 34ppt should have a DIN value of 0.314mg/l N or less in order to prevent eutrophication. As Burren Quay had a DIN value of 0.093 mg/l N eutrophication is not thought to be a problem.

Sample 3 – **Argideen River**

Salinity:	22.4
Dissolved Inorganic Nitrogen:	1.00 mg N/l
MRP:	No Data

The Argideen River was found to have a salinity of 22.4ppt and a DIN value of 1.00 mg/l N. The EPA states that a water sample with a salinity of 22ppt should have a DIN value of 1.081mg/l N or less in order to prevent eutrophication. This area is at risk of eutrophication as there is only 0.081mg/l difference between the EPA Criteria and what was sampled.

Sample 4 – **Timoleague Estuary**

Salinity:	29.5
Dissolved Inorganic Nitrogen:	0.321 mg N/l
MRP:	17 ug/l P

Timoleague Estuary has a salinity of 29.5ppt, a DIN value of 0.321 mg/l N and an MRP value of 17 ug/l P. The EPA states that a water sample with a salinity of 29ppt should have a DIN of less than 0.633 mg/l and a MRP of less than 47 ug/l. According to these results Timoleague Estuary is not at risk of eutrophication.

Sample 5 – **Courtmacsherry Strand**

Salinity:	34.1
Dissolved Inorganic Nitrogen:	0.106 mg N/l
MRP:	4 ug/l P

Courtmacsherry Strand has a salinity of 34.1ppt, a DIN value of 0.106 mg/l N and an MRP value of 4 ug/l P. The EPA states that a water sample with a salinity of 34ppt should have a DIN of less than

0.314 mg/l and a MRP of less than 41 ug/l. According to these results Courtmacsherry Strand is not at risk of eutrophication.

Sample 6 – **Wood Point**

Salinity:	33.9
Dissolved Inorganic Nitrogen:	0.079 mg N/l
MRP:	4 ug/l P

Wood Point has a salinity of 33.9 ppt, a DIN value of 0.079 mg/l N and an MRP value of 4 ug/l P. The EPA states that a water sample with a salinity of 34ppt should have a DIN of less than 0.314 mg/l and a MRP of less than 41 ug/l. According to these results Wood Point is not at risk of eutrophication.

Sample 7 – **Broadstrand Bay**

Salinity:	33.6
Dissolved Inorganic Nitrogen:	0.091 mg N/l
MRP:	No Data

Broadstrand Bay has a salinity of 33.6 ppt and a DIN value of 0.091 mg/l N. The EPA states that a water sample with a salinity of 34ppt should have a DIN of less than 0.314 mg/l. According to these results Broadstrand Bay is not at risk of eutrophication.

Therefore in summary, from the seven samples taken on the 5th August 2004 only Sample 3 (Argideen River) was at risk of eutrophication. However, the above results were taken on one day only, and can not be considered representative for a longer period. The results appear to be good and this may be due to the dissolved inorganic nitrogen being taken up in algal growth."

- 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.

As the source of the waste water in Courtmacsherry is essentially domestic it is not considered likely that emissions of main polluting substances will 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.

No water abstraction points exist downstream of any discharge.

- 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 following excerpts from the Preliminary Report on the Upgrading of the Courtmacsherry and Timoleague Sewerage Schemes prepared by J. B. Barry & Partners Consulting Engineers deals with the effluent quality standards taken into account in the design of the upgrade of the Courtmacsherry Sewerage Scheme and with the studies carried out in relation to the impact on the environment.

"LEGISLATION AND EFFLUENT QUALITY STANDARDS

Introduction

The methodology adopted in determining the required effluent quality standards for the discharges from the proposed WWTP(s) is as follows:-

- Establish the beneficial uses of the receiving water
- Review the current legislation (mandatory standards and guideline values)
- Determine the Effluent Quality Standards which will ensure the quality of the receiving water achieves its required standards

The standards so determined must then be set against the regulatory standards, which must be achieved, and appropriate standards selected. The relevant legislation is as follows: -

- EC Directive (91/271/EEC) concerning Urban Waste Water Treatment
- EC Directive (76/160/EEC) on the Quality of Bathing Waters
- EC Directive (79/923/EEC) on the Quality of Shellfish Waters

The EC Directives are given effect in Irish Law by Statutory Instruments.

Legislation and Development

The situation regarding effluent treatment and disposal has undergone significant change throughout the 70's, 80's, 90's and up to the present time. In the early part of this period, the design standards generally adopted were (Royal Commission) standards that required BOD and Suspended Solids level in the receiving water of 3-4 mg/l. Primary sedimentation followed by disposal through a short sea outfall would produce compliance with these standards. There has been significant development of legislation with regards to the collection and treatment of sewage waste since then.

The European Commission (E.C.), in 1976, introduced the E.C. Directive on the Quality of Bathing Waters (76/160/EC). The Minister of the Environment published in 1980, the Irish National Limit Values (NLVs), which relates to the quality of bathing waters. These are enshrined in the Quality of Bathing Water Regulations, 1992. The NLVs and the E.C. Bathing Water Directive limits are presented in Table 6.1.

The Quality of Bathing Water Regulations also state that to ensure conformance with the Regulations 80% of the samples must comply with the NLVs and 95% of the samples must comply with mandatory values.

Table 6.1 Quality of Bathing Water Regulations – Guideline Levels

	Total Coliforms	Faecal Coliforms
Directive on the Quality of Bathing Waters (76/160/EC)		
Guideline	500 / 100ml	100 / 100ml
Mandatory	10,000 / 100ml	2,000 / 100ml
Irish National Limit Value (1980)		
NLV	5,000 / 100ml	1,000 / 100ml

Another major "milestone" in effluent treatment/disposal policy came with the introduction in 1991 by the European Commission of the E.C. Directive on Urban Waste Water Treatment (91/271/E.E.C.). In January 1990 the Minister for the Environment dedicated Ireland's Environmental Action Programme to complying with the requirements of the E.C. Urban Waste Water Directive, which was then available in draft form. This programme set policy objectives and target dates for the Irish Waste Water Disposal Industry.

The EC Directive concerning Urban Wastewater Treatment (Urban Waste Water Treatment Directive 91/271/EEC) represents a fundamental change in this approach as it provides for uniform emission standards. The Directive specifies uniform limits or maximum concentration values and a percentage reduction of pollutants. These standards are not related to the nature and quantity of the wastewater, the available dilutions or assimilative capacity or to the beneficial uses of the receiving waters.

The EU Urban Waste Water Treatment Directive (91/271/EEC) sets standards for the physical/ chemical parameters of treated effluent. These standards are shown in Table 6.2.

ENVIRONMENTAL STUDIES

Introduction

In accordance with the EC (Environmental Impact Assessment) Regulations 1989 to 1999 an Environmental Impact Statement (EIS) is required for a WWTP if the design PE is greater that 10,000 PE. The design PE for the combined Courtmacsherry and Timoleague Municipal WWTP is approximately 5,000 for the year 2030 and hence an EIS is not a statutory requirement. However, a number of environmental studies have been carried out that will facilitate the design of the scheme and the planning application process. These include Outfall Modelling Reports, a Flora and Fauna Study and an Archaeology Study.

The Environmental Studies assesses the various impacts that will result from the proposed development. Where significant adverse impacts are likely to occur, the studies identify appropriate mitigation measures in the design or construction of the project. The environmental studies are summarised below.

Environmental status

J B Barry and Partners have reviewed current legislation including the Bathing Water Directive, Shellfish Directive, Habitats Directive and Blue Flag Beach lists to determine whether any environmentally sensitive areas are close to the proposed WWTP and the Outfall.

Special Areas of Conservation (SAC) status exists in Courtmacsherry Bay. This shall be taken into account when designing the outfall location and diffuser structure.

Outfall Modelling Report

J B Barry and Partners have commissioned Hydro Environmental Ltd. to prepare an Outfall Model Study to assess the most feasible and environmentally suitable outfall location. Full details of the Outfall Model are contained in Volume 3.

Flora and Fauna Study

An Ecological Constraints Flora and Fauna Report were prepared by Natura Environmental Consultants (Natura) in January 2005.

The objective of the consultants report was to identify ecological issues that are to be taken into account at both national and local level when planning and designing the proposed development. This report focused on the proposed sewerage pipeline route and the location of the WWTP(s) and outfall point.

The study consisted of a baseline survey of the flora and fauna along the proposed pipeline and at the proposed locations of the treatment works and pumping station.

The following are the main ecological features in the Courtmacsherry and Timoleague area.

Rare Plants – There are a number of rare plants found in the Courtmacsherry and Timoleague area. There are records of rare plant species, sea kale, occurring on shingle in the Courtmacsherry Area. Additionally, tor-grass (*Brachypodium pinnatum*), a rarely occurring grass was recorded on cliffs between Broad strand and Wood Point.

Fauna – Courtmacsherry estuary is of ornithological importance for the many waders and wildfowl that feed on the mud and sandflats. The otter is also likely to use to the estuary and to occur along the banks of the Argideen River. The principle constraint relating to fauna is the potential impact on bird feeding sites and high tide roosts. It is therefore recommended that construction be carried out during the **summer months** to lessen the temporary impact of disturbance to the birds.

Main waterways and fisheries - The Argideen River is an important sea trout river and holds good stocks of brown trout. In Courtmacsherry Bay the fish species caught include mullet, mackerel and plaice.

Designation - The main ecological constraint is that Courtmacsherry estuary is designated a proposed Natural Heritage Area (pNHA) and a Special Area of Conservation (SAC) (site code 001230). The pNHA and SAC cover the entire estuary from the lower reaches of the Argideen River in Timoleague to the mouth of the estuary at Wood Point. The SAC designation continues along the sea cliffs and includes Broad Strand. Along the proposed route, the designated area boundary follows the R601 road. At Wood Point the designation also includes an area of woodland.

The principal ecological constraints including designation, habitats and important areas for flora and fauna are presented in Table 16.1 below.

Table 16.1 - Principal ecological constraints of wastewater treatment plant site locations* and sewerage pipe line route.

Ecological Constraint	WWTP locations and sewerage pipe route
SAC	Site 1, 2, 3, 4, 5 and sewerage pipe route
Tidal River	Site 1,
Salt marsh	Site 1, sewerage pipe route
Shingle and gravel shores	Survey required
Sand shore/muddy sand sores	Site 2, 3, 4, sewerage pipe route
Rocky sea cliffs	Site 5
Woodland/ mature trees	Site 4, site 5, sewerage pipe route
Rare plant	Survey required of shingle shores (if present)
Feeding site for wintering birds	Site 1, Site 3 (fields)
Roost site for wintering birds	Site 1

In conclusion

- The proposed WWTP at Site 1 (Timoleague village) is the least suitable location in terms of ecological constraints. This area contains important saltmarsh habitat (Annex 1, EU Habitats Directive) and is the most important high tide roost for wintering birds in the estuary.
- Construction of a WWTP in the agricultural fields of proposed Site 3 (Peters Point) would impact on an important feeding site for birds.
- Proposed Sites 2, 4 and 5 would have least impacts on coastal habitats and important bird feeding and roosting sites.
- The construction should be scheduled outside of months September to March inclusive, as this is when birds reach peak numbers.

*
Site 1 – Timoleague – South of Village
Site 2 – Field 2.0 km east of Timoleague
Site 3 – Field 0.25 km west of Courtmacsherry and 0.5 km east of Ballynamona House (preferred site)
Site 4 – Within Courtmacsherry Village at the existing Septic Tank
Site 5 – Upon Cliff at Wood Point

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
Abstraction Code	Agglomeration served	Abstraction Volume in m^3/day	Point Code Provide label ID's	Distance Downstream in meters from Emission Point to Abstraction Point	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Y = GPS used N = GPS not used

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 of the discharges from Courtmacsherry agglomeration.

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).

Dangerous Substances Directives 2006/11/EC

The effluent for the agglomeration of Courtmacsherry is mainly touristic and domestic; the industrial contribution can be considered as negligible. For this reason, it can be assumed that any dangerous substances mentioned in the Dangerous Substances Regulations will not be present in the discharge. The new WWTP proposed in the programme of improvement shall advance the level of control by increasing the level of sampling and monitoring. The detection of dangerous substances if any will be then facilitated.

Water Framework Directive 2000/60/EC

The following is an extract from the Preliminary Report carried out by J. B. Barry & Partners Consulting Engineers for the proposed Courtmacsherry & Timoleague Sewerage Schemes on water quality. (For full detailed extract see section F1 above)

"**Courtmacsherry Bay**

The Argideen River flows fourteen miles to the estuary at Timoleague and joins the sea at the village of Courtmacsherry. The Courtmacsherry estuary is quite shallow at the western (Timoleague) end, with deeper water near Courtmacsherry itself.

Courtmacsherry Bay and estuary has a number of beneficial uses including:

- **Amenity:** The estuary offers attractive scenic views from Courtmacsherry and Timoleague.

- **Angling:** Courtmacsherry has established itself as one of Ireland's premier Sea Angling resorts. The clean Atlantic waters warmed by the Gulf Stream add to the prolific marine life and species of fish, which live off the shore. Shore fishing is also carried out in the Estuary for bass, bot and harder.

- **Swimming:** The estuary is used for swimming at the eastern end of Courtmacsherry village.

- **Receiving Water**: The estuary is the receiving water for discharges from the Courtmacsherry septic tank.

Courtmacsherry Bay is subject to extensive algal growths see Figure 7.2, which on decaying in warm weather produces a strong smell. These growths generally consist of two or more algae, manifesting as extensive greening of the mudflats. Wave action causes these growths and other seaweeds/algae at sea to loosen and become deposited onshore where they rot in warm weather causing strong smells

Agricultural run-off from surrounding farms is one of the main diffuse sources of nutrients in Courtmacsherry Bay.

The quality of estuarine and coastal waters is usually monitored by a number of government and regulatory agencies, including EPA, Coastal Local Authorities, the Marine Institute's Fisheries Research Centre (FRC), various arms of the Department of the Marine and Natural Resources and the Radiological Protection Institute of Ireland.

Cork County Council has limited water quality data available on Courtmacsherry Estuary and Bay. Water samples were taken by Cork County Council on the 23rd of July 2003 at Courtmacsherry Bay and were found to be below the standards (i.e. within the limits) for the Quality of Bathing Water Directive (76/160/EC) Guideline Levels, National Limit Values and the more stringent Blue Flag Criteria. The results are shown below in Table 7.5.

Table 7.5: Courtmacsherry Water Samples by Cork County Council

Date	Total Coliforms / 100ml	Faecal Coliforms / 100ml	Faecal Streptococci / 100ml
23 July 2003	43	12	24
Quality of Bathing Water Directive Guideline Values	500	100	-

(lower limit)			
NLVs	5,000	1,000	-

As part of the Marine Survey undertaken by JB Barry & Partners Ltd., water samples were taken at seven locations within the survey area.

Under the Quality of Bathing Waters Regulations 1992 (S.I No. 155 of 1992) (EC Directive concerning the quality of Bathing Waters in Ireland (76/160/EEC)) the samples taken at Burren Quay, Timoleague River and Timoleague Estuary exceed the guide value of 500/100mls of Total Coliforms. The Total Coliform level at Wood Point is also high at 488 MPN/100mls.

The EPA has developed a set of criteria for evaluating the key features of eutrophication in Irish Estuaries, Bays and near shore Coastal Waters. These criteria are laid out in the EPA Book 'Water Quality in Ireland 2001 – 2003'.

The water samples taken at seven locations were analysed for various criteria.

In summary, from the seven samples taken on the 5th August 2004 only Sample 3 (Argideen River) was at risk of eutrophication. However, the above results were taken on one day only, and can not be considered representative for a longer period. The results appear to be good and this may be due to the dissolved inorganic nitrogen being taken up in algal growth."

The Courtmacsherry Estuary is considered to be "probably at risk" of not achieving good status. The objectives of the Water Framework Directive are to protect all high status waters, prevent further deterioration of all waters and to restore degraded surface and ground waters to good status by 2015. Cork County Council through the Water Services Investment Programme propose to construct a new wastewater treatment facility at Courtmacsherry to provide secondary treatment to the effluent prior to discharge, thus improving water quality in Courtmacsherry Estuary.

In the context of proposed Courtmacsherry Pumping Stations, the current relevant standards were applied to the overflows from the pumping stations, and these were then input to the hydraulic model. Using the model it was decided to limit storm overflows from the pumping stations to Courtmacsherry Bay to 7 (seven) spills per bathing season or flows in excess of Formula A, which ever is more stringent. Storm tanks will be required at the WWTP. The overall installation will comply fully with the DEHLG "Procedures and Criteria in relation to Storm Water Overflows". It is also proposed to screen to 6mm and separate gross solids from the incoming flows.

Birds Directive 79/409/EEC

As part of the Preliminary Report carried out by J. B. Barry & Partners Consulting Engineers for the proposed Courtmacsherry & Timoleague Sewerage Schemes a report was compiled by Natura Consultants on the Assessment of Ecological Constraints.

The following are extracts from that report:

"Methodology

"A desk study was carried out to collate the available information on the ecological environment. The National Parks and Wildlife Service (NPWS) database of designated conservation areas and records of rare and protected plant species were checked with regard to the location of the proposed development. BirdWatch Ireland was consulted with regard to the use of the estuary by wetland birds. Data on birds using the estuary was obtained from The Irish Wetlands Birds Survey I-WeBS. The I-WeBS volunteer, Peter Wolstenholm was consulted regarding important bird areas within the estuary.

A field-visit was not conducted for the ecological constraints assessment. Aerial photographs were used to identify potentially sensitive ecological sites such as woodlands, scrub, wetlands and river systems.

For the purpose of this study the proposed waste water treatment plant locations have been referred to numerically as sites 1-5 and are located in west to east direction from Timoleague Village to The Point in Courtmacsherry.

Throughout this report habitats are classified using *A Guide to Habitats in Ireland* (Fossitt, 2000). These habitats were evaluated and given an overall significance rating on the basis of the criteria outlined in NATURA scheme for site evaluation (Appendix I). The scientific and common names are given for plants and follow Webb *et al.* (1996) and Scannell and Synnott (1987) respectively. Only common names are given for mammals and birds (Whilde, 1993)."

"Designated areas are a primary constraint and all parts of the proposed sewerage scheme route will impact temporarily on the cSAC during the construction phase. NPWS should be contacted and notified of the development and their views sought regarding impacts and mitigation.

Further constraints in relation to the cSAC of Courtmacsherry estuary will occur in the area of saltmarsh and muddy shore adjacent to Timoleague village and along the bridge of the R601. This area also serves as the most important bird area within the estuary. It is an important feeding site at low tide and the salt march is an important high tide roost for all birds using the area (P. Wolstenholm, *pers comm.*)
A further constraint relating to the cSAC designation is the area of woodland at Wood Point."

"Principal ecological constraints of waste water treatment plant site locations and sewerage pipe line route.

Ecological Constraint	WWTP locations and sewerage pipe route

Feeding site for wintering birds	Site 1, Site 3 (fields)
Roost site for wintering birds	Site 1

Site 1 – Timoleague – South of Village
Site 2 – Field 2.0 km east of Timoleague
Site 3 – Field 0.25 km west of Courtmacsherry and 0.5 km east of Ballynamona House (preferred site)
Site 4 – Within Courtmacsherry Village at the existing Septic Tank
Site 5 – Upon Cliff at Wood Point

Fauna

"The principle constraint relating to fauna is the potential impact on bird feeding sites and high tide roosts. The area of mudflats and saltmarsh adjacent to WWTP site 1 is the most important bird feeding and high tide roost in the estuary. However, this is a seasonal constraint as bird numbers peak in the period September to March inclusive. Construction carried out during summer months would lessen the temporary impact of disturbance to birds.

The agricultural fields that would be impacted on at WWTP site 3 are important feeding sites for birds of the estuary (especially at high tide). There would be a permanent loss of feeding area if the WWTP was built on this site.

There would be no significant impact on otter using the area.

If the development necessitates the removal of mature trees, a bat survey should be conducted to determine if they are used/ suitable bat roosts. This should be carried out in the period of April to September."

Conclusions

- The proposed sewerage scheme passes through the Courtmacsherry estuary which is of international importance due to its cSAC designation.

- The proposed WWTP at site 1 (Timoleague village) is the least suitable location in terms of ecological constraints. This area contains important saltmarsh habitat (Annex 1, EU Habitats Directive) and is the most important high tide roost for wintering birds in the estuary.

- Construction of a WWTP in the agricultural fields of proposed site 3 (Peters Point) would impact on an important feeding site for birds.

- Proposed sites 2, 4 and 5 would have least impacts on coastal habitats and important bird feeding and roosting sites.

- Construction should be scheduled outside of months September to March inclusive as this is when birds reach peak numbers.

- The sewerage scheme has the potential to impact on areas where there are stands of mature trees. Mature trees are potential bat roosts and should be subject to survey if likely to be impacted."

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

Not Applicable as there are no emissions to groundwater.

Drinking Water Directives 80/778/EEC

Not Applicable as there are no abstraction points downstream of any discharge points to which this licence pertains.

Urban Waste Water Treatment Directive 91/271/EEC

The treated effluent quality standard for the Courtmacsherry Waste Water Treatment Plant is to comply with the E.U. Urban Waste Water Treatment Directive Standards. Which are as follows:

- BOD 25mg/l
- COD 125mg/l
- Total Suspended Solids 35mg/l

Detailed design of the proposed treatment plant has not yet been carried out. A typical plant would consist in this case of screening, aeration, settlement with return of sludge and sludge treatment and removal and will also include storm water storage.

It is proposed that UV disinfection be installed at the WWTP due to the fact that Courtmacsherry Bay is used as an amenity area for fishing and water sports.

Tertiary treatment to remove phosphorus and total nitrogen may also be required in the future if the population increases above 10,000 PE or Courtmacsherry Bay gets designated a sensitive water. It is recommended that sufficient land shall be obtained for the WWTP in order that additional process units can be added to the plant if this situation arises in the future.

Habitats Directive 92/43/EEC

As part of the Preliminary Report carried out by J. B. Barry & Partners Consulting Engineers for the proposed Courtmacsherry & Timoleague Sewerage Schemes a report was compiled by Natura Consultants on the Assessment of Ecological Constraints (see Attachment F1). The report found the following conclusions:

- The proposed sewerage scheme passes through the Courtmacsherry estuary which is of international importance due to its cSAC designation.

- The proposed WWTP at site 1 (Timoleague village) is the least suitable location in terms of ecological constraints. This area contains important saltmarsh habitat (Annex 1, EU Habitats Directive) and is the most important high tide roost for wintering birds in the estuary.

- Construction of a WWTP in the agricultural fields of proposed site 3 (Peters Point) would impact on an important feeding site for birds.

- Proposed sites 2, 4 and 5 would have least impacts on coastal habitats and important bird feeding and roosting sites.

- Construction should be scheduled outside of months September to March inclusive as this is when birds reach peak numbers.

- The sewerage scheme has the potential to impact on areas where there are stands of mature trees. Mature trees are potential bat roosts and should be subject to survey if likely to be impacted."

Site 1 – Timoleague – South of Village
Site 2 – Field 2.0 km east of Timoleague
Site 3 – Field 0.25 km west of Courtmacsherry and 0.5 km east of Ballynamona House (preferred site)
Site 4 – Within Courtmacsherry Village at the existing Septic Tank
Site 5 – Upon Cliff at Wood Point

Environmental Liabilities Directive 2004/35/EC

It is likely that under the DBO contract for the proposed Courtmacsherry Wastewater Treatment Plant, a Performance Management System will be required. Such a system would provide a uniform approach to dealing with performance management issues, including procedures for dealing with plant operation, and in particular for dealing with emergencies or failure to meet treated effluent standards. Failure to meet the specified treated effluent standards may result in final penalties to the operating contractor. As a result, the risk of environmental pollution from the treatment plant should be reduced.

Bathing Water Directive 76/160/EEC

There are a number of bathing beaches in Courtmacsherry. (However there is no designated Bathing Water in the area). In Ireland the legislation governing the quality of bathing waters is set out in the Quality of Bathing Waters Regulations, 1992 (S.I. 155 of 1992) and amendments which transpose the EU Directive 76/160/EC concerning the quality of bathing water.

There is currently no blue flag beach in the Courtmacsherry and Timoleague area. Nevertheless, it is considered that the disposal of treated effluent should result in compliance with the Irish National Limit values for bathing waters.

Sampling carried out by Cork County Council in 2003 and outlined in Section F1 above show levels well under the limits for Bathing Waters at Courtmacsherry.

Shellfish Waters Directive (79/923/EEC).

The following is an extract from the Preliminary Report carried out by J. B. Barry & Partners Consulting Engineers for the proposed Courtmacsherry & Timoleague Sewerage Schemes on this directive:

"As part of this study, the Department of Communications, Marine and Natural Resources (DOCMNR) was contacted in order to obtain information on aquaculture activity in the vicinity of Courtmacsherry and Timoleague.

Correspondence received from DOCMNR indicated that there is one location of licensed aquaculture in the catchment area. The licence entitles the holder to grow clams and oysters using bags and trestles.

However, it is reported that the licensee has not cultivated clams and oysters in the past 2 years and therefore the DOCMNR is currently examining the application for renewal of this licence, which has expired.

The DOCMNR confirmed that currently there are no shellfish licences within the Bay. Any future licence applications would be considered on their individual merits.

Therefore currently neither the Shellfish Directive nor the more stringent SHELLSAN guidelines will apply to the Courtmacsherry and Timoleague Sewerage Scheme. However, it has been requested by Cork County Council that the option of installing and operating UV disinfection is further investigated due to the amount of water sports activity that is currently undertaken within the Bay."

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.

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

Tertiary treatment to remove phosphorus and total nitrogen may be required in the future if the population increases above 10,000PE or Courtmacsherry Bay gets designated sensitive water. Sufficient land shall be obtained for the WWTP in order that additional process units can be added to the plant if this situation arises in the future.

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.

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.

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 :** 25/2/09

(on behalf of the organisation)

Print signature name: Moira Murrell

Position in organisation: Director of Service

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SECTION I: JOINT DECLARATION

Joint Declaration [Note1]

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

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

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

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

Lead Authority

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

Print signature name: _____

Position in organisation:_____

Co-Applicants

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

Print signature name: _____

Position in organisation:_____

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

Print signature name: _____

Position in organisation:_____

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

Agglomeration details

Leading Local Authority	Cork County Council
Co-Applicants	
Agglomeration	Courtmacsherry
Population Equivalent	2000
Level of Treatment	Primary
Treatment plant address	Courtmacsherry Septic Tank, Main Street, Courtmacsherry, Co. Cork
Grid Ref (12 digits, 6E, 6N)	150569 / 042742
EPA Reference No:	

Contact details

Contact Name:	Declan Groarke
Contact Address:	Water Services West, Cork County Council, Courthouse, Skibbereen, Co. Cork
Contact Number:	028 21299
Contact Fax:	028 21995
Contact Email:	declan.groarke@corkcoco.ie

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

Discharge Point Code: SW-1

Local Authority Ref No:	SW01COUR	
Source of Emission:	Primary Discharge	
Location:	Courtmacsherry Harbour	
Grid Ref (12 digits, 6E, 6N)	150732 / 042818	
Name of Receiving waters:	Courtmacsherry Estuary	
Water Body:	Coastal Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	pNHA, SAC	
Flow Rate in Receiving Waters:	0	$m^3.sec^{-1}$ Dry Weather Flow
	0	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	Zero flow as receiving waters tidal	

Emission Details:

(i) Volume emitted			
Normal/day	452 m^3	Maximum/day	1356 m^3
Maximum rate/hour	100 m^3	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.01 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	Grab	= 9	
Temperature	°C	Grab	= 0	
Electrical Conductivity (@ 25°C)	µS/cm	Grab	= 0	
Suspended Solids	mg/l	Grab	= 250	113
Ammonia (as N)	mg/l	Grab	= 25	113
Biochemical Oxygen Demand	mg/l	Grab	= 210	94.92
Chemical Oxygen Demand	mg/l	Grab	= 460	207.92
Total Nitrogen (as N)	mg/l	Grab	= 50	22.6
Nitrite (as N)	mg/l	Grab	= 0	0
Nitrate (as N)	mg/l	Grab	= 0	0
Total Phosphorous (as P)	mg/l	Grab	= 12	5.424
OrthoPhosphate (as P)	mg/l	Grab	= 10	4.52
Sulphate (SO_4)	mg/l	Grab	= 0	0
Phenols (Sum)	µg/l	Grab	= 0	0

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

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

Discharge Point Code: SW-1

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

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

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

Discharge Point Code: SW-2

Local Authority Ref No:	SW02COUR	
Source of Emission:	Secondary Discharge	
Location:	Courtmacsherry Estuary	
Grid Ref (12 digits, 6E, 6N)	150106 / 042711	
Name of Receiving waters:	Courtmacsherry Estuary	
Water Body:	Coastal Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	pNHA, SAC	
Flow Rate in Receiving Waters:	0	$m^3.sec^{-1}$ Dry Weather Flow
	0	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	Zero flow as receiving waters tidal	

Emission Details:

(i) Volume emitted			
Normal/day	13.5 m^3	Maximum/day	40.5 m^3
Maximum rate/hour	3.4 m^3	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.0003 m^3/sec		

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

Discharge Point Code: SW-2

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
pH	pH	Grab	= 9	
Temperature	°C	Grab	= 0	
Electrical Conductivity (@ 25°C)	µS/cm	Grab	= 0	
Suspended Solids	mg/l	Grab	= 250	3.375
Ammonia (as N)	mg/l	Grab	= 25	0.3375
Biochemical Oxygen Demand	mg/l	Grab	= 210	2.835
Chemical Oxygen Demand	mg/l	Grab	= 460	6.21
Total Nitrogen (as N)	mg/l	Grab	= 50	0.675
Nitrite (as N)	mg/l	Grab	= 0	0
Nitrate (as N)	mg/l	Grab	= 0	0
Total Phosphorous (as P)	mg/l	Grab	= 12	0.162
OrthoPhosphate (as P)	mg/l	Grab	= 10	0.135
Sulphate (SO_4)	mg/l	Grab	= 0	0
Phenols (Sum)	µg/l	Grab	= 0	0

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

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

Discharge Point Code: SW-2

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
Atrazine	µg/l	Grab	= 0	0
Dichloromethane	µg/l	Grab	= 0	0
Simazine	µg/l	Grab	= 0	0
Toluene	µg/l	Grab	= 0	0
Tributyltin	µg/l	Grab	= 0	0
Xylenes	µg/l	Grab	= 0	0
Arsenic	µg/l	Grab	= 0	0
Chromium	µg/l	Grab	= 0	0
Copper	µg/l	Grab	= 0	0
Cyanide	µg/l	Grab	= 0	0
Flouride	µg/l	Grab	= 0	0
Lead	µg/l	Grab	= 0	0
Nickel	µg/l	Grab	= 0	0
Zinc	µg/l	Grab	= 0	0
Boron	µg/l	Grab	= 0	0
Cadmium	µg/l	Grab	= 0	0
Mercury	µg/l	Grab	= 0	0
Selenium	µg/l	Grab	= 0	0
Barium	µg/l	Autosampler	= 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-3

Local Authority Ref No:	SW03COUR	
Source of Emission:	Proposed Lodge Pump Station Storm Overflow	
Location:	Courtmacsherry Harbour	
Grid Ref (12 digits, 6E, 6N)	151498 / 042565	
Name of Receiving waters:	Courtmacsherry Estuary	
Water Body:	Coastal Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	pNHA, SAC	
Flow Rate in Receiving Waters:	0	$m^3.sec^{-1}$ Dry Weather Flow
	0	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	Where zero flow indicated no metering in place.	

Emission Details:

(i) Volume emitted			
Normal/day	0 m^3	Maximum/day	0 m^3
Maximum rate/hour	0 m^3	Period of emission (avg)	0 min/hr 0 hr/day 7 day/yr
Dry Weather Flow	0 m^3/sec		

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

Discharge Point Code: SW-4

Local Authority Ref No:	SW04COUR	
Source of Emission:	Extg. Septic Tank & Proposed Harbour Pump Stati	
Location:	Courtmacsherry Harbour	
Grid Ref (12 digits, 6E, 6N)	150732 / 042818	
Name of Receiving waters:	Courtmacsherry Estuary	
Water Body:	Coastal Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	pNHA, SAC	
Flow Rate in Receiving Waters:	0	$m^3.sec^{-1}$ Dry Weather Flow
	0	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	Where zero indicated information not available	

Emission Details:

(i) Volume emitted			
Normal/day	0 m^3	Maximum/day	0 m^3
Maximum rate/hour	0 m^3	Period of emission (avg)	0 min/hr 0 hr/day 7 day/yr
Dry Weather Flow	0 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	164980
SW-2	365	4927.5

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-3	7	0	Yes
SW-4	7	0	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)	150649 / 043103

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	30/10/08	01/01/09					
pH	= 7.9				Grab	2	Electrochemical
Temperature		= 0			Grab	0	Electrochemical
Electrical Conductivity (@ 25°C)	= 41				Grab	0.5	Electrochemical
Suspended Solids	= 162				Grab	0.5	Gravimetric
Ammonia (as N)	= 6.8				Grab	0.02	Colorimetric
Biochemical Oxygen Demand	< 1				Grab	0.06	Electrochemical
Chemical Oxygen Demand	= 61				Grab	8	Digestion & Colorimetric
Dissolved Oxygen		= 0			Grab	0	ISE
Hardness (as $CaCO_3$)		= 0			Grab	0	Titrimetric
Total Nitrogen (as N)	< 1				Grab	0.5	Digestion & Colorimetric
Nitrite (as N)		= 0			Grab	0	Colorimetric
Nitrate (as N)		= 0			Grab	0.5	Colorimetric
Total Phosphorous (as P)	< 0.3				Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05				Grab	0.02	Colorimetric
Sulphate (SO_4)	= 2285.4				Grab	30	Turbidimetric
Phenols (Sum)	< 6				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)	150649 / 043103

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	30/10/08						
Atrazine	< 0.01				Grab	0.96	HPLC
Dichloromethane	= 6.7				Grab	1	GC-MS1
Simazine	< 0.01				Grab	0.01	HPLC
Toluene	< 0.1				Grab	0.02	GC-MS1
Tributyltin	< 0.02				Grab	0.02	GC-MS1
Xylenes	< 0.2				Grab	1	GC-MS1
Arsenic	< 0.2				Grab	0.96	ICP-MS
Chromium	< 20				Grab	20	ICP-OES
Copper	< 20				Grab	20	ICP-OES
Cyanide	< 5				Grab	5	Colorimetric
Flouride	= 640				Grab	100	ISE
Lead	< 20				Grab	20	ICP-OES
Nickel	< 20				Grab	20	ICP-OES
Zinc	< 20				Grab	20	ICP-OES
Boron	= 2964				Grab	20	ICP-OES
Cadmium	< 20				Grab	20	ICP-OES
Mercury	< 0.02				Grab	0.2	ICP-MS
Selenium	= 28.2				Grab	0.74	ICP-MS
Barium	< 20				Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn saline interference in Selenium and Flouride test ,Boron present in sea water at levels of 5000ug/litre, in saline estuaries-reference from 4500 B ,A (extract in 21st Edition Std Methods for examination of water and wastewaters)

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

Secondary Discharge Point

Discharge Point Code:	SW-2
MONITORING POINT CODE:	aSW-2d
Grid Ref (12 digits, 6E, 6N)	150649 / 043103

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	30/10/08	01/01/09					
pH	= 7.9				Grab	2	Electrochemical
Temperature		= 0			Grab	0	Electrochemical
Electrical Conductivity (@ 25°C)	= 41				Grab	0.5	Electrochemical
Suspended Solids	= 162				Grab	0.5	Gravimetric
Ammonia (as N)	= 6.8				Grab	0.02	Colorimetric
Biochemical Oxygen Demand	< 1				Grab	0.06	Electrochemical
Chemical Oxygen Demand	= 61				Grab	8	Digestion & Colorimetric
Dissolved Oxygen		= 0			Grab	0	ISE
Hardness (as $CaCO_3$)		= 0			Grab	0	Titrimetric
Total Nitrogen (as N)	< 1				Grab	0.5	Digestion & Colorimetric
Nitrite (as N)		= 0			Grab	0	Colorimetric
Nitrate (as N)		= 0			Grab	0.5	Colorimetric
Total Phosphorous (as P)	< 0.3				Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	< 0.05				Grab	0.02	Colorimetric
Sulphate (SO_4)	= 2285.4				Grab	30	Turbidimetric
Phenols (Sum)	< 6				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(ii)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Secondary Discharge Point

Discharge Point Code:	SW-2
MONITORING POINT CODE:	aSW-2d
Grid Ref (12 digits, 6E, 6N)	150649 / 043103

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	30/10/08						
Atrazine	< 0.01				Grab	0.96	HPLC
Dichloromethane	= 6.7				Grab	1	GC-MS1
Simazine	< 0.01				Grab	0.01	HPLC
Toluene	< 0.1				Grab	0.02	GC-MS1
Tributyltin	< 0.02				Grab	0.02	GC-MS1
Xylenes	< 0.2				Grab	1	GC-MS1
Arsenic	< 0.2				Grab	0.96	ICP-MS
Chromium	< 20				Grab	20	ICP-OES
Copper	< 20				Grab	20	ICP-OES
Cyanide	< 5				Grab	5	Colorimetric
Flouride	= 640				Grab	100	ISE
Lead	< 20				Grab	20	ICP-OES
Nickel	< 20				Grab	20	ICP-OES
Zinc	< 20				Grab	20	ICP-OES
Boron	= 2964				Grab	20	ICP-OES
Cadmium	< 20				Grab	20	ICP-OES
Mercury	< 0.02				Grab	0.2	ICP-MS
Selenium	= 28.2				Grab	0.74	ICP-MS
Barium	< 20				Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn saline interference in Selenium and Flouride test ,Boron present in sea water at levels of 5000ug/litre, in saline estuaries-reference from 4500 B ,A (extract in 21st Edition Std Methods for examination of water and wastewaters)

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,	N/A	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, E.4	Yes
(m)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.	G.1	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	B.3, B.4, B.5	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.		Yes
2	2 hardcopies of application provided or 2 CD versions of application (PDF files) provided.		Yes
3	1 CD of geo-referenced digital files provided.		Yes
Regulation 17 **Where a treatment plant associated with the relevant waste water works is or has been subject to the European Communities (Environmental Impact Assessment) Regulations 1989 to 2001, in addition to compliance with the requirements of Regulation 16, an application in respect of the relevant discharge shall be accompanied by a copy of an environmental impact statement and approval in accordance with the Act of 2000 in respect of the said development and may be submitted in an electronic or other format specified by the Agency**		**Attachment Number**	**Checked by Applicant**
1	EIA provided if applicable	F.1	Yes
2	2 hardcopies of EIS provided if applicable.	Not Applicable	Yes
3	2 CD versions of EIS, as PDF files, provided.	Not Applicable	Yes

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