

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.

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.

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 C.1

OPERATIONAL INFORMATION REQUIREMENTS

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

Section C.1 Operational Information Requirements

The effluent currently entering the Plant comes from 3 no. pumping stations:-

1. Long Quay Pumping Station on Long Quay north of the treatment plant, which has two duty pumps and one standby. A 300 mm rising main conveys the effluent from the pumping station to a hatchbox west of the treatment works and onto the header manhole in the treatment works site.
2. Clarkes Street Bridge Pumping Station is located by the north-west corner of the GAA pitch, west of the treatment plant. This pumping station has one duty pump and one standby pump. Twin 150 mm rising mains convey the effluent from the pumping station to the same hatchbox west of the treatment works and continues parallel to the Long Quay rising main, onto the header manhole in the treatment works site.
3. Inchydoney Pumping Station is located on the south side of Inchydoney, approximately 3.5 km from the treatment works. The pumping station has one duty pump and one standby pump as well as air injection facilities. A second air injection station is located on this pressure main about 0.55 km south of the treatment plant. The effluent is collected and pumped from the pumping station to a header manhole approximately 0.5 km north of the pumping station. From there, it is conveyed via a 150 mm uPVC pressure main to the treatment works. The pressure main enters the works just after the inlet works and before the inlet flumes. This inlet location to the works means that the effluent from Inchydoney has no screening or grit removal prior to entering the works. The inlet may have to be rerouted further north to the header manhole.

Table 2.1 is an outline of the pump capacities at each pumping station.

Table 2.1: Pump Capacities

	Long Quay			Clarkes Street Bridge		Inchydoney	
Pump No.	Pump 1	Pump 2	Pump 3	Pump 1	Pump 2	Pump 1	Pump 2
Status	Duty	Duty	Standby	Duty	Standby	Duty	Standby
Capacity	38 l/s	38 l/s	38 l/s	43 l/s	43 l/s	16.1 l/s	16.1 l/s

Total flow when all duty pumps on = 135.1 l/s

The wastewater in Clonakilty and its environs is collected in a partially combined foul and surface water network consisting of both gravity and pumped systems. The foul sewage consists of both domestic and industrial effluent. Generally the central part of the town gravitates in the partially combined system to the two main pump stations of the scheme – Long Quay and Clarke Street. These then along with Inchydoney main pumping station pump directly to the wastewater treatment plant. Pump stations on the outskirts of the town fed by essentially separate foul systems include Inchydoney (main and minor), Gallanes and Shannonvale. Further private pumping stations are located at Templebryan South housing estate, Clonakilty Technology Park, Ard Alainn housing estate (Tawnies Lower Td.) and Inis Sioda housing estate (Scartagh). See Drawing No. CLON A1 of Attachment No. A1 for locations.

Both Long Quay and Clarke Street pump stations have storm overflow channels set at high levels in order to avoid high tide infiltration back from the overflow. Occasionally bypasses set at lower levels on overflows at both pump station have to be opened manually to relieve flooding in the lower areas of the town. It is proposed to lower the levels of the overflows with the installation of Tideflex non-return valves to avoid tidal back-up. Long Quay pumps are capable of pumping 4 DWF and Clarke Street 20 DWF. In order to cater for storm water at Long Quay in excess of 3 DWF it is proposed to provide 750 m³ storm tank adjacent to the pumphouse. This tank is sized to store 30 minutes storage of the excess in the inlet pipe capacity over and above the pump capacity. These proposed works are to be carried out under the upgrade of the wastewater treatment plant approved under the Water Services Investment Programme.

All other pump stations contain overflows either to surface water (both Inchydoney stations), ground soakaway (Gallanes) or holding tank (Templebryan South housing estate, Clonakilty Technology Park, Ard Alainn housing estate and Inis Sioda housing estate) to cater for emergencies such as pump breakdown or electricity outage. However this seldom occurs as each contains duty and standby pumps. In case of emergency Inchydoney stations are linked by telemetry with the wastewater treatment plant and all other stations have 24 hour storage with flashing beacon alarm for pump malfunction.

The main pump station in Inchydoney is over 3 km from the wastewater treatment plant and in order to overcome possible septicity in the rising main due to long retention times air is injected into the pipeline at both the pump station and at an intermediate air injection station 1.3 km from the plant.

Wastewater Treatment Plant

The existing wastewater treatment plant is located on the sea front, east of the GAA pitch and adjacent to the Model Village. The site is approximately 2.2 ha in area on reclaimed land and is relatively flat, lying at approximately 5.5 mOD. The influent is pumped into the inlet works from two pumping stations located at Clarke Street Bridge and Long Quay. A pumped feed from Inchydoney also enters the works.

The original design loads on the existing treatment plant were:-

- Design Population 5,333 pe
- Dry Weather Flow 1 DWF = 17 l/s
- Peak Flow 6 DWF = 102 l/s
- BOD Loading 364 kg/day

The existing treatment works consists of:-

- (a) Grit Removal: A 'Jetta' 200 grit trap is currently in operation at the plant and appears to be working quite well, with a design flow capacity of 0 – 180 l/s, which is adequate to serve up to 22,000 p.e. flowing at 3 DWF. Should the flow entering the works exceed this, one grit trap could prove inadequate. However, as the winter population in Clonakilty is in the region of 10,000 at a maximum, this grit trap could cater with almost 7 times the DWF during the winter period when the hydraulic loading to the plant due to surface water is most likely to be at its highest. As this grit trap is working efficiently and has adequate capacity for future design loads it does not need replacement.
- (b) Grit Classifier - has been installed recently. This receives the grit from the grit trap and separates out the grit from other materials and conveys the relatively dry grit into an adjacent wheelie bin for removal to landfill.

- (c) Screening – In the year 2000, a mechanically brushed screen and Lisep unit (Haigh Ace Inlet System) were installed and, to date, these have proven to be working very well, producing about one skip of macerated screenings per fortnight. The Haigh Ace Inlet System is a cost-effective solution to pre-treatment of wastewater plants with populations of less than 12,000. The largest model, 991, was installed in Clonakilty and has a maximum capacity of 100 l/s with a recommended DWF of up to 35 l/s. Although the design peak flow is 102 l/s, the current peak flow entering the works when all pumps are running, is in the region of 135 l/s. The screen, therefore, is on occasion operating at maximum capacity, with no room for an increase in flows entering the works. This screen working on its own is not recommended for future dry weather flows entering the works (up to 53 l/s) and even has trouble catering with current storm flows entering the works.
- (d) Emergency Bypass – A hand-operated penstock is located between the screen and the inlet flumes at the inlet works. This penstock leads to a backdrop manhole, which connects to the treatment plant outfall at the easterly end of the site allowing bypass of plant in emergency situations.
- (e) Inlet Flumes – After the screen outlet, the inlet channel splits into two channels 300 mm wide, with future provision for a third channel. The two channels have Venturi flumes installed with a 200 mm throat to enable measurement of the flow through the works. These channels were designed for a flow capacity of 51 l/s. The original flow measurement and recording system was damaged by lightening and has since been replaced by a Mobrey ultrasonic beam measurement and recording system. This system, however, only records the overall flow entering the works and it will be necessary in the future to adjust this recorder so that the flow through each stream can be individually recorded.
- (f) Extended Aeration – Extended aeration is by means of 2 no. racetrack oxidation ditches with 4 no. rotors located midway along its length as a means of aeration. The design p.e. for these ditches was 2,666/stream with a maximum flow of 6 DWF (51 l/s) flowing through each ditch and a biological loading of 182 kg BOD/day/stream. Aeration is by means of rotors located midway along the racetrack, which also maintains a velocity of approximately 3 m/s for the mixed liquor within the ditch. These ditches were designed for a much lower BOD loading than the peak 15,000 p.e. that it serves in the summer. However, the plant was designed for a higher hydraulic load of 6 DWF, whereas now most plants are designed to take a hydraulic loading of 3 DWF. Recently a further floating aerator was introduced into each ditch in order to increase the amount of oxygen available for microorganisms to try to cater for the increased loading. The flow from the oxidation ditches is piped to the settling tanks.
- (g) Dissolved oxygen measurement and readings are an essential part of the effective operation of the extended aeration process, ensuring that the process reaches its optimum of sewage breakdown and enabling adjustment of the plant to cater with fluctuations in the biological loading entering the plant, particularly when one considers the huge difference in the loading during the winter and summer season. Hence, a means of dissolved oxygen regulation shall be crucial in the upgrading of the plant to ensure the entire process is operating efficiently.
- (h) Settling Tanks – 2 no. circular settling tanks are currently in operation as a means of secondary sedimentation. Each tank has a side wall depth of 1.5 m and an internal radius of 7.95 m.

- (i) Outlet Channel – The 400 mm outlet channel collects the treated effluent from the settling tanks which then flows by gravity to the sea outfall. The flow is measured in the outlet channel and transmitted to control house.
- (j) Sludge Return – The sludge from the settling tanks is returned to the oxidation ditches by means of a sludge-lifting wheel. This lifting wheel lifts the sludge to a sufficient height so that it can flow by gravity to the oxidation ditch. The sludge can also be drawn off from the lifting wheel chambers to the sludge pump sumps for wasting.
- (k) Excess Sludge Pumps – Excess sludge will be produced continually by the treatment plant. This can be seen from daily settleable solids tests. This test is described in more detail elsewhere but is basically a test whereby a one litre sample of oxidation ditch contents is allowed to settle for 30 minutes. The volume of settled solids would normally be 350 to 450 ml. depending on various parameters. When the settleable solids and the mixed liquor suspended solids indicate excess concentration of sludge then quantities of sludge can be wasted from the appropriate settlement tank by the excess sludge submersible pump which pumps the sludge to the picket fence thickener. 2 no. 'Mono Merlin ABS' submersible pumps, one duty and one standby pump the excess sludge produced from the extended aeration process on to the picket fence thickener. Currently, with a winter population of approximately 7,500 p.e., the volume of excess sludge produced/day is in the region of 40 m³/day taking a value of 48 g/head/day as being the amount of excess sludge (dry solids) produced. In the summer, this may increase to 80 m³/head/day with a summer loading of 15,000 p.e. The pumps are capable of pumping 3.8 l/s each and operate automatically. The existing excess sludge pumps and sump, once operating properly, have the capacity to cater for a future design load of 20,000 p.e.
- (l) Picket Fence Thickener – A picket fence thickener is located adjacent to the control house. This returns the supernatant effluent to the head of the oxidation ditch, and wastes the thickened sludge to the sludge filter belt. With a depth of 3 m and a radius of 3.25 m, the picket fence thickener has a more than adequate capacity for a future population of 20,000 p.e. It has sufficient volume for three days storage of sludge produced from a design load of 20,000 p.e. and has an acceptable solid surface loading rate of 28.9 kg/m²/day. Typically the sludge enters the P.F.T. at about 0.8 to 1.0% dry solids but can settle in time within the P.F.T. to typically 2-3% dry solids
- (m) The Filter Belt Press – Located in the control house, the filter belt press operates for 7 – 8 hours/day, 5 days a week, depending on the season. With a belt width of 1.25 m, the filter belt press has sufficient capacity to cater with sludge produced from 20,000 p.e. Polyelectrolyte is mixed with the thickened sludge prior to dewatering to enable optimum dewatering of the sludge. At present, a 60 kg drum of polyelectrolyte lasts approximately 4 – 6 weeks. The sludge belt filter press produces approximately four trailer loads of sludge cake/week, again depending on the season. The filter belt press and its ancillary equipment is used to produce a dry sludge cake at typically 12-14% dry solids with the filtrate being returned to the works.
- (n) Sludge Disposal – At the moment, the sludge cake is disposed of as soon as skip is filled and taken to Ballineen for recovery to agriculture in accordance with relevant regulations.
- (o) Control House – This consists of the control room, laboratory for tests, storeroom and toilet. The control room contains a mimic of the plant operation and control panel with

displays of various equipment, operations and measurements. A telemetry system is also in place to monitor the Inchdoney scheme operations.

The existing plant though designed for 5,333 p.e., has the capacity to serve a population of 12,346 p.e. with a maximum hydraulic load of 3 DWF provided that increased oxygen supply/m³ is installed to cater for the increased MLSS concentrations of the effluent.

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ATTACHMENT No C.1

OPERATIONAL INFORMATION REQUIREMENTS

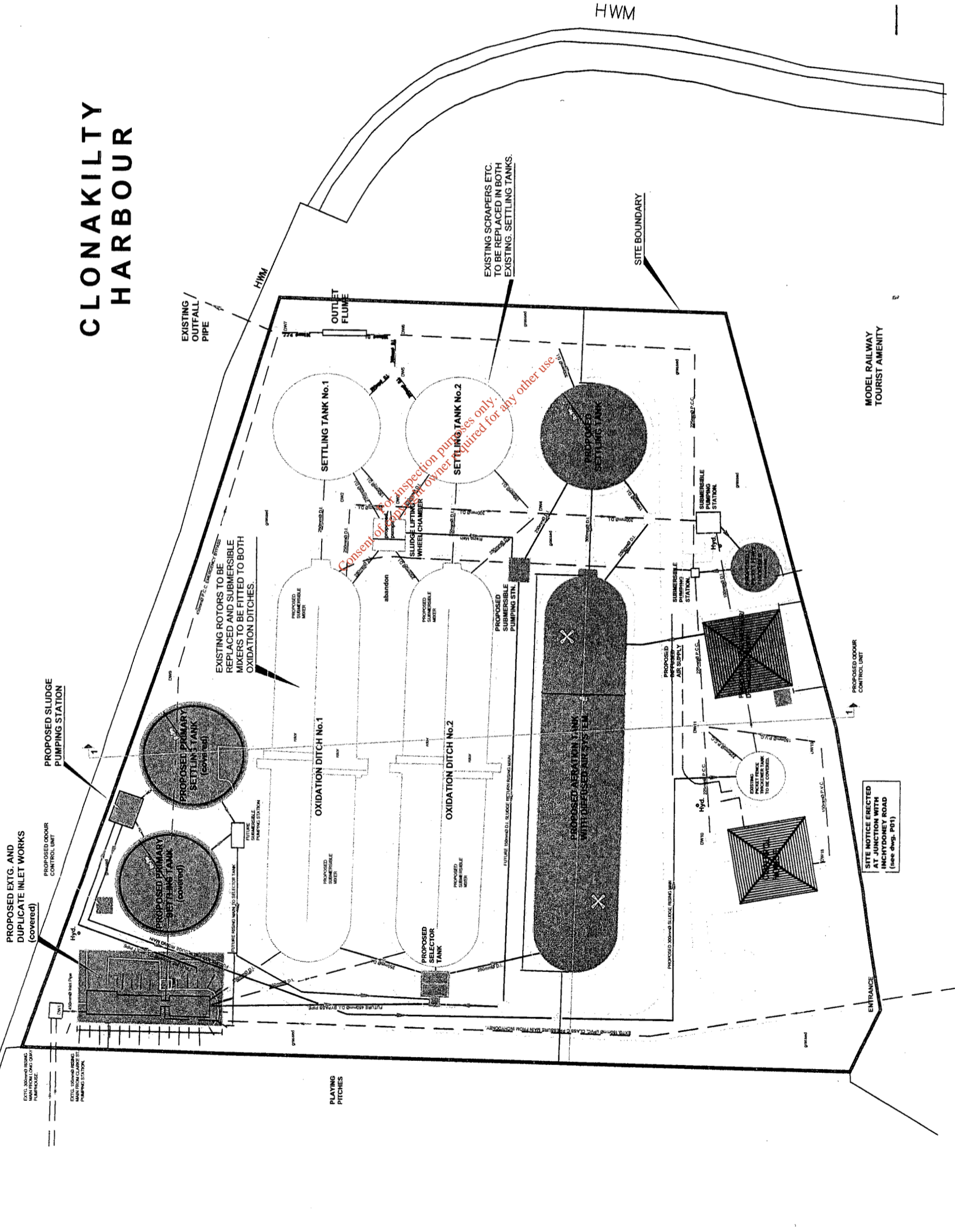
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NOTES

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CLONAKILTY HARBOUR



Cork County Council,
Western Division.



M. O'MAHONY, B.E.
SUPERVISOR (WATER SERVICES),
COURTHOUSE, SIBBEREDIN.
M. MURRELL,
DIRECTOR OF SERVICES
WEST CORK

Job Title:
CLONAKILTY_WWTP
EPA_LICENCE_APPLICATION

Drawing Title:
ATTACHMENT_C.1
PROPOSED_UPGRADE_PROCESS_
FLOW_DIAGRAM

Prepared By: J. CREAGH	Checked By: D. GROAKE	Date: DEC. 2007
Drawing number: CLON_12	Scale: NTS	Rev: -

SITE NOTICE ERECTED
AT JUNCTION WITH
MCARDONNET ROAD
(see appg. POT)

MODEL RAILWAY
TOURIST AMENITY

SECTION No C.2

OUTFALL DESIGN AND CONSTRUCTION

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

Section C.2 Outfall Design and Construction

Primary Discharge Point

The pumps from the three pumping stations delivering to Clonakilty Wastewater Treatment Plant are capable of flows totalling 135 lt/sec with max daily flow of approximately 7550 m³. After treatment at the plant the resulting discharge is piped to outfall at north-eastern corner of the plant into Clonakilty Harbour.

As part of the upgrade of the plant it is proposed to limit the flow through the plant through the combination of a new storm tank and pump flow restriction at times of peak flow.

Long Quay Pump Station

Long Quay Pump Station caters for the northern part of Clonakilty town centre and is the major contributor of sewage to the plant. The pump configuration is duty/assist/standby with each pump capable of pumping 38 l/s. Storm overflow currently discharges into Clonakilty Harbour via overflow pipe with non-return valve.

Both Long Quay and Clarke Street pump stations have storm overflow channels set at high levels in order to avoid high tide infiltration back from the overflow. Occasionally bypasses set at lower levels on overflows at both pump station have to be opened manually to relieve flooding in the lower areas of the town. It is proposed to lower the levels of the overflows with the installation of Tideflex non-return valves to avoid tidal back-up. Long Quay pumps are capable of pumping 4 DWF (76 l/s). In order to cater for storm water at Long Quay in excess of 3 DWF (52 l/s) it is proposed to provide 750 m³ storm tank adjacent to the pumphouse. This tank is sized to store 30 minutes storage of the excess in the inlet pipe capacity over and above the pump capacity. These proposed works are to be carried out under the upgrade of the wastewater treatment plant approved under the Water Services Investment Programme.

Clarke Street Pump Station

Clarke Street Pump Station caters essentially for the southern part of Clonakilty town centre with duty/standby operation and each pump capable of pumping 43 l/s. This is equivalent to approximately 5 DWF and with a proposed maximum flow to plant of 3 DWF (28 l/s) the pumps here will have to be restricted on basis of this plant flow. Basically when flow entering plant

exceeds 3 DWF Clarke Street pumps will need to be varied accordingly using a variable speed apparatus.

Both Long Quay and Clarke Street pump stations have storm overflow channels set at high levels in order to avoid high tide infiltration back from the overflow. Occasionally bypasses set at lower levels on overflows at both pump station have to be opened manually to relieve flooding in the lower areas of the town. It is proposed to lower the levels of the overflows with the installation of Tideflex non-return valves to avoid tidal back-up. Storm overflows are discharged to Clonakilty Harbour via flap valve at pump station.

Inchydoney Main Pump Station

The pumps at the Main Pump Station in Inchydoney are each capable of pumping 16 l/sec on duty/assist basis.

They were designed to cater for 6 DWF equivalent to 20 l/sec. As the scheme caters essentially for foul system one pump is normally capable of dealing with the flows to the station.

Gallanes Pump Station

Gallanes Pump Station caters for sewage from a relatively small area of housing development on the Timoleague road. The pumps are each capable of pumping 6 l/s on a duty/standby basis. This is a separate system such that storm flows are not a factor.

In case of emergency the pump sump overflows to an adjoining 70 m³ tank equivalent to approximately one and half day's storage which is returned to sump once emergency is over. An overflow from this tank is piped to a percolation area adjacent to the pump station.

ATTACHMENT No C.2

OUTFALL DESIGN AND CONSTRUCTION

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SECTION D: DISCHARGES TO THE AQUATIC ENVIRONMENT

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

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

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) 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. 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) of Annex 1 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.

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

Discharge Point Code: SW01Clonakilty

Source of Emission:	Treated Effluent from Wastewater treatment Plant
Location:	Youghals, Clonakilty Townland of Youghals
Grid Ref. (12 digit, 6E, 6N):	E139030 N041311
Name of receiving waters:	Clonakilty Harbour
River Basin District:	South Western River Basin District
Designation of receiving waters:	NHA, SAC, SPA
Flow rate in receiving waters: Not available	Not available $m^3 \cdot sec^{-1}$ Dry Weather Flow Not available $m^3 \cdot sec^{-1}$ 95%ile flow

Emission Details:

(i) Volume emitted			
Normal/day	1500m ³	Maximum/day	2500m ³
Maximum rate/hour	150m ³	Period of emission (avg)	24 hours per day
Dry Weather Flow	m ³ /sec		min/hr hr/day day/yr

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TABLE D.1(i)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of the emission (Primary Discharge Point)

Discharge Point Code: SW01Clonakilty

Number	Substance	As discharged	
		Max. daily average	kg/day
1	pH	7.5	
2	Temperature	Not Available	
3	Electrical Conductivity(@25°C)	1000	
4	Suspended Solids	36.7	55.9
5	Ammonia (as N)	9.7	14.8
6	Biochemical Oxygen Demand	11.9	18.1
7	Chemical Oxygen Demand	74.2	113.1
8	Total Nitrogen (as N)	20.4	31.1
9	Nitrite (as N)	Not Available	Not Available
10	Nitrate (as N)	2.3	3.4
11	Total Phosphorus (as P)	3.3	5.0
12	Orthophosphate (as P) ^{Note 1}	2.7	4.2
13	Sulphate (SO ₄)	48.9	74.5
14	Phenols (sum) ^{Note 2} (ug/l)	<0.01	<0.00015

Note 1: For waste water samples this monitoring should be undertaken on a sample filtered on 0.45µm filter paper.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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TABLE D.1(I)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS

Primary Discharge Point - Characteristics of the emission

Discharge Point Code: SW01Clonakilty

Number	Substance	As discharged		
		Max. daily average (µg/l)	kg/day	kg/year
1	Atrazine	<0.01	<0.00002	<0.0073
2	Dichloromethane	<1	<0.00152	<0.5548
3	Simazine	<0.01	<0.00002	<0.0073
4	Toluene	<0.01	<0.00002	<0.0073
5	Tributyltin	<0.02	<0.00003	<0.01095
6	Xylenes	<1	<0.00152	<0.5548
7	Arsenic	6	0.00915	3.34
8	Chromium	<20	<0.03	<10.95
9	Copper	<20	<0.03	<10.95
10	Cyanide	<5	<0.0076	<2.774
11	Fluoride	0.4	0.61	222.7
12	Lead	<20	<0.03	<10.95
13	Nickel	<20	<0.03	<10.95
14	Zinc	39	0.067	24.46
15	Boron	49	0.07	25.6
16	Cadmium	<20	<0.03	<10.95
17	Mercury	1.2	0.0018	0.657
18	Selenium	2	0.0031	1.13
19	Barium	<20	<0.03	<10.95

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TABLE D.1(ii)(a): EMISSIONS TO SURFACE/GROUND WATERS
 (Secondary Discharge Point) (1 table per discharge point)

Discharge Point Code: SW02Clonakilty

Source of Emission:	Emergency Overflow Long Quay Pump Station
Location:	Long Quay ,Townland of Scartagh
Grid Ref. (12 digit, 6E, 6N):	E138859 N041382
Name of receiving waters:	Clonakilty Harbour
River Basin District:	South Western River Basin District
Designation of receiving waters:	NHA,SAC,SPA
Flow rate in receiving waters:	Not available $m^3 \cdot sec^{-1}$ Dry Weather Flow
Not available	Not available $m^3 \cdot sec^{-1}$ 95%ile flow

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Emission Details:

(i) Volume emitted not available		
Normal/day	not available m^3	Maximum/day
Maximum rate/hour	not available m^3	Period of emission (avg)
Dry Weather Flow	not available m^3/sec	
		not available m^3
		not available $m^3 \cdot hr/day$
		not available $m^3 \cdot day/yr$

TABLE D.1(ii)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of the emission (Secondary Discharge Point) (1 table per discharge point)

Discharge Point Code: SW02Clonakilty

Number	Substance	As discharged
1	pH	Max. daily average Not available
2	Temperature	Not available
3	Electrical Conductivity (@25°C)	Not available
4	Suspended Solids	Max. daily average (mg/l) Not available
5	Ammonia (as N)	Not available
6	Biochemical Oxygen Demand	Not available
7	Chemical Oxygen Demand	Not available
8	Total Nitrogen (as N)	Not available
9	Nitrite (as N)	Not available
10	Nitrate (as N)	Not available
11	Total Phosphorus (as P) ^{Note 1}	Not available
12	Orthophosphate (as P)	Not available
13	Sulphate (SO ₄)	Not available
14	Phenols (sum) ^{Note 2} (ug/l)	Not available

Note 1: For waste water samples this monitoring should be undertaken on a sample filtered on 0.45µm filter paper.

Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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TABLE D.1(ii)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS

Secondary Discharge Point - Characteristics of the emission (1 table per discharge point)

Discharge Point Code: SW02Clonakilty

Number	Substance	As discharged		
		Max. daily average (µg/l)	kg/day	kg/year
1	Atrazine	Not available	Not available	Not available
2	Dichloromethane	Not available	Not available	Not available
3	Simazine	Not available	Not available	Not available
4	Toluene	Not available	Not available	Not available
5	Tributyltin	Not available	Not available	Not available
6	Xylenes	Not available	Not available	Not available
7	Arsenic	Not available	Not available	Not available
8	Chromium	Not available	Not available	Not available
9	Copper	Not available	Not available	Not available
10	Cyanide	Not available	Not available	Not available
11	Fluoride	Not available	Not available	Not available
12	Lead	Not available	Not available	Not available
13	Nickel	Not available	Not available	Not available
14	Zinc	Not available	Not available	Not available
15	Boron	Not available	Not available	Not available
16	Cadmium	Not available	Not available	Not available
17	Mercury	Not available	Not available	Not available
18	Selenium	Not available	Not available	Not available
19	Barium	Not available	Not available	Not available

Complete this table for inspection purposes only. A signed copy of this table is required for any discharge.

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TABLE D.1(ii)(a): EMISSIONS TO SURFACE/GROUND WATERS
 (Secondary Discharge Point) (1 table per discharge point)

Discharge Point Code: SW03Clonakilty

Source of Emission:	Emergency Overflow Clarke Street Pump Station
Location:	Clarke Street, Townland of Youghals
Grid Ref. (12 digit, 6E, 6N):	E138667 N041336
Name of receiving waters:	Clonakilty Harbour
River Basin District:	South Western River Basin District
Designation of receiving waters:	NHA,SAC,SPA
Flow rate in receiving waters: Not available	Not available $m^3 \cdot sec^{-1}$ Dry Weather Flow Not available $m^3 \cdot sec^{-1}$ 95%ile flow

Emission Details:

(i) Volume emitted not available		
Normal/day	not available m^3	Maximum/day
Maximum rate/hour	not available m^3	Period of emission (avg)
Dry Weather Flow	not available m^3/sec	not available min/hr hr/day day/yr

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TABLE D.1(ii)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of the emission (1 table per discharge point)
 (Secondary Discharge Point)

Discharge Point Code: SW03Clonakity

Number	Substance	As discharged
1	pH	Max. daily average Not available
2	Temperature	Not available
3	Electrical Conductivity (@25°C)	Not available
4	Suspended Solids	Max. daily average (mg/l) Not available
5	Ammonia (as N)	Not available
6	Biochemical Oxygen Demand	Not available
7	Chemical Oxygen Demand	Not available
8	Total Nitrogen (as N)	Not available
9	Nitrite (as N)	Not available
10	Nitrate (as N)	Not available
11	Total Phosphorus (as P) ^{Note 1}	Not available
12	Orthophosphate (as P)	Not available
13	Sulphate (SO ₄)	Not available
14	Phenols (sum) ^{Note 2} (ug/l)	Not available

Note 1: For waste water samples this monitoring should be undertaken on a sample filtered on 0.45µm filter paper.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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TABLE D.1(ii)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS
 Secondary Discharge Point - Characteristics of the emission (1 table per discharge point)
 Discharge Point Code: SW03Clonakilty

Number	Substance	As discharged		
		Max. daily average ($\mu\text{g/l}$)	kg/day	kg/year
1	Atrazine	Not available	Not available	Not available
2	Dichloromethane	Not available	Not available	Not available
3	Simazine	Not available	Not available	Not available
4	Toluene	Not available	Not available	Not available
5	Tributyltin	Not available	Not available	Not available
6	Xylenes	Not available	Not available	Not available
7	Arsenic	Not available	Not available	Not available
8	Chromium	Not available	Not available	Not available
9	Copper	Not available	Not available	Not available
10	Cyanide	Not available	Not available	Not available
11	Fluoride	Not available	Not available	Not available
12	Lead	Not available	Not available	Not available
13	Nickel	Not available	Not available	Not available
14	Zinc	Not available	Not available	Not available
15	Boron	Not available	Not available	Not available
16	Cadmium	Not available	Not available	Not available
17	Mercury	Not available	Not available	Not available
18	Selenium	Not available	Not available	Not available
19	Barium	Not available	Not available	Not available

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TABLE D.1(ii)(a): EMISSIONS TO SURFACE/GROUND WATERS
 (Secondary Discharge Point) (1 table per discharge point)

Discharge Point Code: SW04Clonakilty

Source of Emission:	Emergency Overflow Inchydoney Main pump house
Location:	Inchydoney, Townlands of Inchydoney.
Grid Ref. (12 digit, 6E, 6N):	E139612 N038533
Name of receiving waters:	Muckruss Strand
River Basin District:	South Western River Basin District
Designation of receiving waters:	NHA,SAC,SPA
Flow rate in receiving waters: Not available	Not available $m^3 \cdot sec^{-1}$ Dry Weather Flow Not available $m^3 \cdot sec^{-1}$ 95%ile flow

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Emission Details:		(i) Volume emitted not available	
Normal/day	not available m^3	Maximum/day	not available m^3
Maximum rate/hour	not available m^3	Period of emission (avg)	not available min/hr _____ hr/day _____ day/yr
Dry Weather Flow	not available m^3/sec		

TABLE D.1(ii)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of the emission (Secondary Discharge Point) (1 table per discharge point)

Discharge Point Code: SW04Clonakilty

Number	Substance	As discharged	
		Max. daily average	kg/day
1	pH	Not available	
2	Temperature	Not available	
3	Electrical Conductivity (@25°C)	Not available	
4	Suspended Solids	Max. daily average (mg/l)	
5	Ammonia (as N)	Not available	Not available
6	Biochemical Oxygen Demand	Not available	Not available
7	Chemical Oxygen Demand	Not available	Not available
8	Total Nitrogen (as N)	Not available	Not available
9	Nitrite (as N)	Not available	Not available
10	Nitrate (as N)	Not available	Not available
11	Total Phosphorus (as P) ^{Note 1}	Not available	Not available
12	Orthophosphate (as P)	Not available	Not available
13	Sulphate (SO ₄)	Not available	Not available
14	Phenols (sum) ^{Note 2} (ug/l)	Not available	Not available

Note 1: For waste water samples this monitoring should be undertaken on a sample filtered on 0.45µm filter paper.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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TABLE D.1(ii)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS

Secondary Discharge Point - Characteristics of the emission (1 table per discharge point)

Discharge Point Code: SW04Clonakilty

Number	Substance	As discharged		
		Max. daily average (µg/l)	kg/day	kg/year
1	Atrazine	Not available	Not available	Not available
2	Dichloromethane	Not available	Not available	Not available
3	Simazine	Not available	Not available	Not available
4	Toluene	Not available	Not available	Not available
5	Tributyltin	Not available	Not available	Not available
6	Xylenes	Not available	Not available	Not available
7	Arsenic	Not available	Not available	Not available
8	Chromium	Not available	Not available	Not available
9	Copper	Not available	Not available	Not available
10	Cyanide	Not available	Not available	Not available
11	Fluoride	Not available	Not available	Not available
12	Lead	Not available	Not available	Not available
13	Nickel	Not available	Not available	Not available
14	Zinc	Not available	Not available	Not available
15	Boron	Not available	Not available	Not available
16	Cadmium	Not available	Not available	Not available
17	Mercury	Not available	Not available	Not available
18	Selenium	Not available	Not available	Not available
19	Barium	Not available	Not available	Not available

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TABLE D.1(ii)(a): EMISSIONS TO SURFACE/GROUND WATERS
 (Secondary Discharge Point) (1 table per discharge point)

Discharge Point Code: SW05Clonakilty

Source of Emission:	Emergency Overflow Inchydoney Minor Pump House
Location:	Inchydoney, Townlands of Inchydoney.
Grid Ref. (12 digit, 6E, 6N):	E139373 N038612
Name of receiving waters:	Muckruss Strand
River Basin District:	South Western River Basin District
Designation of receiving waters:	NHA,SAC,SPA
Flow rate in receiving waters:	Not available $m^3 \cdot sec^{-1}$ Dry Weather Flow
Not available	Not available $m^3 \cdot sec^{-1}$ 95%ile flow

Emission Details:

(i) Volume emitted not available		
Normal/day	not available m^3	Maximum/day
Maximum rate/hour	not available m^3	Period of emission (avg)
Dry Weather Flow	not available m^3/sec	not available min/hr _____ hr/day _____ day/yr
		not available m^3

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TABLE D.1(ii)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of the emission (1 table per discharge point)
 (Secondary Discharge Point)

Discharge Point Code: SW05Clonakilty

Number	Substance	As discharged	
		Max. daily average	kg/day
1	pH	Not available	Not available
2	Temperature	Not available	Not available
3	Electrical Conductivity (@25°C)	Not available	Not available
		Max. daily average (mg/l)	kg/day
4	Suspended Solids	Not available	Not available
5	Ammonia (as N)	Not available	Not available
6	Biochemical Oxygen Demand	Not available	Not available
7	Chemical Oxygen Demand	Not available	Not available
8	Total Nitrogen (as N)	Not available	Not available
9	Nitrite (as N)	Not available	Not available
10	Nitrate (as N)	Not available	Not available
11	Total Phosphorus (as P) ^{Note 1.}	Not available	Not available
12	Orthophosphate (as P)	Not available	Not available
13	Sulphate (SO ₄)	Not available	Not available
14	Phenols (sum) ^{Note 2} (ug/l)	Not available	Not available

Note 1: For waste water samples this monitoring should be undertaken on a sample filtered on 0.45µm filter paper.

Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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TABLE D.1(ii)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS
 Secondary Discharge Point - Characteristics of the emission (1 table per discharge point)
 Discharge Point Code: SW05Clonakilty

Number	Substance	As discharged		
		Max. daily average (µg/l)	kg/day	kg/year
1	Atrazine	Not available	Not available	Not available
2	Dichloromethane	Not available	Not available	Not available
3	Simazine	Not available	Not available	Not available
4	Toluene	Not available	Not available	Not available
5	Tributyltin	Not available	Not available	Not available
6	Xylenes	Not available	Not available	Not available
7	Arsenic	Not available	Not available	Not available
8	Chromium	Not available	Not available	Not available
9	Copper	Not available	Not available	Not available
10	Cyanide	Not available	Not available	Not available
11	Fluoride	Not available	Not available	Not available
12	Lead	Not available	Not available	Not available
13	Nickel	Not available	Not available	Not available
14	Zinc	Not available	Not available	Not available
15	Boron	Not available	Not available	Not available
16	Cadmium	Not available	Not available	Not available
17	Mercury	Not available	Not available	Not available
18	Selenium	Not available	Not available	Not available
19	Barium	Not available	Not available	Not available

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**TABLE D.1(ii)(a): EMISSIONS TO SURFACE/GROUND WATERS
(Secondary Discharge Point) (1 table per discharge point)**

Discharge Point Code: GW01Clonakilty

Source of Emission:	Emergency Discharge to Ground at Gallanes Pump House	
Location:	Gallanes, Townland of Gallanes.	
Grid Ref. (12 digit, 6E, 6N):	E140690 N042600	
Name of receiving waters:	Not applicable	
River Basin District:	South Western River Basin District	
Designation of receiving waters:	Not applicable	
Flow rate in receiving waters: Not available	Not available	$\text{m}^3 \cdot \text{sec}^{-1}$ Dry Weather Flow Not available $\text{m}^3 \cdot \text{sec}^{-1}$ 95%ile flow

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Emission Details:		
(i) Volume emitted not available	Maximum/day	Period of emission (avg)
Normal/day	not available m^3	not available m^3
Maximum rate/hour	not available m^3	not available m^3/sec
Dry Weather Flow	not available m^3/sec	not available m^3

TABLE D.1(ii)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of the emission (Secondary Discharge Point) (1 table per discharge point)

Discharge Point Code: GW01Clonakilty

Number	Substance	As discharged
1	pH	Max. daily average Not available
2	Temperature	Not available
3	Electrical Conductivity (@25°C)	Not available
4	Suspended Solids	Max. daily average (mg/l) Not available
5	Ammonia (as N)	Not available
6	Biochemical Oxygen Demand	Not available
7	Chemical Oxygen Demand	Not available
8	Total Nitrogen (as N)	Not available
9	Nitrite (as N)	Not available
10	Nitrate (as N)	Not available
11	Total Phosphorus (as P) ^{Note 1}	Not available
12	Orthophosphate (as P)	Not available
13	Sulphate (SO ₄)	Not available
14	Phenols (sum) ^{Note 2} (ug/l)	Not available

Note 1: For waste water samples this monitoring should be undertaken on a sample filtered on 0.45µm filter paper.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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TABLE D.1(ii)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS
 Secondary Discharge Point - Characteristics of the emission (1 table per discharge point)

Discharge Point Code: GW01Clonakilty

Number	Substance	As discharged		
		Max. daily average (µg/l)	kg/day	kg/year
1	Atrazine	Not available	Not available	Not available
2	Dichloromethane	Not available	Not available	Not available
3	Simazine	Not available	Not available	Not available
4	Toluene	Not available	Not available	Not available
5	Tributyltin	Not available	Not available	Not available
6	Xylenes	Not available	Not available	Not available
7	Arsenic	Not available	Not available	Not available
8	Chromium	Not available	Not available	Not available
9	Copper	Not available	Not available	Not available
10	Cyanide	Not available	Not available	Not available
11	Fluoride	Not available	Not available	Not available
12	Lead	Not available	Not available	Not available
13	Nickel	Not available	Not available	Not available
14	Zinc	Not available	Not available	Not available
15	Boron	Not available	Not available	Not available
16	Cadmium	Not available	Not available	Not available
17	Mercury	Not available	Not available	Not available
18	Selenium	Not available	Not available	Not available
19	Barium	Not available	Not available	Not available

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**TABLE D.1(iii)(a): EMISSIONS TO SURFACE/GROUND WATERS
(Storm Water Overflow) (1 table per discharge point)**

Discharge Point Code: SW02Clonakilty

Source of Emission:	Storm Overflow From Long Quay Pump Station
Location:	Long Quay ,Townland of Scartagh
Grid Ref. (12 digit, 6E, 6N):	E138859 N041382
Name of receiving waters:	Clonakilty Harbour
River Basin District:	South Western River Basin District
Designation of receiving waters:	NHA,SAC,SPA
Flow rate in receiving waters:	Not Available $m^3 \cdot sec^{-1}$ Dry Weather Flow Not Available $m^3 \cdot sec^{-1}$ 95%ile flow

Emission Details:

(i) Volume emitted	
Normal/day	Not Available m^3 Maximum/day m^3
Maximum rate/hour	Not Available m^3 Period of emission (avg) Not Available_min/hr hr/day day/yr

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TABLE D.1(iii)(a): EMISSIONS TO SURFACE/GROUND WATERS
(Storm Water Overflow) (1 table per discharge point)

Discharge Point Code: SW03Clonakilty

Source of Emission:	Storm Overflow Clarke Street Pump Station	
Location:	Clarke Street, Townland of Youghals	
Grid Ref. (12 digit, 6E, 6N):	E138667 N041336	
Name of receiving waters:	Clonakilty Harbour	
River Basin District:	South Western River Basin District	
Designation of receiving waters:	NHA,SAC,SPA	
Flow rate in receiving waters:	Not available _____ m ³ .sec ⁻¹ Dry Weather Flow	Not available _____ m ³ .sec ⁻¹ 95%ile flow

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Emission Details:

(1) Volume emitted		
Normal/day	Not Available m ³	Maximum/day
Maximum rate/hour	Not Available m ³	Period of emission (avg)
		Not Available min/hr _____ hr/day _____ day/yr
		Not Available m ³

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SECTION E MONITORING

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

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

Provide an estimation of the quantity of waste water likely to be emitted in relation to all primary and secondary discharge points applied for. This information should be included in Table E.1(i) of the Annex. The primary discharge shall be annotated with a **(P)**.

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) of the Annex.

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
	X	

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

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, 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
	x	

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Attachment E2 Clonakilty Application

Cork County Council operate a composite sampler on the primary discharge outlet from the treatment plant to the Tidal area in Clonakilty Harbour. The plant is currently monitored by the Environment Directorate of Cork County Council on a monthly basis to measure compliance with the requirements of the Urban wastewater Directive. It is not possible to collect samples from an upstream and downstream of the discharge location at this location. There are extensive tidal mud flats in the area around the discharge location and there is no safe access for personnel in this location for a downstream sample due to the nature and shallowness of the water and the large mud flats which are not suitable for pedestrian access in the area. On that basis upstream samples are not collected as we cannot relate the results and impacts in this manner by comparison with downstream samples.

The inlet and outlet were previously monitored by the water services section on a regular basis in order to evaluate the performance of the plant. Clonakilty harbour which is the receiving water body is monitored in terms of the impacts of discharges in the bathing areas which are located near the mouth of the estuary. There are blue flag beaches in the vicinity of Clonakilty harbour and these beaches are consistently meeting the very high bathing water quality standards which are set by the Blue Flag criteria for water quality.

It is proposed to continue with this multi-faceted approach to monitoring the treatment plant and the impacts of the discharge to waters. There is no drinking water abstraction point downstream of the plant therefore the Abstraction directive does not apply, neither is there designated shellfish waters downstream of the plant.

Samples are analysed for BOD, COD, Ammonia, pH, Suspended Solids, Total Nitrogen Total Phosphorus, Sulphate, Ortho phosphate (in recent times) and Metals (in recent times).

The wastewater Laboratory of Cork County Council are accredited for a number of analytical tests under the Irish National Accreditation Board (INAB) under the ISO 17025 international standard. We currently are accredited for the following parameters under the ISO 17025 system

- pH
- Biochemical Oxygen Demand
- Chemical Oxygen Demand
- Suspended Solids
- Ammonia
- Ortho Phosphate
- Total Phosphate
- Chloride
- Sulphate

The laboratory perform a number of analytical tests e.g. Fats Oil, Grease & Metals using an ICP-OES system and while we are not currently accredited for extra tests the analytical procedures and protocol are adhered to by the laboratory as if the tests are accredited. The laboratory also participate in proficiency testing schemes which measure the accuracy of results and performance of the laboratory in both the EPA scheme and the WRC Aquacheck scheme from the UK. The performance of the laboratory in these schemes is excellent and the non accredited tests are within the performance criteria for the schemes as evaluated by the scheme coordinators.

Clonakilty E3						
PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED	
SW01Clon	Primary	sampling	139030	41311	Y	
SW02Clon	Secondary/Storm Overflow	Monitoring	138859	41382	Y	
SW03Clon	Secondary/Storm Overflow	Monitoring	138667	41336	Y	
SW04Clon	Secondary	Monitoring	139612	38533	Y	
SW05Clon	Secondary	Monitoring	139373	38612	Y	
GW01Clon	Secondary	Monitoring	140690	42600	N	

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CLONAKILTY SEWAGE TREATMENT PLANT

Sample Date	Sample	pH	BOD mg/L	COD mg/L	SS mg/L	Turbidity	TSS mg/L	NH3 mg/L	SO4	O-P04-P	Flow	Cond 20C	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Barium	Boron	Nitrate	Fluorides
17/01/2007	Effluent	7.4	1.7	<21	<2.5	0.51	3.3				1957											
07/02/2007	Effluent	7.5	4.3	<21	8	1.37	12.4				1084											
21/03/2007	Effluent	7.4	21	120	101	2.85	7.02				1425											
12/04/2007	Effluent	7.5	13	47	38	2.3	12.8				966											
03/05/2007	Effluent	7.7	49	160	127	5.13	18.1				926											
13/06/2007	Effluent	7.8	3.5	31	4	2.33					1111											
04/07/2007	Effluent	7	10	50	29	<0.2		2.5			1237		<0.02	<0.02	<0.02	<0.02	<0.02	0.059	<0.02			
09/08/2007	Effluent	7.7	3.1	<21	5	1.46	13.4	8.1	44.8		1240		<0.02	<0.02	<0.02	<0.02	<0.02		<0.02			
19/09/2007	Effluent	7.6	5.95		12		12.7	12.1			2257		<0.02	<0.02	<0.02	<0.02	<0.02	0.048	<0.02			
24/10/2007	Effluent	7.5	7.5	37	6	2.93	30	16.2	53	2.56	2500	1000	<0.02	<0.02	<0.02	<0.02	<0.02	0.028	<0.02	0.053		
25/10/2007	Effluent	7.6	n/r	35	92	10.63	74	15.6	61	2.77	2064	1175	<0.02	<0.02	<0.02	<0.02	<0.02	0.024	<0.02	0.045	2.25	0.4
	Average	7.518182	11.905	74.1666667	36.666667	3.278889	20.41333333	9.725	48.9	2.77	1524.273	1000	<0.02	<0.02	<0.02	<0.02	<0.02	0.03975	<0.02	0.049	2.25	0.4
	Kg/Day		18.146467	113.050227	55.89	4.997921	31.11548727	14.8235523	74.53694	4.2222355		1524.27273		<0.03048545	<0.0304854	<0.0304854	<0.0304854	0.06656	<0.0304854	0.07469	3.429614	0.6097091

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Parameter	Method	Results	Units	Source	Kg/Day
Arsenic (OES)	ICP-OES	6	ug/L	GR1057 25/10/07 final effluent	0.00915
Atrazine	HPLC	<0.01	ug/L	GR1057 25/10/07 final effluent	<0.00002
Cyanide	Colorimetry	<5	ug/L	GR1057 25/10/07 final effluent	<0.00762
Dichloromethane	GC-MS 1	<1	ug/L	GR1057 25/10/07 final effluent	<0.00152
EPH	GC-FID	8.3	ug/L	GR1057 25/10/07 final effluent	0.01265
Mercury (OES)	ICP-OES	1.2	ug/L	GR1057 25/10/07 final effluent	0.00183
Phenols (Total)	GC-MS 2	<0.10	ug/L	GR1057 25/10/07 final effluent	<0.00015
Polyaromatic Hydrocarbons	HPLC	<0.01	ug/L	GR1057 25/10/07 final effluent	<0.00002
Selenium (OES)	ICP-OES	2	ug/L	GR1057 25/10/07 final effluent	0.00305
Simazine	HPLC	<0.01	ug/L	GR1057 25/10/07 final effluent	<0.00002
Toluene	GC-MS 1	<0.01	ug/L	GR1057 25/10/07 final effluent	<0.00002
Total Organic Carbon	TOC analyser (NPOC)	11.00	mg/L	GR1057 25/10/07 final effluent	16.76700
TPH C10-C36	GC-FID	8.3	ug/L	GR1057 25/10/07 final effluent	0.01265
Tributyltithn*	GC-MS 1	<0.02	ug/L as Sn	GR1057 25/10/07 final effluent	<0.00003
Xylene	GC-MS 1	<1	ug/L	GR1057 25/10/07 final effluent	<0.00152

CLONAKILITY SEWAGE TREATMENT PLANT

Sample Date	Sample	pH	BOD mg/L	COD mg/L	SS mg/L	TP mg/L	TN mg/L	NH ₃ mg/L	SO ₄	O-P04-P	Cond 20C	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Barium	Boron	Nitrate as N
04/07/2007	Influent											<0.02	<0.02	0.031	<0.02	<0.02	0.067	<0.02		
09/08/2007	Influent			419								<0.02	<0.02							
19/09/2007	Influent			771	306			24.6				<0.02	<0.02							
24/10/2007	Influent	7.2		746	170	7.1	79	42.9	62	5.39	991	<0.02	<0.02	<0.02	<0.02	<0.02	0.089	<0.02	0.099	
25/10/2007	Influent	7.5	300	783	176	7.43	86		64	6	118	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	0.033	0.77
	Average	7.35	300	679.75	217.3333	7.265	82.5	33.75	63	5.696	554.5	<0.02	<0.02	0.031	<0.02	<0.02	0.0853333333	<0.02	0.066	0.77

Parameter	Method	Results	Units	Source
Arsenic (OES)	ICP-OES	6	ug/L	GR1056 25/10/07 Influent
Atrazine	HPLC	<0.01	ug/L	GR1056 25/10/07 Influent
Cyanide	Colorimetry	<5	ug/L	GR1056 25/10/07 Influent
Dichloromethane	GC-MS 1	<1	ug/L	GR1056 25/10/07 Influent
EPH	GC-FID	5.9	ug/L	GR1056 25/10/07 Influent
Mercury (OES)	ICP-OES	<0.2	ug/L	GR1056 25/10/07 Influent
Phenols (Total)	GC-MS 2	<0.10	ug/L	GR1056 25/10/07 Influent
Polyaromatic Hydrocarbons	HPLC	<0.01	ug/L	GR1056 25/10/07 Influent
Selenium (OES)	ICP-OES	8	ug/L	GR1056 25/10/07 Influent
Simazine	HPLC	<0.01	ug/L	GR1056 25/10/07 Influent
Toluene	GC-MS 1	<0.01	ug/L	GR1056 25/10/07 Influent
Total Organic Carbon	TOC analyser (NPOC)	107.00	mg/L	GR1056 25/10/07 Influent
TPH C10-C36	GC-FID	5.9	ug/L	GR1056 25/10/07 Influent
Tributyltin*	GC-MS 1	<0.02	ug/L as Sn	GR1056 25/10/07 Influent
Xyrene	GC-MS 1	<1	ug/L	GR1056 25/10/07 Influent

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

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

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

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

- o 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.
- o 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.
- o Indicate whether or not emissions from the agglomeration or any plant, methods, processes, operating procedures or other factors which affect such emissions are likely to have a significant effect on –
 - (a) a site (until the adoption, in respect of the site, of a decision by the European Commission under Article 21 of Council Directive 92/43/EEC for the purposes of the third paragraph of Article 4(2) of that Directive) –
 - (i) notified for the purposes of Regulation 4 of the Natural Habitats Regulations, subject to any amendments made to it by virtue of Regulation 5 of those Regulations,
 - (ii) details of which have been transmitted to the Commission in accordance with Regulation 5(4) of the Natural Habitats Regulations, or
 - (iii) added by virtue of Regulation 6 of the Natural Habitats Regulations to the list transmitted to the Commission in accordance with Regulation 5(4) of those Regulations,
 - (b) a site adopted by the European Commission as a site of Community importance for the purposes of Article 4(2) of Council Directive 92/43/EEC¹ in accordance with the procedures laid down in Article 21 of that Directive,
 - (c) a special area of conservation within the meaning of the Natural Habitats Regulations, or
 - (d) an area classified pursuant to Article 4(1) or 4(2) of Council Directive 79/409/EEC²;

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

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

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

Attachment included	Yes	No
	x	

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

Not applicable No abstraction points downstream

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 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, D.2 and E.3.

Attachment F.2 should contain any supporting information. **Not applicable**

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TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING
 (Primary Discharge Point – one table per upstream and downstream location)

Discharge Point Code: SW01Clonakilty

MONITORING POINT CODE: SW01Clonakilty

Parameter	Results (mg/l ^{Note 1})				Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Oct 25	Sept 19	Aug 9	July 4			
2007							
pH	7.6	7.6	7.7	7.0	Composite	2	Electrochemical
Temperature	x	x	x	x	Composite	N/A	N/A
Electrical Conductivity (@20°C)	1175	x	x	x	Composite	0.5 µmhos/cm	Electrochemical
Suspended Solids	92	12	5	29	Composite	0.5 mg/L	Gravimetric
Ammonia (as N)	15.6	12.1	8.1	2.5	Composite	0.02 mg/L	Colorimetric
Biochemical Oxygen Demand	nfr	6	3.1	10	Composite	0.06 mg/L	Electrochemical
Chemical Oxygen Demand	35	x	<21	50	Composite	8 mg/L	Digestion + Colorimetric
Dissolved Oxygen	x	x	x	x	Composite	N/A	N/A
Hardness (as CaCO ₃)	x	x	x	x	Composite	N/A	N/A
Total Nitrogen (as N)	74	12.7	13.4	x	Composite	0.5 mg/L	Digestion + Colorimetric
Nitrite (as N)	x	x	x	x	Composite	N/A	N/A
Nitrate (as N)	2.25	x	x	x	Composite	N/A	N/A
Total Phosphorus (as P)	10.63	x	1.5	<0.2	Composite	0.5 mg/L	Colorimetric
Orthophosphate (as P) - unfiltered	2.77	x	x	x	Composite	0.2 mg/L	Digestion + Colorimetric
Sulphate (SO ₄)	61	x	45	x	Composite	0.02 mg/L	Colorimetric
Phenols (sum) ^{Note 2} (ug/l)	<0.10				Composite	30 mg/L	Turbidimetric

Note 1: Or other unit as appropriate – please specify.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

X = Not tested **NFR = result not for reporting under ISO17025 accreditation rules**

TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)
 (Primary Discharge Point - one table per upstream and downstream location)

Discharge Point Code: SW01Clonakilty

MONITORING POINT CODE: SW01Clonakilty

Parameter	Results (µg/l)				Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Oct 25	Sept 19	Aug 9	July 4			
2007							
Atrazine	<0.01	X	X	X	Composite	0.96 µg/L	HPLC
Dichloromethane	<1	X	X	X	Composite	1 µg/L	GC-MS 1
Simazine	<0.01	X	X	X	Composite	0.01 µg/L	HPLC
Toluene	<0.01	X	X	X	Composite	0.02 µg/L	GC-MS 1
Tributyltin	<0.02	X	X	X	Composite	0.02 µg/L as Sn	GC-MS 1
Xylenes	<1	X	X	X	Composite	1 µg/L	GC-MS 1
Arsenic	6	X	X	X	Composite	0.96 µg/L	ICP-MS
Chromium	<20	<20	<20	<20	Composite	20 µg/L	ICP-OES
Copper	<20	<20	<20	<20	Composite	20 µg/L	ICP-OES
Cyanide	<5	X	X	X	Composite	5 µg/L	Colorimetric
Fluoride	400	X	X	X	Composite	100 µg/L	ISE
Lead	<20	<20	<20	<20	Composite	20 µg/L	ICP-OES
Nickel	<20	<20	<20	<20	Composite	20 µg/L	ICP-OES
Zinc	24	48	X	59	Composite	20 µg/L	ICP-OES
Boron	45	X	X	X	Composite	20 µg/L	ICP-OES
Cadmium	<20	<20	<20	<20	Composite	0.02 mg/L	ICP-OES
Mercury	1.2	X	X	X	Composite	0.02 µg/L	ICP-MS
Selenium	2	X	X	X	Composite	0.74 µg/L	ICP-MS
Barium	<20	<20	<20	<20	Composite	0.02 mg/L	ICP-OES

X = NOT TESTED

TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING (Primary Discharge Point – one table per upstream and downstream location)

Discharge Point Code: SW01Clonakilty

MONITORING POINT CODE: SW01Clonakilty **Upstream and Downstream**

Parameter	Results (mg/l ^{Note 1})			Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	X	X	X			
pH	X	X	X	X	2	Electrochemical
Temperature	X	X	X	X	N/A	N/A
Electrical Conductivity (@20°C)	X	X	X	X	0.5 µmhos/cm	Electrochemical
Suspended Solids	X	X	X	X	0.5 mg/L	Gravimetric
Ammonia (as N)	X	X	X	X	0.02 mg/L	Colorimetric
Biochemical Oxygen Demand	X	X	X	X	0.06 mg/L	Electrochemical
Chemical Oxygen Demand	X	X	X	X	8 mg/L	Digestion + Colorimetric
Dissolved Oxygen	X	X	X	X	N/A	N/A
Hardness (as CaCO ₃)	X	X	X	X	N/A	N/A
Total Nitrogen (as N)	X	X	X	X	0.5 mg/L	Digestion + Colorimetric
Nitrite (as N)	X	X	X	X	N/A	N/A
Nitrate (as N)	X	X	X	X	0.5 mg/L	Digestion + Colorimetric
Total Phosphorus (as P)	X	X	X	X	N/A	N/A
Orthophosphate (as P) - unfiltered	X	X	X	X	0.5 mg/L	Colorimetric
Sulphate (SO ₄)	X	X	X	X	0.2 mg/L	Digestion + Colorimetric
Phenols (sum) ^{Note 2} (ug/l)	X	X	X	X	0.02 mg/L	Colorimetric
	X	X	X	X	30 mg/L	Turbidimetric
	X	X	X	X	0.1 µg/L	GC-MS 2

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Note 1: Or other unit as appropriate – please specify.
Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

X = Not tested

TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)
 (Primary Discharge Point - one table per upstream and downstream location)

Discharge Point Code: SW01Clonakilty

MONITORING POINT CODE: SW01Clonakilty

Parameter	Results (µg/l)						Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	X	X	X	X	X	X			
2007	X	X	X	X	X	X	X		
Atrazine	X	X	X	X	X	X	X	0.96 µg/L	HPLC
Dichloromethane	X	X	X	X	X	X	X	1 µg/L	GC-MS 1
Simazine	X	X	X	X	X	X	X	0.01 µg/L	HPLC
Toluene	X	X	X	X	X	X	X	0.02 µg/L	GC-MS 1
Tributyltin	X	X	X	X	X	X	X	0.02 µg/L as Sn	GC-MS 1
Xylenes	X	X	X	X	X	X	X	1 µg/L	GC-MS 1
Arsenic	X	X	X	X	X	X	X	0.96 µg/L	ICP-MS
Chromium	X	X	X	X	X	X	X	20 µg/L	ICP-OES
Copper	X	X	X	X	X	X	X	20 µg/L	ICP-OES
Cyanide	X	X	X	X	X	X	X	5 µg/L	Colorimetric
Fluoride	X	X	X	X	X	X	X	100 µg/L	ISE
Lead	X	X	X	X	X	X	X	20 µg/L	ICP-OES
Nickel	X	X	X	X	X	X	X	20 µg/L	ICP-OES
Zinc	X	X	X	X	X	X	X	20 µg/L	ICP-OES
Boron	X	X	X	X	X	X	X	20 µg/L	ICP-OES
Cadmium	X	X	X	X	X	X	X	20 µg/L	ICP-OES
Mercury	X	X	X	X	X	X	X	0.02 mg/L	ICP-OES
Selenium	X	X	X	X	X	X	X	0.02 µg/L	ICP-MS
Barium	X	X	X	X	X	X	X	0.74 µg/L	ICP-MS
X = Not tested	X	X	X	X	X	X	X	0.02 mg/L	ICP-OES

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TABLE F.1(ii)(a): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
 (Secondary Discharge Point)

Discharge Point Code: SW02Clonakity

MONITORING POINT CODE: SW02Clonakity + upstream + downstream

Parameter	Results (mg/l) ^{Note 1}			Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date	Date			
pH	X	X	X		2	Electrochemical
Temperature	X	X	X		N/A	N/A
Electrical Conductivity (@25°C)	X	X	X		0.5 µmhos/cm	Electrochemical
Suspended Solids	X	X	X		0.5 mg/L	Gravimetric
Ammonia (as N)	X	X	X		0.02 mg/L	Colorimetric
Biochemical Oxygen Demand	X	X	X		0.06 mg/L	Electrochemical
Chemical Oxygen Demand	X	X	X		8 mg/L	Digestion + Colorimetric
Dissolved Oxygen	X	X	X		N/A	N/A
Hardness (as CaCO ₃)	X	X	X		N/A	N/A
Total Nitrogen (as N)	X	X	X		0.5 mg/L	Digestion + Colorimetric
Nitrite (as N)	X	X	X		N/A	N/A
Nitrate (as N)	X	X	X		0.5 mg/L	Digestion + Colorimetric
Total Phosphorus (as P)	X	X	X		N/A	N/A
Orthophosphate (as P) - unfiltered	X	X	X		0.5 mg/L	Colorimetric
Sulphate (SO ₄)	X	X	X		0.2 mg/L	Digestion + Colorimetric
Phenols (sum) ^{Note 2} (ug/l)	X	X	X		0.02 mg/L	Colorimetric
	X	X	X		30 mg/L	Turbidimetric
	X	X	X		0.1 µg/L	GC-MS 2

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Note 1: Or other unit as appropriate - please specify.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.
X = Not tested

**TABLE F.1(ii)(b): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
(Secondary Discharge Point)**

Discharge Point Code: SW02Clonakilty

MONITORING POINT CODE: SW02Clonakilty and upstream+downstream

Parameter	Results (µg/l)				Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date	Date	Date			
Atrazine	X	X	X	X		0.96 µg/L	HPLC
Dichloromethane	X	X	X	X		1 µg/L	GC-MS 1
Simazine	X	X	X	X		0.01 µg/L	HPLC
Toluene	X	X	X	X		0.02 µg/L	GC-MS 1
Tributyltin	X	X	X	X		0.02 µg/L as Sn	GC-MS 1
Xylenes	X	X	X	X		1 µg/L	GC-MS 1
Arsenic	X	X	X	X		0.96 µg/L	ICP-MS
Chromium	X	X	X	X		20 µg/L	ICP-OES
Copper	X	X	X	X		20 µg/L	ICP-OES
Cyanide	X	X	X	X		5 µg/L	Colorimetric
Fluoride	X	X	X	X		100 µg/L	ISE
Lead	X	X	X	X		20 µg/L	ICP-OES
Nickel	X	X	X	X		20 µg/L	ICP-OES
Zinc	X	X	X	X		20 µg/L	ICP-OES
Boron	X	X	X	X		20 µg/L	ICP-OES
Cadmium	X	X	X	X		20 µg/L	ICP-OES
Mercury	X	X	X	X		20 µg/L	ICP-OES
Selenium	X	X	X	X		0.2 µg/L	ICP-MS
Barium	X	X	X	X		0.74 µg/L	ICP-MS
	X	X	X	X		20 µg/L	ICP-OES

X = NOT TESTED

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TABLE F.1(ii)(a): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
(Secondary Discharge Point)

Discharge Point Code: SW03Clonaklity

MONITORING POINT CODE: SW03Clonaklity and Upstream / Downstream

Parameter	Results (mg/l ^{Note 1})			Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date	Date			
pH	X	X	X		2	Electrochemical
Temperature	X	X	X		N/A	N/A
Electrical Conductivity (@25°C)	X	X	X		0.5 µmhos/cm	Electrochemical
Suspended Solids	X	X	X		0.5 mg/L	Gravimetric
Ammonia (as N)	X	X	X		0.02 mg/L	Colorimetric
Biochemical Oxygen Demand	X	X	X		0.06 mg/L	Electrochemical
Chemical Oxygen Demand	X	X	X		8 mg/L	Digestion + Colorimetric
Dissolved Oxygen	X	X	X		N/A	N/A
Hardness (as CaCO ₃)	X	X	X		N/A	N/A
Total Nitrogen (as N)	X	X	X		0.5 mg/L	Digestion + Colorimetric
Nitrite (as N)	X	X	X		N/A	N/A
Nitrate (as N)	X	X	X		0.5 mg/L	Colorimetric
Total Phosphorus (as P)	X	X	X		0.2 mg/L	Digestion + Colorimetric
Orthophosphate (as P) - unfiltered	X	X	X		0.02 mg/L	Colorimetric
Sulphate (SO ₄)	X	X	X		30 mg/L	Turbidimetric
Phenols (sum) ^{Note 2} (ug/l)	X	X	X		0.1 µg/L	GC-MS 2

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Note 1: Or other unit as appropriate - please specify.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

X = Not tested

**TABLE F.1(ii)(b): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
(Secondary Discharge Point)**

Discharge Point Code: SW03Clonakilty
MONITORING POINT CODE: SW03Clonakilty upstream+downstream

Parameter	Results (µg/l)			Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date	Date			
Atrazine	X	X	X		0.96 µg/L	HPLC
Dichloromethane	X	X	X		1 µg/L	GC-MS 1
Simazine	X	X	X		0.01 µg/L	HPLC
Toluene	X	X	X		0.02 µg/L	GC-MS 1
Tributyltin	X	X	X		0.02 µg/L as Sn	GC-MS 1
Xylenes	X	X	X		1 µg/L	GC-MS 1
Arsenic	X	X	X		0.96 µg/L	ICP-MS
Chromium	X	X	X		20 µg/L	ICP-OES
Copper	X	X	X		20 µg/L	ICP-OES
Cyanide	X	X	X		5 µg/L	Colorimetric
Fluoride	X	X	X		100 µg/L	ISE
Lead	X	X	X		20 µg/L	ICP-OES
Nickel	X	X	X		20 µg/L	ICP-OES
Zinc	X	X	X		20 µg/L	ICP-OES
Boron	X	X	X		20 µg/L	ICP-OES
Cadmium	X	X	X		20 µg/L	ICP-OES
Mercury	X	X	X		0.2 µg/L	ICP-MS
Selenium	X	X	X		0.74 µg/L	ICP-MS
Barium	X	X	X		20 µg/L	ICP-OES

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X = NOT TESTED

TABLE F.1(ii)(a): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
 (Secondary Discharge Point)

Discharge Point Code: SW04Clonaklity

MONITORING POINT CODE: SW04Clonaklity and Upstream / Downstream

Parameter	Results (mg/Note 1)			Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date	Date			
pH	X	X	X		2	Electrochemical
Temperature	X	X	X		N/A	N/A
Electrical Conductivity (@25°C)	X	X	X		0.5 µmhos/cm	Electrochemical
Suspended Solids	X	X	X		0.5 mg/L	Gravimetric
Ammonia (as N)	X	X	X		0.02 mg/L	Colorimetric
Biochemical Oxygen Demand	X	X	X		0.06 mg/L	Electrochemical
Chemical Oxygen Demand	X	X	X		8 mg/L	Digestion + Colorimetric
Dissolved Oxygen	X	X	X		N/A	N/A
Hardness (as CaCO ₃)	X	X	X		N/A	N/A
Total Nitrogen (as N)	X	X	X		0.5 mg/L	Digestion + Colorimetric
Nitrite (as N)	X	X	X		N/A	N/A
Nitrate (as N)	X	X	X		0.5 mg/L	Digestion + Colorimetric
Total Phosphorus (as P)	X	X	X		N/A	N/A
Orthophosphate (as P) - unfiltered	X	X	X		0.5 mg/L	Colorimetric
Sulphate (SO ₄)	X	X	X		0.2 mg/L	Digestion + Colorimetric
Phenols (sum) ^{Note 2} (µg/l)	X	X	X		0.02 mg/L	Colorimetric
	X	X	X		30 mg/L	Turbidimetric
	X	X	X		0.1 µg/L	GC-MS 2

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Note 1: Or other unit as appropriate - please specify.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

X = Not tested

**TABLE F.1(ii)(b): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
(Secondary Discharge Point)**

Discharge Point Code: SW04Clonakilty

MONITORING POINT CODE: SW04Clonakilty and Upstream /Downstream

Parameter	Results (µg/l)						Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date	Date	Date	Date	Date			
	X	X	X	X	X	X			
Atrazine	X		X		X		0.96 µg/L	HPLC	
Dichloromethane	X		X		X		1 µg/L	GC-MS 1	
Simazine	X		X		X		0.01 µg/L	HPLC	
Toluene	X		X		X		0.02 µg/L	GC-MS 1	
Tributyltin	X		X		X		0.02 µg/L as Sn	GC-MS 1	
Xylenes	X		X		X		1 µg/L	GC-MS 1	
Arsenic	X		X		X		0.96 µg/L	ICP-MS	
Chromium	X		X		X		20 µg/L	ICP-OES	
Copper	X		X		X		20 µg/L	ICP-OES	
Cyanide	X		X		X		5 µg/L	Colorimetric	
Fluoride	X		X		X		100 µg/L	ISE	
Lead	X		X		X		20 µg/L	ICP-OES	
Nickel	X		X		X		20 µg/L	ICP-OES	
Zinc	X		X		X		20 µg/L	ICP-OES	
Boron	X		X		X		20 µg/L	ICP-OES	
Cadmium	X		X		X		20 µg/L	ICP-OES	
Mercury	X		X		X		0.2 µg/L	ICP-MS	
Selenium	X		X		X		0.74 µg/L	ICP-MS	
Barium	X		X		X		20 µg/L	ICP-OES	

X = NOT TESTED

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TABLE F.1(ii)(a): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
 (Secondary Discharge Point)

Discharge Point Code: SW05Clonaklity

MONITORING POINT CODE: SW05Clonaklity and Upstream / Downstream

Parameter	Results (mg/l ^{Note 1})			Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date	Date			
pH	X	X	X		2	Electrochemical
Temperature	X	X	X		N/A	N/A
Electrical Conductivity (@25°C)	X	X	X		0.5 µmhos/cm	Electrochemical
Suspended Solids	X	X	X		0.5 mg/L	Gravimetric
Ammonia (as N)	X	X	X		0.02 mg/L	Colorimetric
Biochemical Oxygen Demand	X	X	X		0.06 mg/L	Electrochemical
Chemical Oxygen Demand	X	X	X		8 mg/L	Digestion + Colorimetric
Dissolved Oxygen	X	X	X		N/A	N/A
Hardness (as CaCO ₃)	X	X	X		N/A	N/A
Total Nitrogen (as N)	X	X	X		0.5 mg/L	Digestion + Colorimetric
Nitrite (as N)	X	X	X		N/A	N/A
Nitrate (as N)	X	X	X		N/A	N/A
Total Phosphorus (as P)	X	X	X		0.5 mg/L	Colorimetric
Orthophosphate (as P) - unfiltered	X	X	X		0.2 mg/L	Digestion + Colorimetric
Sulphate (SO ₄)	X	X	X		0.02 mg/L	Colorimetric
Phenols (sum) ^{Note 2} (µg/l)	X	X	X		30 mg/L	Turbidimetric
	X	X	X		0.1 µg/L	GC-MS 2

Note 1: Or other unit as appropriate - please specify.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

X = Not tested

**TABLE F.1(ii)(b): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
(Secondary Discharge Point)**

Discharge Point Code: SW05Clonakilty

MONITORING POINT CODE: SW05Clonakilty and Upstream / Downstream

Parameter	Results (µg/l)						Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date		Date		Date				
	Date	Date	Date	Date	Date	Date			
Atrazine	X		X		X		0.96 µg/L	HPLC	
Dichloromethane	X		X		X		1 µg/L	GC-MS 1	
Simazine	X		X		X		0.01 µg/L	HPLC	
Toluene	X		X		X		0.02 µg/L	GC-MS 1	
Tributyltin	X		X		X		0.02 µg/L as Sn	GC-MS 1	
Xylenes	X		X		X		1 µg/L	GC-MS 1	
Arsenic	X		X		X		0.96 µg/L	ICP-MS	
Chromium	X		X		X		20 µg/L	ICP-OES	
Copper	X		X		X		20 µg/L	ICP-OES	
Cyanide	X		X		X		5 µg/L	Colorimetric	
Fluoride	X		X		X		100 µg/L	ISE	
Lead	X		X		X		20 µg/L	ICP-OES	
Nickel	X		X		X		20 µg/L	ICP-OES	
Zinc	X		X		X		20 µg/L	ICP-OES	
Boron	X		X		X		20 µg/L	ICP-OES	
Cadmium	X		X		X		20 µg/L	ICP-OES	
Mercury	X		X		X		0.2 µg/L	ICP-MS	
Selenium	X		X		X		0.74 µg/L	ICP-MS	
Barium	X		X		X		20 µg/L	ICP-OES	

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TABLE F.1(ii)(a): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
 (Secondary Discharge Point)

Discharge Point Code: GW01Clonaklity

MONITORING POINT CODE: GW01Clonaklityand Upstream / Downstream

Parameter	Results (mg/l ^{Note 1})		Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date			
pH	X	X		2	Electrochemical
Temperature	X	X		N/A	N/A
Electrical Conductivity (@25°C)	X	X		0.5 µmhos/cm	Electrochemical
Suspended Solids	X	X		0.5 mg/L	Gravimetric
Ammonia (as N)	X	X		0.02 mg/L	Colorimetric
Biochemical Oxygen Demand	X	X		0.06 mg/L	Electrochemical
Chemical Oxygen Demand	X	X		8 mg/L	Digestion + Colorimetric
Dissolved Oxygen	X	X		N/A	N/A
Hardness (as CaCO ₃)	X	X		N/A	N/A
Total Nitrogen (as N)	X	X		0.5 mg/L	Digestion + Colorimetric
Nitrite (as N)	X	X		N/A	N/A
Nitrate (as N)	X	X		0.5 mg/L	Digestion + Colorimetric
Total Phosphorus (as P)	X	X		N/A	N/A
Orthophosphate (as P) - unfiltered	X	X		0.5 mg/L	Colorimetric
Sulphate (SO ₄)	X	X		0.2 mg/L	Digestion + Colorimetric
Phenols (sum) ^{Note 2} (ug/l)	X	X		0.02 mg/L	Colorimetric

Note 1: Or other unit as appropriate - please specify.
 Note 2: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

X = Not tested

**TABLE F.1(ii)(b): SURFACE/GROUND WATER MONITORING - (1 table per discharge point upstream and downstream locations)
(Secondary Discharge Point)**

Discharge Point Code: GW01Clonakilty

MONITORING POINT CODE: GW01Clonakilty and Upstream / Downstream

Parameter	Results (µg/l)			Sampling method (grab, drift etc.)	Limit of Quantitation	Analysis method / technique
	Date	Date	Date			
Atrazine	X	X	X		0.96 µg/L	HPLC
Dichloromethane	X	X	X		1 µg/L	GC-MS 1
Simazine	X	X	X		0.01 µg/L	HPLC
Toluene	X	X	X		0.02 µg/L	GC-MS 1
Tributyltin	X	X	X		0.02 µg/L as Sn	GC-MS 1
Xylenes	X	X	X		1 µg/L	GC-MS 1
Arsenic	X	X	X		0.96 µg/L	ICP-MS
Chromium	X	X	X		20 µg/L	ICP-OES
Copper	X	X	X		20 µg/L	ICP-OES
Cyanide	X	X	X		5 µg/L	Colorimetric
Fluoride	X	X	X		100 µg/L	ISE
Lead	X	X	X		20 µg/L	ICP-OES
Nickel	X	X	X		20 µg/L	ICP-OES
Zinc	X	X	X		20 µg/L	ICP-OES
Boron	X	X	X		20 µg/L	ICP-OES
Cadmium	X	X	X		20 µg/L	ICP-OES
Mercury	X	X	X		20 µg/L	ICP-OES
Selenium	X	X	X		0.2 µg/L	ICP-MS
Barium	X	X	X		0.74 µg/L	ICP-MS
	X	X	X		20 µg/L	ICP-OES

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SECTION G: PROGRAMMES OF IMPROVEMENTS

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

G.1 Compliance with Council Directives

Provide details on a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of; the Dangerous Substances Directive 2006/11/EC, the Water Framework Directive 2000/60/EC, the Birds Directive 79/409/EEC, the Groundwater Directives 80/68/EEC & 2006/118/EC, the Drinking Water Directives 80/778/EEC, the Urban Waste Water Treatment Directive 91/271/EEC, the Habitats Directive 92/43/EEC, the Environmental Liabilities Directive 2004/35/EC and the Bathing Water Directive 76/160/EEC.

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.

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
	✓	

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SECTION No G.1

COMPLIANCE WITH COUNCIL DIRECTIVES

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

Section G.1 Compliance with Council Directives

The Environmental Impact Statement prepared in association with the proposed upgrading of Clonakilty Wastewater Treatment Plant deals in detail with issues associated with compliance with Council Directives. The following is a summary:

Dangerous Substances Directive

A marine study of the proposed treated waste water discharges from the Clonakilty WWTP was carried out. The study assessed the dispersive characteristics of the coastal area and commented on the siting of the outfall with regard to possible impacts, particularly on the "Blue Flag" bathing beaches at Inchydoney.

A two dimensional flow model together with a particle track dispersion model was used to simulate the discharges. Recorded data from current meter, drogue and dye releases were used for calibration and validation purposes.

The results show that the optimum location for the outfall in terms of minimising bacterial contamination at Inchydoney beach is the existing outfall location adjacent to the town.

The modelling of the receiving waters has indicated that there should be no impact on designated Bathing Waters in the vicinity of Clonakilty Harbour due to the increased discharge of treated effluent from the WWTP. In order to allow for any change in the designation of the receiving waters or any increase in the wastewater flows, the WWTP should be designed to allow retrofitting of disinfection equipment so that coliform levels in the treated effluent could be reduced if necessary. Regular monitoring of the treated effluent and designated bathing waters will identify any excessive levels of coliforms in the treated effluent and any breaches of the bathing water standards.

Water Framework Directive

Cork County Council water quality analysis of the Fealge river in Clonakilty indicates occasional exceedences of nitrate, ammonia, nitrite and phosphorus. Such excess quantities indicate excessive loading of nutrients that are likely to be related to agricultural practices along the catchment of the River Fealge.

Dissolved oxygen levels in the River Fealge are largely recorded in excess of 100% saturation which can be indicative of eutrophication. These elevated dissolved oxygen levels can occur when dense growth can lead to excess production of oxygen.

The EPA has conducted Biological Quality Rating surveys on the Fealge River and on each sampling occasion has achieved a Q-rating of 4. This is indicative of satisfactory water quality.

All future emissions from Clonakilty WWTP should meet the minimum standard of 25 mg/l BOD₅, 35 mg/l SS, 125 mg/l COD as set out in the Urban Wastewater Treatment Regulations, 2001. It is recommended that the WWTP should provide for reduction of nitrogen and phosphates in the treated effluent. The maximum levels of total phosphorus (P) and total nitrogen (N) in the treated effluent being discharged to sensitive areas under the Urban Wastewater Treatment Regulations 2001 are 2 mg/l P and 15 mg/l N. These levels are considered appropriate for the upgraded and expanded Clonakilty WWTP. This will result in significantly reduced levels of nutrients entering the harbour. Allowance should be made in the design of the WWTP for the further reduction in nitrogen and phosphates in the effluent if required.

It is also recommended that ongoing monitoring of nutrients levels in the Clonakilty Estuary, following the EPA's ATSEBI System be carried out so that any improvements in water quality resulting from the upgraded WWTP can be observed.

Nutrient inputs to the estuary from freshwater sources are likely to improve over time due to the implementation of the Nitrates Directive, Water Framework Directive and improved water quality requirements. These, together with improvements at Clonakilty WWTP (including removal of N and P), will lead to overall improvements in sediment and water quality in Clonakilty Estuary and will be in line with the wider objectives of the Water Framework Directive.

The Birds Directive

Clonakilty Estuary is designated a Special Area of Conservation. The proposed upgrade of Clonakilty WWTP and subsequent changes in the organic/nutrient loading to Clonakilty Estuary are predicted to lead to a complex range of positive and negative impacts on the flora and fauna associated with the estuarine ecosystem. Some of these predicted impacts are contradictory e.g. a reduction in nutrient/BOD loading to the estuary, while potentially leading to reduction in the occurrence of algal mats (over a long-time period) (positive impact), may also lead to a reduction in macroinvertebrates densities (a negative impact upon estuarine birds).

Changes in the organic/nutrient loading to Clonakilty Estuary will result in indeterminable impacts upon macroinvertebrates and wading birds and wildfowl. Current scientific evidence does not allow accurate impact assessment and the EIS discusses the different possible impact scenarios. Residual impacts are therefore impossible to predict although these may be determined as a result of the on-going monitoring recommended.

Groundwater Directive

With the proper mitigation measures neither the construction nor operational phase of the proposed development will result in any significant negative impacts on the existing groundwater.

Drinking Water Directive

As no drinking water abstraction takes place downstream of the works this is not applicable.

Urban Wastewater Treatment Directive

All future emissions from Clonakilty WWTP should meet the minimum standard of 25 mg/l BOD5, 35 mg/l SS, 125 mg/l COD as set out in the Urban Wastewater Treatment Regulations, 2001. It is recommended that the WWTP should provide for reduction of nitrogen and phosphates in the treated effluent. The maximum levels of total phosphorus (P) and total nitrogen (N) in the treated effluent being discharged to sensitive areas under the Urban Wastewater Treatment Regulations 2001 are 2 mg/l P and 15 mg/l N. These levels are considered appropriate for the upgraded and expanded Clonakilty WWTP. This will result in significantly reduced levels of nutrients entering the harbour. Allowance should be made in the design of the WWTP for the further reduction in nitrogen and phosphates in the effluent if required.

The Habitats Directive

The proposed upgrade of the WWTP and subsequent changes in the organic/nutrient loading to Clonakilty Estuary are predicted to lead to a complex range of positive and negative impacts on the flora and fauna associated with the estuarine ecosystem. Some of these predicted impacts are contradictory e.g. a reduction in nutrient/BOD loading to the estuary, while potentially leading to a reduction in the occurrence of algal mats (over a long time period) (positive impact), may also lead to a reduction in macroinvertebrate densities (a negative impact upon estuarine birds).

If the proposed development leads to long-term reductions in nutrients (N and P) entering the estuary then reductions in macroalgal blooms (mats) are predicted over time. This could lead to a moderate-major long-term positive

impact but is also strongly related to the amount of nutrients entering the estuary from other sources which are largely undetermined. However, nutrient removal during treatment would be a major step in tackling the problem of eutrophication and has a long term beneficial effect.

Impacts upon wading birds and wildfowl in terms of disturbance during the construction or operation phases, is deemed to be imperceptible - slight. Residual impacts are not expected.

Changes in the organic/nutrient loading to Clonakilty Estuary will result in indeterminable impacts upon macroinvertebrates and wading birds and wildfowl. Current scientific evidence does not allow accurate impact assessment and this document discusses the different possible impact scenarios. Residual impacts are therefore impossible to predict although these may be determined as a result of the on-going monitoring recommended.

The main interaction of ecology will be with water quality. A change in nutrient/BOD loading to Clonakilty Estuary may induce a range of ecological impacts that range from positive to negative depending on the changes that occur in the WWTP emissions. The EIS has discussed the potential conflicting impacts upon ecology of an improvement in estuarine water quality, i.e. improvements may result in a decrease in macroinvertebrate densities which could result in a significant impact upon birds. In general however, a reduction in the potential eutrophic status of Clonakilty Estuary is viewed as beneficial to ecology.

Environmental Liabilities Directive

It is proposed to develop a Performance Management System (PMS) for the Clonakilty Wastewater Treatment Plant. This will provide a uniform approach to dealing with all relevant performance management issues including emergency procedures, reporting procedures and plant operation procedures as a result of which the risk of environmental pollution from the WWTP should be very low.

It is proposed to operate the newly upgraded WWTP as a Design, Build and Operate Contract. As part of the operator's contract, failure to meet specified final effluent quality standards will result in financial penalties due to non-compliance. The penalties vary depending on the severity of the pollution caused.

Any alterations to the wastewater treatment plant will be designed to enable any operator of the facility to prevent pollution of the environment by the following contaminants:

- Surface water run-off
- Spillages

- Solid waste

Bathing Water Directive

A marine study of the proposed treated waste water discharges from the Clonakilty WWTP was carried out. The study assessed the dispersive characteristics of the coastal area and commented on the siting of the outfall with regard to possible impacts, particularly on the "Blue Flag" bathing beaches at Inchydoney.

A two dimensional flow model together with a particle track dispersion model was used to simulate the discharges. Recorded data from current meter, drogue and dye releases were used for calibration and validation purposes.

The results show that the optimum location for the outfall in terms of minimising bacterial contamination at Inchydoney beach is the existing outfall location adjacent to the town.

The modelling of the receiving waters has indicated that there should be no impact on designated Bathing Waters in the vicinity of Clonakilty Harbour due to the increased discharge of treated effluent from the WWTP. In order to allow for any change in the designation of the receiving waters or any increase in the wastewater flows, the WWTP should be designed to allow retrofitting of disinfection equipment so that coliform levels in the treated effluent could be reduced if necessary. Regular monitoring of the treated effluent and designated bathing waters will identify any excessive levels of coliforms in the treated effluent and any breaches of the bathing water standards.

ATTACHMENT No G.1

**COMPLIANCE WITH COUNCIL
DIRECTIVES**

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

Attachment G.1 – Compliance with Council Directives

Capital Investment Programme

The Water Services Investment Programme 2007-2009 for Cork County includes Clonakilty Sewerage Scheme (Plant Capacity Increase) as a scheme to start in 2009 at an estimated cost of €3,677,000. (See copy of Water Services Investment Programme 2007-2009 for Cork County attached)

This improvement will allow for an increase in the design load from 5,333 pe to 20,500 pe in treatment capacity at the Plant. This will cater for future increases in development of existing catchment in Clonakilty, Shannonvale and Inchydoney as well as treatment of sewage from Ring village.

The Preliminary Report prepared by RPS Ltd. was submitted for approval to the Department of Environment Heritage and Local Government in August 2006 and this is still awaited.

The following extracts from Part 1 Introduction and Summary of the Preliminary Report outline the improvements proposed under the Water Services Investment Programme 2007-2009 scheme:

The main recommendations are as follows:-

1. Provide additional aeration and settling capacity.
2. Refurbish existing mechanical plant.
3. Upgrade the inlet works.
4. Upgrade the Long Quay Pumping Station and construct storm holding tank.
5. Upgrade sludge treatment and storage.
6. Provide odour control and odour removal, both at the sludge treatment plant and on the raw sewage from Inchydoney.
7. Construct pumping station in Ring Village and 2.5 km of rising main to pump sewage to gravity main flowing to Clonakilty STP.

Summary of Costs:

Stage 1 (Emergency Scheme):	€ 1,737,323.24
Stage 2:	€ 2,437,840.75

Ring Village sewage facilities:	€ 542,991.09
Sub-Total:	€ 4,718,155.08
Resident Engineer	€ 260,000.00
Total:	€ 4,978,155.08

Overall Estimate Total: € 4,978,200.00

As can be seen from the above summary of costs it was proposed to carry out the scheme in three stages as follows:

Stage 1 – Emergency Scheme to address most immediate problems at Plant

Stage 2 – Balance of works to complete improvements to Plant

Stage 3 – Connection of Ring village to Clonakilty Sewerage Scheme

It is now envisaged that Stages 1&2 will be carried out together followed by the connection of Ring village to the scheme.

Likely Timeframe

It is hoped to get approval of Preliminary Report shortly from the DOEHLG and following that the likely timeframe to construction would be as follows:

1. **Preparation of Brief for the Appointment of Consulting Engineer for Scheme to go forward as Design, Build, Operate (DBO) Scheme by January 2008**
2. **Approval of Brief by DOEHLG - July 2008**
3. **Appoint Consultant – January 2009**
4. **Design period + Receipt of Tenders – December 2009**
5. **Start construction – January 2010**
6. **Completion of Works – January 2011**

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SECTION No G2

**COMPLIANCE WITH PHOSPHORUS
REGULATIONS**

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

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

Water Quality Catchment Management Plans

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

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

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

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

The aim of the project is to have all relevant waters to appropriate standards in accordance with the Water Framework Directive by 2015.

Phosphorus Measures Implementation

The following extract from the EIS commissioned as part of Clonakilty WWTP Upgrading outlines the measures required to reduce phosphorus levels emanating from the plant:

“The modelling of the receiving waters has indicated that an increase in nutrient levels in Clonakilty Harbour is unlikely to occur due to full tidal flushing of the estuary on each tidal cycle.

However, at low river flows, the effluent from the WWTP will result in unacceptable high concentrations of nitrogen and phosphates in the receiving water. This is discussed further in the Section 7 Ecology.

It is recommended that the WWTP should provide for reduction of nitrogen and phosphates in the treated effluent. The maximum levels of total phosphorus (P) and total nitrogen (N) in the treated effluent being discharged to sensitive areas under the Urban Wastewater Treatment Regulations 2001 are 2mg/l P and 15mg/l N for population equivalents(PE) between 10,000 and 100,000. These levels are considered appropriate for the upgraded and expanded Clonakilty WWTP which will have a PE of 20,500. Regular monitoring of the nutrient levels (nitrogen and phosphorus) in the receiving waters should be carried out in the future to determine if the nutrients from the WWTP are still considered to be the cause of unacceptable nutrient levels in Clonakilty Harbour after the upgrade works are carried out. Allowance should be made in the design of the WWTP for the further reduction in nitrogen and phosphates in the effluent if required.”

ATTACHMENT No G.2

COMPLIANCE WITH PHOSPHORUS REGULATIONS

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

Attachment G2 - Compliance with Water Quality Standards for Phosphorus Regulations (S.I. No. 258 of 1998).

Capital Investment Programme

The Water Services Investment Programme 2007-2009 for Cork County includes Clonakilty Sewerage Scheme (Plant Capacity Increase) as a scheme to start in 2009 at an estimated cost of €3,677,000. (See copy of Water Services Investment Programme 2007-2009 for Cork County attached)

This improvement will allow for an increase in the design load from 5,333 pe to 20,500 pe in treatment capacity at the Plant. This will cater for future increases in development of existing catchment in Clonakilty, Shannonvale and Inchydoney as well as treatment of sewage from Ring village.

The Preliminary Report prepared by RPS Ltd. was submitted for approval to the Department of Environment Heritage and Local Government in August 2006 and this is still awaited.

The following extracts from Part 1 Introduction and Summary of the Preliminary Report outline the improvements proposed under the Water Services Investment Programme 2007-2009 scheme:

The main recommendations are as follows:-

1. Provide additional aeration and settling capacity.
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5. Upgrade sludge treatment and storage.
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Overall Estimate Total: € 4,978,200.00

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Stage 1 – Emergency Scheme to address most immediate problems at Plant

Stage 2 – Balance of works to complete improvements to Plant

Stage 3 – Connection of Ring village to Clonakilty Sewerage Scheme

It is now envisaged that Stages 1&2 will be carried out together followed by the connection of Ring village to the scheme.

Likely Timeframe

It is hoped to get approval of Preliminary Report shortly from the DOEHLG and following that the likely timeframe to construction would be as follows:

1. **Preparation of Brief for the Appointment of Consulting Engineer for Scheme to go forward as Design, Build, Operate (DBO) Scheme by January 2008**
2. **Approval of Brief by DOEHLG - July 2008**
3. **Appoint Consultant – January 2009**
4. **Design period + Receipt of Tenders – December 2009**
5. **Start construction – January 2010**
6. **Completion of Works – January 2011**

ATTACHMENT No G.3

IMPACT MITIGATION

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

Attachment G3 – Impact Mitigation

Programme of Improvements

The Water Services Investment Programme 2007-2009 for Cork County includes Clonakilty Sewerage Scheme (Plant Capacity Increase) as a scheme to start in 2009 at an estimated cost of €3,677,000. (See copy of Water Services Investment Programme 2007-2009 for Cork County attached)

This improvement will allow for an increase in the design load from 5,333 pe to 20,500 pe in treatment capacity at the Plant. This will cater for future increases in development of existing catchment in Clonakilty, Shannonvale and Inchydoney as well as treatment of sewage from Ring village.

The Preliminary Report prepared by RPS Ltd. was submitted for approval to the Department of Environment Heritage and Local Government in August 2006 and this is still awaited.

The following extracts from Part 1 Introduction and Summary of the Preliminary Report outline the improvements proposed under the Water Services Investment Programme 2007-2009 scheme:

The main recommendations are as follows:-

1. Provide additional aeration and settling capacity.
2. Refurbish existing mechanical plant.
3. Upgrade the inlet works.
4. Upgrade the Long Quay Pumping Station and construct storm holding tank.
5. Upgrade sludge treatment and storage.
6. Provide odour control and odour removal, both at the sludge treatment plant and on the raw sewage from Inchydoney.
7. Construct pumping station in Ring Village and 2.5 km of rising main to pump sewage to gravity main flowing to Clonakilty STP.

Summary of Costs:

Stage 1 (Emergency Scheme):	€ 1,737,323.24
Stage 2:	€ 2,437,840.75
Ring Village sewage facilities:	€ 542,991.09
Sub-Total:	€ 4,718,155.08
Resident Engineer	€ 260,000.00

Total:	€ 4,978,155.08
Overall Estimate Total:	€ 4,978,200.00

As can be seen from the above summary of costs it was proposed to carry out the scheme in three stages as follows:

Stage 1 – Emergency Scheme to address most immediate problems at Plant

Stage 2 – Balance of works to complete improvements to Plant

Stage 3 – Connection of Ring village to Clonakilty Sewerage Scheme

It is now envisaged that Stages 1&2 will be carried out together followed by the connection of Ring village to the scheme.

Likely Timeframe

It is hoped to get approval of Preliminary Report shortly from the DOEHLG and following that the likely timeframe to construction would be as follows:

1. **Preparation of Brief for the Appointment of Consulting Engineer for Scheme to go forward as Design, Build, Operate (DBO) Scheme by January 2008**
2. **Approval of Brief by DOEHLG - July 2008**
3. **Appoint Consultant – January 2009**
4. **Design period + Receipt of Tenders – December 2009**
5. **Start construction – January 2010**
6. **Completion of Works – January 2011**

ATTACHMENT No G.4
STORM OVERFLOWS

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

Attachment G.4 – Storm Overflows

Programme of Improvements

The Water Services Investment Programme 2007-2009 for Cork County includes Clonakilty Sewerage Scheme (Plant Capacity Increase) as a scheme to start in 2009 at an estimated cost of €3,677,000. (See copy of Water Services Investment Programme 2007-2009 for Cork County attached)

This improvement will allow for an increase in the design load from 5,333 pe to 20,500 pe in treatment capacity at the Plant. This will cater for future increases in development of existing catchment in Clonakilty, Shannonvale and Inchydoney as well as treatment of sewage from Ring village.

The Preliminary Report prepared by RPS Ltd. was submitted for approval to the Department of Environment Heritage and Local Government in August 2006 and this is still awaited.

Likely Timeframe

It is hoped to get approval of Preliminary Report shortly from the DOEHLG and following that the likely timeframe to construction would be as follows:

1. **Preparation of Brief** for the Appointment of Consulting Engineer for Scheme to go forward as Design, Build, Operate (DBO) Scheme by **January 2008**
2. **Approval of Brief** by DOEHLG - **July 2008**
3. **Appoint Consultant** – **January 2009**
4. **Design period + Receipt of Tenders** – **December 2009**
5. **Start construction** – **January 2010**
6. **Completion of Works** – **January 2011**

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 : Declan Groarke Date : 11/12/07
(on behalf of the organisation)

Print signature name: DECLAN GROARKE

Position in organisation: SENIOR EXECUTIVE ENGINEER

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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

NOT APPLICABLE

Signed by : _____
(on behalf of the organisation)

Date : _____

Print signature name: _____

Position in organisation: _____

Co-Applicants

Signed by : _____
(on behalf of the organisation)

Date : _____

Print signature name: _____

Position in organisation: _____

Signed by : _____
(on behalf of the organisation)

Date : _____

Print signature name: _____

Position in organisation: _____

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

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Clonakilty :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 contain(s) the information requested in the appropriate sub-article.

Regulation 16(1) In the case of an application for a waste water discharge licence, the application shall -		Attachment Number	Checked by Applicant ✓
(a)	give the name, address, telefax number (if any) and telephone number of the applicant (and, if different, of the operator of any treatment plant concerned) and the address to which correspondence relating to the application should be sent and, if the operator is a body corporate, the address of its registered office or principal office,	B1	✓
(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,	B7	✓
(c)	give the location or postal address (including where appropriate, the name of the townland or townlands) and the National Grid reference of the location of the waste water treatment plant and/or the waste water discharge point or points to which the application relates,	B2	✓
(d)	state the population equivalent of the agglomeration to which the application relates,	B9	✓
(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	✓
(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.	D2	✓

Regulation 16(1) continued.../		Attachment Number	Checked by Applicant ✓
(g)	identify monitoring and sampling points and indicate proposed arrangements for the monitoring of discharges and, if Regulation 17 does not apply, provide details of the likely environmental consequences of any such discharges,	E3	✓
(h)	in the case of an existing waste water treatment plant, specify the sampling data pertaining to the discharge based on the samples taken in the 12 months preceding the making of the application,	E4	✓
(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	✓
(j)	give particulars of the nearest downstream drinking water abstraction point or points to the discharge point or points,	Not applicable	✓
(k)	give details, and an assessment of the effects, of any existing or proposed emissions on the environment, including any environmental medium other than those into which the emissions are, or are to be made, and of proposed measures to prevent or eliminate or, where that is not practicable, to limit any pollution caused in such discharges,	F1	✓
(l)	give detail of compliance with relevant monitoring requirements and treatment standards contained in any applicable Council Directives of Regulations,	G	✓
(m)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.	G3	✓
(n)	Any other information as may be stipulated by the Agency.	x	x

Regulation 16(3) Without prejudice to Regulation 16 (1) and (2), an application for a licence shall be accompanied by -	Attachment Number	Checked by the applicant ✓
(a) a copy of the notice of intention to make an application given pursuant to Regulation 9,	B8	✓
(b) where appropriate, a copy of the notice given to a relevant water services authority under Regulation 13,	B7(iii)	✓
(c) Such other particulars, drawings, maps, reports and supporting documentation as are necessary to identify and describe, as appropriate -		
(i) the point or points, including storm water overflows, from which a discharge or discharges take place or are to take place, and	B5	✓
(ii) the point or points at which monitoring and sampling are undertaken or are to be undertaken,	E3	✓
(d) such fee as is appropriate having regard to the provisions of Regulations 38 and 39.	B9(ii)	✓
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.		✓
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.		✓
Signed original.		✓
2 hardcopies of application provided or 2 CD versions of application (PDF files) provided.		✓
1 CD of geo-referenced digital files provided.		✓
Regulation 17 Where a treatment plant associated with the relevant waste water works is or has been subject to the European Communities (Environmental Impact Assessment) Regulations 1989 to 2001, in addition to compliance with the requirements of Regulation 16, an application in respect of the relevant discharge shall be accompanied by a copy of an environmental impact statement and approval in accordance with the Act of 2000 in respect of the said development and may be submitted in an electronic or other format specified by the Agency		✓
EIA provided if applicable		✓
2 hardcopies of EIS provided if applicable.		✓
2 CD versions of EIS, as PDF files, provided.		✓