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CASTLEMARTYR WASTE WATER AGGLOMERATION
WW DISCHARGE LICENCE REVIEW APPLICATION

ATTACHMENT A.1 – Non-Technical Summary

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INTRODUCTION

This document forms the 'Non-Technical Summary' referred to in Table 1 of the Application Form.

The Non-Technical Summary will address aspects of the proposed works under the following headings:

- The population equivalent to which this application relates;
- A description of the waste water discharges from the waste water works serving the agglomeration;
- A description of the wastewater works and associated waste water treatment plant (WWTP);
- A description of the features and measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset the significant adverse effects on the environment;
- The proposed technology and other techniques for preventing or, where this is not possible, reducing discharges from the wastewater works;
- A description of the receiving waterbody;
- A description of the likely significant effects of the discharges on the environment;
- Measures planned to monitor discharges into the environment;
- The hours during which the wastewater works is supervised or manned and days per week of this supervision;
- In the event of a review application, state the grounds for which this review application is being made.

1.0 THE POPULATION EQUIVALENT TO WHICH THIS APPLICATION RELATES

Castlemartyr WWTP is located adjacent to the grounds of the Capella Castlemartyr Resort & Hotel, approximately 500 metres south of the village of Castlemartyr, Co. Cork. Wastewater in the village is collected in a partially combined drainage and sewerage network which discharge to a pumping station on the main road (i.e. Castlemartyr Bridge PS), prior to being pumped to a header manhole near the WWTP. Foul sewerage from the Capella development, situated next to the WWTP is collected in a private system and pumped from a private pumping station into the inlet sewer at a manhole near the WWTP boundary.

The existing WWTP consists of a combined effluent and storm water discharge arrangement, The existing WWTP includes an inlet works, stormwater overflow (SW002), Flow to Full Treatment (FFT) pumping station (PS), secondary treatment (aeration and settlement), picket fence thickener and final effluent outfall.

Use Éireann have purchased additional adjacent lands to the west and south of the current WWTP site for its expansion. The new plant has a design PE of 3,400, and upon completion of the upgrade, the treated effluent will meet the proposed emission limit values (ELVs - (6.63mg/L BOD, 125mg/L COD, 35mg/L SS, 0.68mg/L Total Ammonia and 0.22mg/L Ortho-P).

The wastewater load for the Castlemartyr agglomeration arises from the following areas:

- Domestic users;
- Commercial premises;
- Tourism;

The wastewater load from these sources varies greatly with daily, weekly and seasonal producers of wastewater. The wastewater from all sources is collected within the public sewer, which conveys the wastewater to a terminal pump station on Main Street (Castlemartyr Bridge PS), where the waste water is pumped to the WWTP. The exception is the Capella Castlemartyr Resort & Hotel, adjacent to the WWTP, which pumps wastewater from their privately owned/operated Pumping Station into the inlet sewer just outside the WWTP.

The domestic population of Castlemartyr has grown rapidly over the last three censuses. The most recent census figures show that the population of Castlemartyr in 2016 was 1,600 (Census, 2016). The estimated current agglomeration loading was projected forward to 2028 (10-year design horizon – 3,138 summer loading) and 2043 (25 years design horizon – 3,400 summer loading).

2.0 A DESCRIPTION OF THE WASTE WATER DISCHARGES FROM THE WASTE WATER WORKS SERVING THE AGGLOMERATION

A summary of the wastewater discharges associated with the Castlemartyr agglomeration is presented in Table 1.

| Unique Point Code | Discharge Location | Discharge Type | Current / Proposed |
|-------------------|--------------------|----------------|--------------------|
| SW001 | 196235E, 072891N | Primary | Existing |
| SW002 | 196235E, 072891N | SWO/EO | Existing |
| SW003 | 196379E, 073199N | SWO/EO | Existing |
| SW004 | 196235E, 072891N | SWO | Proposed |

Table 1: Summary of Discharges from the Agglomeration

The project is to upgrade the Castlemartyr WWTP to handle future predicted flows. Proposed WWTP design requirements are presented in Table 2:

| Design Parameter | Proposed Design Value |
|---|---|
| Design Population | 3400 PE |
| BOD Loading to WwTP | 204 kg/day |
| Dry Weather Flow to WwTP | 765 m ³ /day |
| Full Flow to Treatment based on 225L/head/day (Peak Flow to WwTP) | 2,295 m ³ /day (This figure includes an allowance for infiltration of 50L/head/day) |
| Maximum Flow to Preliminary Treatment (Formula A) | 62 L/s |

Table 2: Proposed WWTP Design Requirements

Following upgrade works, the Final Treated Effluent (SW001) and the Storm Water Overflows (SW002 from SWO Chamber & SW004 from Storm Water Holding Tank) will be discharged to the Kiltha River, via a common outfall (196235E, 72891N). There will be no change in the outfall location (i.e. this is the location of the existing discharges from the WWTP – SW001 & SW002).

The Castlemartyr Bridge Pumping Station on the main road also has an existing SWO (SW003) that discharges to the Kiltha River.

3.0 A DESCRIPTION OF THE WASTEWATER WORKS AND ASSOCIATED WASTE WATER TREATMENT PLANT

Castlemartyr is located in East Cork. Castlemartyr WWTP is located adjacent to the grounds of the Capella Castlemartyr Resort & Hotel, approximately 500 metres south of the village of Castlemartyr.

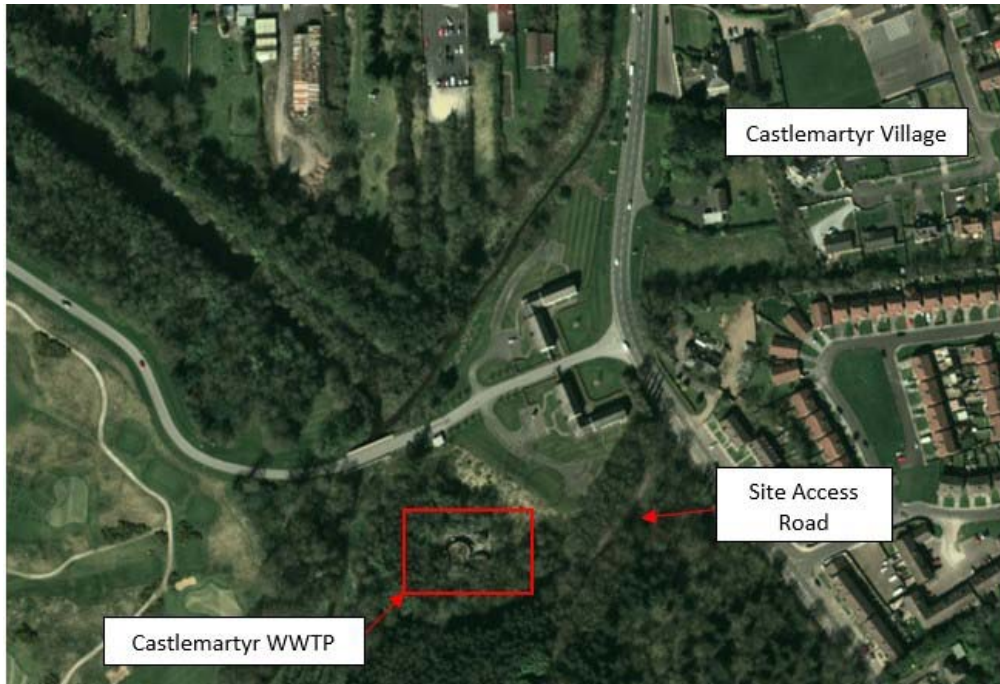


Figure 1 – Location of WWTP

The wastewater in Castlemartyr is collected in a partially combined drainage network and moved through the sewerage network to a terminal pumping station on Main Road (Castlemartyr Bridge PS). Two submersible pumps in a duty / assist configuration are housed in the pump station to pump the wastewater forward to the WWTP, at a rate between 5m³/h and 120m³/hr (8DWF).

The existing WWTP was designed to treat flows generated from 2000PE to achieve treated effluent discharge standards of 25 mg/l cBOD, 35 mg/l SS and 125 mg/l COD. Treated effluent (SW001) and Storm Water Overflow discharge SW002 gravitate from the WWTP to River Kiltha, which runs approximately 100m to the West of the site via a common outfall.

Existing Works

The existing WWTP consists of inlet works, an inlet pump station housing two pumps (one duty, the other standby), aeration tanks with fine-bubble aeration, a clarifier with half bridge scraper, a RAS/SAS pump, outlet chamber, sludge thickening tank with picket fence thickener (including a submersible pump for dewatering) and associated buildings including a control kiosk and mess room / storage building. Existing WWTP Site Layout can be found in Appendix B, Attachment B2.4.

The Specified Improvement Programme (SIP) in the current WWDL D0134-01 notes that upgrades will be required to ensure that licence ELV's are met.

Uisce Éireann have purchased additional adjacent lands to the west and south of the current WWTP site for its expansion. Upgrading of the existing WWTP to a 3400PE will allow for current and future loads to be met.

The work will also incorporate process improvements, to reduce contaminant concentration present in the effluent discharged from the WWTP, allowing compliance with proposed ELVs (6.63mg/L BOD, 125mg/L COD, 35mg/L SS, 0.68mg/L Total Ammonia and 0.22mg/L Ortho-P), which will allow the receiving watercourse to comply with WFD 'Good' Status. The proposed WWTP layout can be seen in Appendix B, Attachment B2.5.

The newly upgraded WWTP will consist of:

- New storm water overflow chamber;
- Inlet works complete with combined screens and grit plant;
- FFT / storm overflow pumping station;
- Storm Water Holding Tank;
- Biological Process Units (including a selector tank, anoxic tanks, aeration tanks, final settlement tanks (clarifiers));
- 2-point ferric sulphate dosing for orthophosphate precipitation;
- Tertiary Treatment for Phosphorus Removal (comprising chemical dosing and filtration including 1 no. disc filter);
- Sludge Pumping Station;
- Conversion of the existing settlement tank into a Picket Fence Thickener;
- Return Liquors Pumping Station;
- Wash Water Pumping Station;
- Supplementary Alkalinity Provision, using sodium hydroxide dosing plant;
- Odour Control Plant;
- Control Building;
- ESB Sub-Station and Standby Generator.

4.0 A DESCRIPTION OF THE FEATURES & MEASURES ENVISAGED TO AVOID, PREVENT OR REDUCE, AND IF POSSIBLE, OFFSET THE SIGNIFICANT ADVERSE EFFECTS ON THE ENVIRONMENT

These measures apply at the WWTP and to the network & pumping station.

Prevention of Pollution:

Any alteration / upgrading of the existing infrastructure undertaken shall not increase the potential to cause pollution in the environment. Any alterations to the WWTP will be designed to enable any operator of the facility to prevent pollution of the environment by the following potential contaminants:

- Surface water run-off;
- Spillages;
- Solid Waste

Toxic Substances:

Any modification or alterations to the WWTP will not increase the impact by any toxic substances. All chemicals and dangerous substances must be stored safely at all times and all appropriate safety measures must be taken to ensure against leakage and spillage in accordance with the relevant health and Safety Legislation.

5.0 THE PROPOSED TECHNOLOGY & OTHER TECHNIQUES FOR PREVENTING, OR WHERE THIS IS NOT POSSIBLE, REDUCING DISCHARGES FROM THE WASTE WATER WORKS

Technologies:

The Forward Feed Pump station at Castlemartyr WWTP will have two pumps, one duty, the other standby. The Castlemartyr Bridge Pumping Station also has two pumps, one duty, and the other assist. An electricity generator with automatic start-up will be located onsite to power the pumps in the event of a power failure. This enables wastewater and sludge treatment to continue, thereby reducing untreated emissions entering the receiving aqueous environment.

Techniques:

A Performance Management System (PMS) is in place at the Castlemartyr WWTP. This PMS was developed by the Water Services National Training Group (WSNTG). The PMS provides a uniform approach to dealing with all relevant performance management issues, including Independent Compliance Audits, Management of Change, Dispute Resolution, Public Relations, Emergency Procedures and Reporting Procedures. The WWTP is operated in accordance with the Performance Management System.

Further measures planned to comply with the general principle of the basic obligations of the operator ensure that no significant pollution is caused. These measures apply at the WWTP and to the network & pumping station.

6.0 A DESCRIPTION OF THE RECEIVING WATERBODY

The Kiltha River joins the Womanagh River 1.1km downstream from Castlemartyr WWTP. The receiving water is designated as fresh water. The Kiltha River drains the northwest area of the Womanagh catchment (approximately 30 km²) including the settlements of Mogeely and Castlemartyr. It flows through a narrow valley for approximately 17km before meeting the Womanagh main channel immediately upstream of Ladysbridge. Downstream of the Kiltha's confluence with the Womanagh River, the Dower and Dissour Rivers enter the Womanagh River, prior to discharge into Youghal Bay. The Womanagh River becomes tidal at Finisk Bridge, immediately downstream of the Womanagh-Dissour confluence and 8km upstream of the bay. The lower stretches of the Womanagh are meandering and characterised by a soft substrate due to silt deposition. The river becomes estuarine near the shoreline.

The applicant carries out monthly monitoring ambient monitoring upstream and downstream of the Primary Discharge Location. The monitoring results (2013 – 2018) indicate that the receiving water is not in compliance with the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended. Upstream and Downstream of the Primary Discharge Location (SW001), the Kiltha River has achieved Moderate WFD status (2013– 2018). The WFD objective & timeframe was to restore 'Good' ecological status by 2015, or by the latest 2027.

The river is not identified as an Area for Action in the Draft River Basin Management Plan (2022-2027). Areas for Action are areas where prioritised action will be carried out as part of the River Basin Management Plan for Ireland 2022 - 2027. The Plan sets out the actions that Ireland will take to improve water quality and achieve 'good' ecological status in water bodies (rivers, lakes, estuaries and coastal waters) by 2027.

- The river is stated as unassigned risk in terms of River Basin characterisation;
- The river is not a source of drinking water;
- The river is not designated as nutrient sensitive areas;
- The river is not part of a European site or candidate site (SAC, SPA) at the point of discharge.

The Womanagh discharges to Youghal Bay, where it is within the Ballymacoda SPA and Ballymacoda (Clonpriest and Pillmore) SAC (Site Code 000077). These sites are approximately 11.5km downstream of the Castlemartyr WWTP primary discharge.

7.0 A DESCRIPTION OF THE LIKELY SIGNIFICANT EFFECTS OF THE DISCHARGE ON THE ENVIRONMENT

Treated Effluent (SW001) and Storm Water Overflows (SW002, SW003 & SW004), are discharged to the Kiltha River. At design capacity, the WWTP will discharge 765 m³/d of treated effluent into the river at Primary Discharge Location SW001. The discharge from the WWTP may also include storm water or emergency overflow from the Storm Water Chamber (SW002), or storm water from the Storm Water Holding Tank (SW004). The Castlemartyr Bridge PS also has a Dual Storm Water Overflow / Emergency Overflow (SW003) that discharges to the Kiltha River.

Proposed ELVs, which have been set to ensure that the operational discharges from the Castlemartyr WW Agglomeration contribute towards achieving 'Good' status for the Kiltha River, in accordance with the European Union Environmental Objectives (Surface Waters) (Amendment) are summarised in Table 3 below.

| Parameter | Proposed ELV |
|------------------|--------------|
| BOD | 6.63mg/L |
| COD | 125mg/L |
| Suspended Solids | 35mg/L |
| Total Ammonia N | 0.68mg/L |
| Orthophosphate P | 0.22mg/L |

Table 3: Proposed ELV's for Final Treated Effluent

With continual growth in the area anticipated, the WWTP requires expansion to cater for future loadings. The current proposal is to increase capacity at the plant to 3,400 PE and to provide for storm water holding tank at the WWTP. This upgrade will reduce the frequency of overflows into the Kiltha River, thereby reducing negative impacts on the environment.

In accordance with the Sludge Management Plan for County Cork (March 2000), sludge produced at Castlemartyr WWTP will be transported to the Middleton sludge plant (unless otherwise directed by Uisce Éireann) for dewatering prior to being transported to Ballincollig WWTP for thermal drying, to produce a biosolid product, suitable for sustainable reuse.

8.0 MEASURES PLANNED TO MONITOR DISCHARGES INTO THE ENVIRONMENT

Using the PMS as a template, the current WWTP operator has developed procedures and processes for sampling and analysis of the incoming raw sewage and outgoing effluent, so that analytical results are reliable, repeatable, consistent and accurate.

Sampling procedures are in accordance with EU and Irish Regulation, and in particular in accordance with the Environmental Protection Agency's (EPA) monitoring and operating requirements. All laboratory analyses are performed in accordance with the latest edition of the Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association, and the Water Pollution Control Federation or other methods of comparable accuracy.

Regular independent laboratory analysis is also undertaken to externally monitor the WWTP operations performance. Samples are collected monthly at the same well-defined point for the Influent and Treated effluent from the WWTP, in order to monitor compliance with the existing WWDL requirements. A refrigerated sampler minimises degradation between collection and analysis.

The operator is responsible for developing and implementing procedures to remedy defects in his laboratory procedures where the independent checking shows variations of more than $\pm 10\%$.

Composite samples are collected weekly, and are then fixed, stored and handled as per standard methods. Analysis of the samples (both operators and employer's) are undertaken within 24 hours and reported to the employer's representative within 48 hours of the results being made available. Reports on the operation and maintenance of the plant are generated on a monthly basis

The monitoring and recording of the status of all parameters appropriate to proper control and operation of the plant is documented at all stages.

9.0 THE HOURS DURING WHICH THE WASTEWATER WORKS IS SUPERVISED OR MANNED AND DAYS PER WEEK OF THIS SUPERVISION

The normal operation of the proposed upgraded WWTP will be fully automated. Castlemartyr WWTP will have its own automation control centre where the WWTP operation will be monitored. Telemetry/Alarms will also be available remotely to the operator's personal device when not present at the WWTP. An operator will attend WWTP two to three times a week to carry out checks, operational duties and general maintenance works as required.

10.0 IN THE EVENT OF A REVIEW APPLICATION, STATE THE GROUNDS FOR WHICH THIS APPLICATION IS BEING MADE

The grounds for review of the existing Waste Water Discharge Licence (WWDL) (D0134-01) is that the upgraded WWTP will increase the Organic Loading on the WWTP from 2,000PE to 3,400PE. As a result, the Castlemartyr agglomeration will now move from the Waste Water Discharge Licence 1,001 – 2,000 PE category to become part of the 2,001 - 10,000 PE category.

The Specified Improvement Programme (SIP) in the current WWDL D0134-01 notes that upgrades will be required to ensure that Licence ELV's are met.

Uisce Éireann have purchased additional adjacent lands to the west and south of the current WWTP site for its expansion.

The upgrade works will include a new preliminary treatment plant (fine screens and grit removal), stormwater storage complete with storm return pumps, new extended aeration secondary treatment plant (including two anoxic tanks, two aeration tanks & two new clarifiers), and tertiary treatment for phosphorus removal (comprising chemical dosing and filtration including 1 no. disc filter) to allow compliance with proposed ELVs (6.63mg/L BOD, 125mg/L COD, 35mg/L SS, 0.68mg/L Total Ammonia and 0.22mg/L Ortho-P). A new sludge management system will consist of a picket fence thickener and sludge storage. There will also be a new Final Treated Effluent outfall to the Kiltha River (i.e. Primary Discharge Location SW001). The proposed storm water storage system will include a new storm water overflow to the Kiltha River from the WwTP – SW004.