

D0051-01 Clonakilty and Environs Wastewater Discharge Licence Application

Regulation 18(3)(b) – Notice sent 16/05/13

Cork County Councils response to Regulation 18(3)(b) notice includes the following:

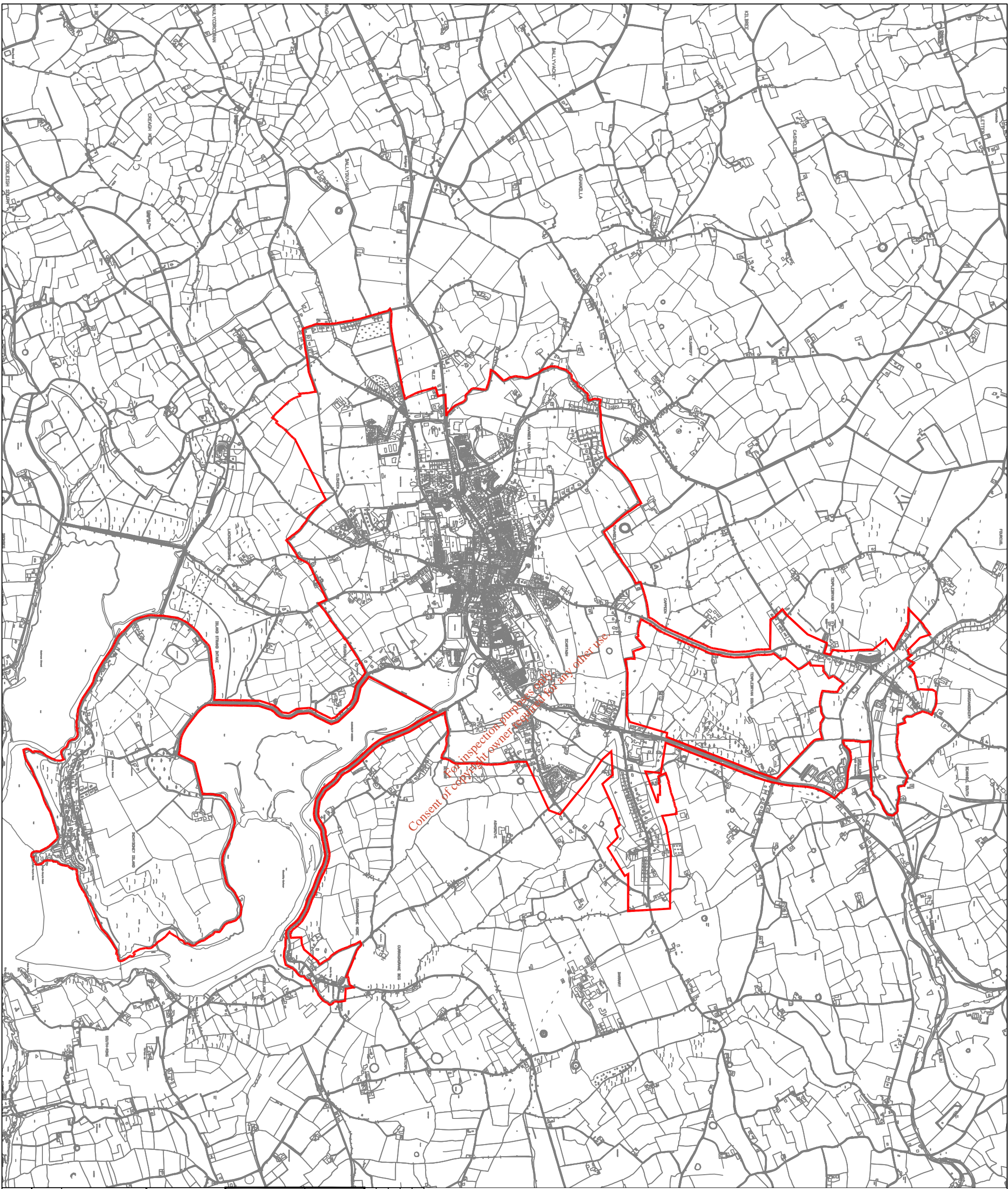
Revised Drawings - **CLON 01 Rev A – Agglomeration Boundary**
Agglomeration boundary revised to include all areas serviced by the sewer network and wastewater treatment plant

CLON 02 Rev A – Pumping Stations Locations (sheet 1 of 2)

CLON 03 Rev A – Pumping Stations Locations (sheet 2 of 2)

Revised Non-Technical Summary – Change in drawing numbers reflected in non-technical summary

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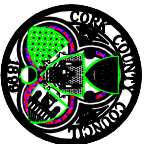
LEGEND

— AGGLOMERATION BOUNDARY

No.	Date	Rev	Rev Desc	Revision Description
1	May 13 2008			Agglomeration Boundary Revised

**Cork County Council,
Western Division.**

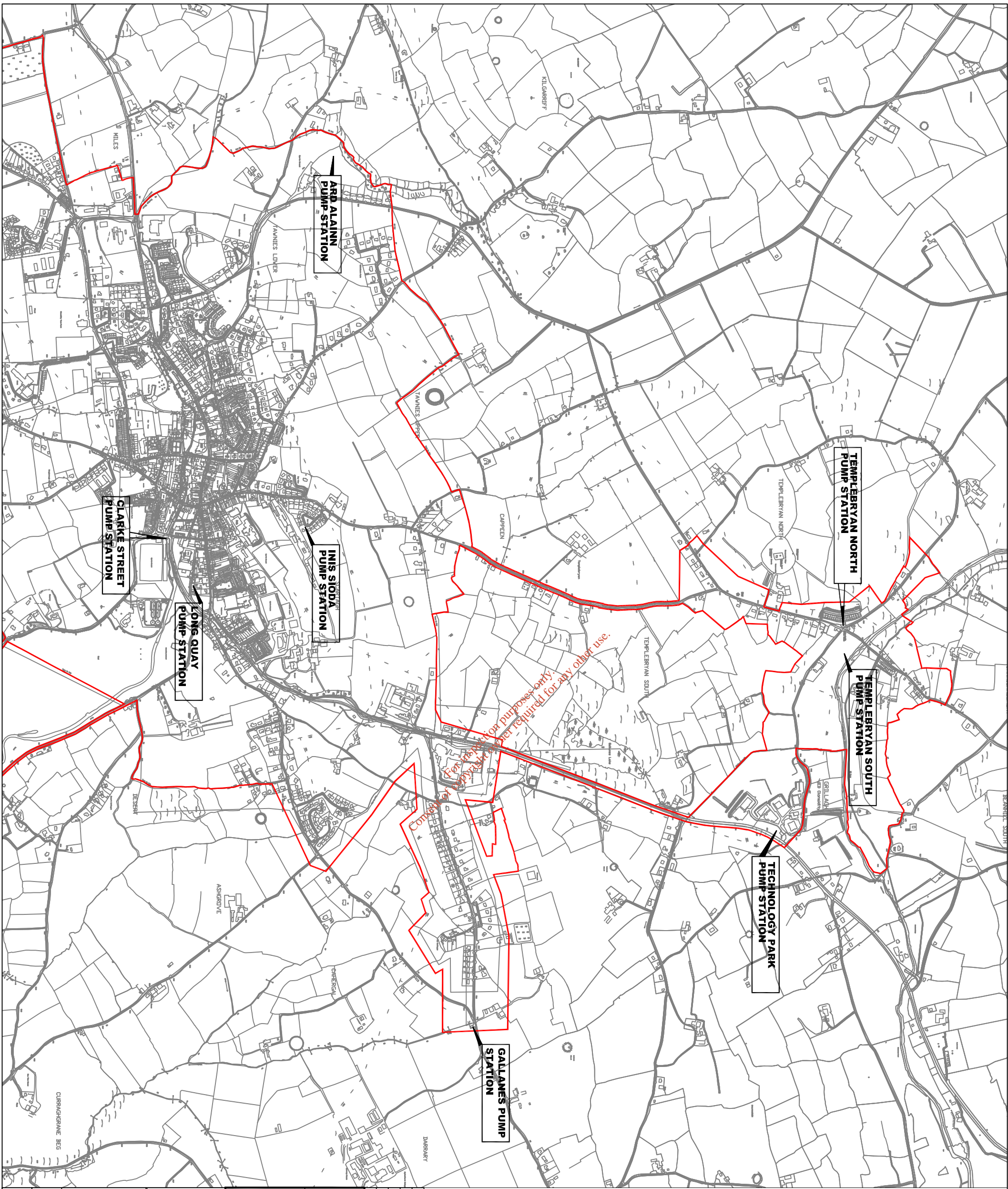
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DIRECTOR OF SERVICES
WEST CORK



Job Title:
**CLONAKILTY_WWTP
LICENCE_APPLICATION_TO_EPA**

Drawing Title:
**ATTACHMENT_B1
AGGLOMERATION_BOUNDARY
SERVED_BY_WASTE_WATER
TREATMENT_PLANT**

Prepared By: J. CREAGH	Checked By: D. GROARKE	Date: DEC. 2007
Drawing number: CLON_01	Scale: 1:25000	Rev: A



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LEGEND

— AGGLOMERATION BOUNDARY

No.	Date	Rev	Rev Desc	Rev By
1	May 13 2008		Agglomeration boundary revised and PS locations included	CHAD

Cork County Council,
Western Division.



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Job Title:
CLONAKILTY_WWTP
LICENCE_APPLICATION_TO_EPA

Drawing Title:
ATTACHMENT_B.1 SHEET_1_OF_2
PUMPING STATIONS WITHIN
AGGLOMERATION_BOUNDARY

Prepared By: J. CREAGH	Checked By: D. GROARKE	Date: DEC. 2007
Drawing number: CLON_02	Scale: 1:15000	Rev: A

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LEGEND
 AGGLOMERATION BOUNDARY

No.	Date	Rev	Surv	Drawn	Revision Description
1	May 13 2008				Agglomeration boundary revised and PG locations included

Cork County Council,
 Western Division.

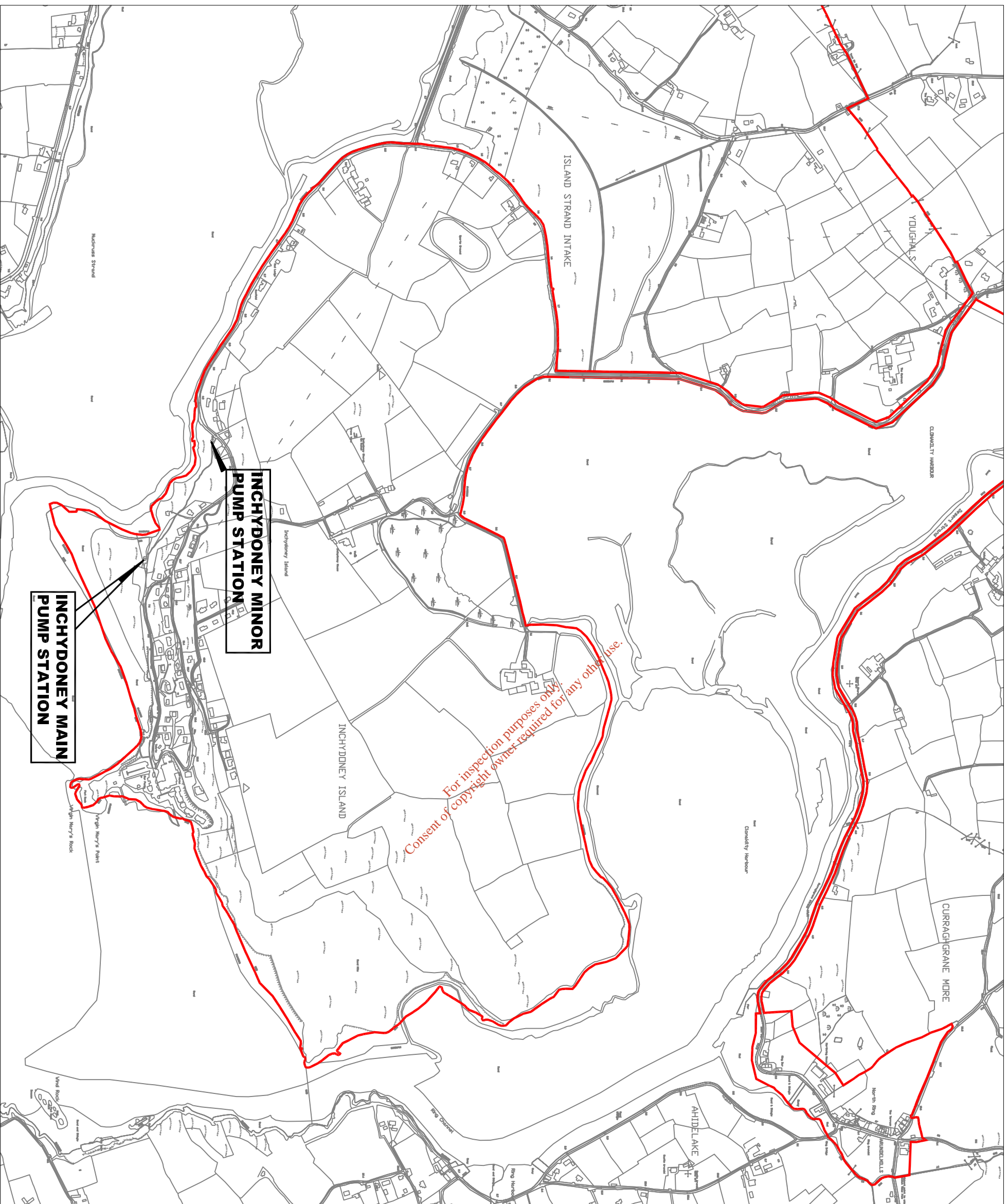


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 WEST CORK

Job Title:
 CLONAKILTY_WWTP
 LICENCE_APPLICATION_TO_EPA

Drawing Title:
 ATTACHMENT_B.1_SHEET_2_OF_2
 PUMPING_STATIONS_WITHIN
 AGGLOMERATION_BOUNDARY

Prepared By: J. CREAGH	Checked By: D. GROARKE	Date: DEC. 2007
Drawing number: CLON_03	Scale: 1:10000	Rev: A



SECTION A

NON-TECHNICAL SUMMARY

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APPLICATION FOR A WASTEWATER DISCHARGE LICENCE

CLONAKILTY SEWERAGE SCHEME

Non-Technical Summary

A Description of the Wastewater Works and the Activities Carried out therein

The Collection System

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 Templebryan North. 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 02 Rev A and CLON 03 Rev A. of Attachment No. B1 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 5 DWF. In order to cater for storm water at Long Quay in excess of 4 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 North housing estate, 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 it 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 in Clonakilty is located on the sea front, east of the GAA pitch and adjacent to the Model Railway Village. The site is approximately 2.2 ha in area on reclaimed land and is relatively flat, lying at approximately 5.5 m OD. The influent from the town and environs is pumped into the inlet works from two pumping stations located at Clarke Street Bridge and Long Quay. A separate 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 purpose of the plant is to remove solids and pollutant matter from sewage entering the works thus rendering the treated effluent suitable for discharge to a watercourse. Grit and others materials are removed at the inlet works and the extended aeration process removing the main pollutant matter prior to discharge to harbour.

The existing treatment works consists of:-

- (a) Grit Removal: A grit trap is currently in operation at the plant 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.
- (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. The largest model, 991, was installed in Clonakilty and has a maximum capacity of 100 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.
- (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 which is then transmitted to control house. These channels were designed for a flow capacity of 51 l/s. The divided flows are piped from here to the oxidation ditches
- (f) Extended Aeration – Extended aeration is by means of 2 no. racetrack type oxidation ditches with 4 no. rotors located midway along length of each ditch as a means of aeration. The design p.e. for these ditches was 2,666/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 cater for the increased loading. Dissolved oxygen probes measure the oxygen levels within the oxidation ditches. The flow from the oxidation ditches is piped to the settling tanks.

- (g) Settling Tanks – 2 no. circular hopper-bottomed settling tanks are currently in operation as a means of secondary sedimentation. Sludge settles to the bottom of these tanks and is returned to the lifting wheel chambers. The supernatant liquid from the settling tanks is piped to the outlet channel.
- (h) 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.
- (i) 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.
- (j) Excess Sludge Pumps – 2 no. submersible pumps, one duty and one standby pump the excess sludge produced from the extended aeration process on to the picket fence thickener. The pumps operate automatically and pump the sludge to the picket fence thickener tank.
- (k) Picket Fence Thickener – A picket fence thickener is located adjacent to the control house. The supernatant effluent is returned to the head of the oxidation ditch, and the thickened sludge which settles to the bottom of the tank is piped to pumps pumping it to the sludge filter belt press.
- (l) The Filter Belt Press – Located in the control house, the filter belt press reduces the moisture content of the sludge to approximately 12 - 14% dry solids with the aid of polyelectrolyte which is mixed with the sludge prior to the press. A screw conveyor then conveys the sludge to a tanker for recovery to agriculture.
- (m) Control House – This consists of the control room, laboratory, 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 Inchidoney scheme operations.

The Clonakilty Sewerage Scheme is currently operated by a Cork County Council employed caretaker who carries out his duties generally during normal working hours Monday to Friday while checking the plant as required outside of these hours.

An upgrade of the wastewater treatment plant approved under the Water Services Investment Programme is to be carried out in the near future in order to cater for a total loading of 20,500 pe. For further details concerning these proposals see Section B10 of the application - Capital Investment Programme.

The Sources of Emissions from the Wastewater Works

The pollution load from the Clonakilty agglomeration arises from the following areas:

- The local population
- Shannonvale Chickens
- Clona Milk Dairies
- Irish Yoghurts
- Hotels, schools, hospital, abbatoir, technology park etc.

Shannonvale Chickens has its own treatment plant discharging treated effluent to public sewer.

Development in Clonakilty generally has increased substantially in recent years with high seasonal variation in the population reaching its peak in summertime with influx of tourists and holidaymakers. Latest recorded peak pe at the plant is for 15,000.

The treatment plant was designed to be built in two stages with room allowed on the site for a third oxidation ditch to be added on expansion of the plant to cater for 20,500 pe. This increased load will include effluent from Shannonvale and Ring villages.

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

It must be noted that Clonakilty Harbour is classified as a National Heritage Area, Special Area of Conservation and a Special Protection Area.

Emissions from the plant are to comply with the Urban Wastewater Treatment Directive whose limits are :

BOD – 25 mg/l ; SS – 35 mg/l ; Phosphorus – 2 mg/l ; Nitrogen – 15 mg/l

Peak hydraulic load proposed through the plant after upgrade = 3 DWF = 111 l/s or 9590 m³/d
Flows in excess of this will be required to be overflowed at pump stations to storm tanks or for discharge to harbour.

One of the main concerns regarding the effects of the emissions on the environment is the classification of Inchydoney as a Blue Flag beach. The fact that it has maintained its status as such for the last number of years is an indication of the quality of water in the area and the compliance with coliform requirements.

The Environmental Impact Statement accompanying this application was carried out in conjunction with the proposed upgrade of the Wastewater Treatment Plant. This found that the optimum location for the outfall from the plant is its present one as the distance to Inchydoney beach meant the greatest reduction in bacterial contamination occurred.

The EIS also recommends that 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 for retrofitting of disinfection equipment so that coliform levels in the treated effluent be reduced if necessary.

Modelling carried out as part of the EIS 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 unacceptably high concentrations of nitrogen and phosphates in the receiving water.

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. Allowance should be made in the design of the WWTP for the further reduction in nitrogen and phosphates in the effluent if required.

In relation to odour and noise emissions the EIS states

1. Odour emissions are not predicted to be perceived at any sensitive receptor beyond the site boundary.
2. During the operational phase it has been concluded that the facility will not result in an adverse impact at the nearest sensitive receptors arising from on-site plant noise.

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

Technologies

It is proposed to include SCADA technology in the upgrade of the plant to ensure proper monitoring and alarming of all equipment associated with running of the plant and pumphouses overflows etc. This will lead to rapid response to any problems or emergencies that may arise in the course of operation of the scheme.

Techniques

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.

The EIS recommends facilities be provided in upgrading of WWTP to allow for retrofitting of disinfection as well as nitrogen and phosphorus removal if such becomes necessary at a later date.

It is proposed to provide odour control and removal at both the inlet works and the sludge treatment plant to ensure no detrimental effect to adjacent development.

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

An upgrade of the wastewater treatment plant approved under the Water Services Investment Programme is to be carried out in the near future in order to cater for a total loading of 20,500 pe. For further details concerning these proposals see Section B Capital Investment Programme of the application.

This will lead to improvement in the quality of effluent from the wastewater treatment plant with consequent beneficial effects on the environment.

Included in the improvements is a storm tank serving Long Quay pump station which will retain storm overflow of 30 minutes duration thus leading to reduction of possible pollution particularly that caused by "first flush".

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Measures planned to monitor emissions into the environment

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