# APPENDIX A.1. NON-TECHNICAL SUMMARY

## 1 INTRODUCTION

Boherbue wastewater treatment plant (WwTP) is located in County Cork and discharges treated effluent from a headwall to a surface water channel which flows for 21m before discharging into the River Brogeen, a tributary of the River Allow. The original plant commissioned in 1955 was designed to treat a PE of 800. Irish Water propose to upgrade the existing WwTP at Boherbue for an organic capacity of 1,350 PE, with primary discharge flow of 345m3/day.

As a result of the upgrade, Boherbue WW Agglomeration will move from the existing EPA Waste Water Discharge Licence (WWDL) 500 - 1,000PE Category to the 1,001 – 2,000PE category, thus an application for a Review of the existing licence (D0437-01) is required.


**Figure 1: Site Location Map**

The sewage system in the Boherbue agglomeration is a partially combined system.

The existing WWTP comprises preliminary treatment with screening, primary treatment using an Imhoff Tank, secondary treatment via trickling filters/humus tanks and tertiary treatment using an Integrated Constructed Wetlands (ICW), which was added in 1998.

The final treated effluent discharges to the River Brogeen (WFD Code: IE_SW_18_2121), via a Headwall and a 21m long surface water channel.

The proposed upgrade works comprise decommissioning the existing Imhoff Tank, trickling filters and humus tanks and substantial new build works. The newly upgraded WWTP will include new inlet works, new stormwater holding tank, new biological treatment process, new tertiary treatment (cloth filter) and sludge treatment process, including sludge drying reed beds. The newly upgraded WWTP will also include odour control plant and a new administration building.

The upgraded WWTP will have a design capacity of 1,350PE (to treat an estimated domestic load of 1,200PE and to accommodate a 150PE pre-treated trade effluent flow from the Ingredient Solutions Ltd cheese factory in the village, which discharges to the network.

The secondary treated effluent will no longer discharge to the ICW. To improve the quality and consistency of the treated effluent, it is proposed to add a cloth filter structure for tertiary treatment. The tertiary treated effluent will discharge at the existing concrete headwall/Primary Discharge Point (SW001) with grid reference 126750E, 101936N.

With the upgrade works, the new stormwater overflows from Pre Inlet Works (SW004) and Post Inlet Works/Storm Water Holding Tanks (SW005) will continue to discharge into the existing ICW. And from here discharge at the exiting headwall (SW004 and SW005).

Planning permission for the proposed upgrade works was granted by Cork County Council on 29 March 2022 (PL 21/07443).

The project commenced construction in Q4 2022 and the works are expected to be fully operational by March 2024.

## 2 DESCRIPTION OF THE WASTE WATER WORKS AND ASSOCIATED WASTE WATER TREATMENT PLANT

**Existing Works:**

There are 3 No pumping stations on the existing Boherbue waste water network, which pump to header manholes, from where the waste water gravitates to the WWTP. The proposed upgrade works are to the WwTP site only and therefore there will be no change to the existing network or pumping stations.

There is an Emergency Overflow on the Laharn East pump station. This is a 225mm dia pipe which runs in a northerly direction to the Brogeen River.

There are 2 No existing Stormwater Overflows (SWOs) associated with the Boherbue WwTP. These SWOs are located upstream (SW002) and downstream (SW003) of the inlet works, within the confines of the WwTP site.

The existing Primary Discharge Point (SW001) comprises a concrete headwall, located at the discharge from the ICW to a surface water channel, which flows for 21m before discharging into the Brogeen River.

The existing WWTP process units have insufficient capacity to treat the estimated current winter population equivalent load. The WWTP is failing to meet the ELVs specified in the current Wastewater Discharge License (D0437-01). The proposed upgrade to Boherbue WwTP will provide for increased treatment capacity and for improved treatment to meet newly proposed ELVs.

**Proposed Works:**

The upgraded Boherbue WWTP will have an organic capacity of 1,350PE. Wastewater will be tertiary treated, prior to discharge through the existing headwall/Primary Discharge Point SW001 to a surface water channel, which flows for 21m before discharging into the Brogeen River. Irish Water has determined that tertiary treatment is sufficient to protect the water environment and receiving waters. The proposed WwTP will include the following:

- New Inlet Works;
- New Stormwater Holding Tank;
- New Biological Treatment Process;
- New Tertiary Treatment, including Phosphorous Removal;
- Sludge Treatment Process, including Sludge Drying Reed Beds;
- Decommissioning the existing Imhoff tank, trickling filters and humus tanks.

The new plant will also include odour control plant, a control building, ESB Substation and standby generator.

The proposed Boherbue WwTP upgrade has been designed to meet ELVs as outlined in Table 1 below.

| Parameters | Existing Emission Limit Values | Proposed Emission Limit Values |
|---|---|---|
| pH | 6-9 | 6-9 |
| Biochemical Oxygen Demand | 15 mg/l | 12.5mg/l |
| Chemical Oxygen Demand | 125 mg/l | 125 mg/l |
| Total Suspended Solids | 25 mg/l | 25 mg/l |
| Orthophosphate | 0.3 mg/l | 0.25 mg/l |
| Ammonia | 0.5 mg/l | 0.5 mg/l |

**Table 1: Proposed ELVs**

## 3 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

Irish Water is committed to ensuring that water services infrastructure operates in a manner that supports the achievement of the water body objectives under the Water Framework Directive as well as obligations under the Birds and Habitats Directives.

The new WwTP has been designed to cater for an organic load of 1,350PE. Tertiary treatment will be provided to ensure that the treated effluent discharge does not have a significant adverse effect on the receiving aquatic environment and that all relevant legislative requirements are complied with.

The proposed ELVs as listed above are based on Wastewater Assimilative Capacity (WAC) analysis and the 'High' EQS status criteria associated with the Fresh Water Pearl Mussel designation on the catchment at this location.

There are no Storm Water Overflows (SWO) outside the WwTP site. The 2 No existing SWOs (SW002 and SW003) are contained within the WwTP site boundary. The existing SWOs will be made redundant with the proposed works. They will be replaced by two new SWOs. SW004 will emanate from an overflow chamber upstream of the new Inlet Works structure and SW005 will emanate from the new Storm Water Holding Tank.

The existing Emergency Overflow at Laharn East pump station is located approximately 900m to the east of the WwTP site. This comprises a 225mm dia pipe which runs in a northerly direction to the Brogeen River. The likelihood of an emergency event is low, and there is provision for the connection of a mobile power generator facility in the event of a power failure.

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

The WWTP upgrade is designed to meet both the discharge quality standards set out in Urban Waste Water Treatment Regulations (UWWTR) and to ELVs proposed above which will not prevent the Brogeen River achieving the 'High' ecological status requirement associated with a Freshwater Pearl Mussel designation in this river basin catchment (Munster Blackwater).

The WWTP will be operated to ensure the primary discharge of treated effluent does not cause a significant adverse effect on the receiving environment i.e. the Brogeen River.

## 5 DESCRIPTION OF THE RECEIVING WATERBODY

The primary discharge from the new Boherbue WwTP will be via the existing headwall (SW001) into a surface water channel, which flows for 21m before discharging into the Brogeen River WFD Code IE_SW_18_2121, which is a relatively small stream feeding the River Allow and in turn the River Blackwater. The latest river Q values as recorded by the EPA (2103 – 2018) indicate the Brogeen is 'Good' status with a Q value score of 4. It is 'Not at Risk' of achieving WFD objectives.

The Brogeen River is located within the Blackwater River (Cork/Waterford) SAC. The Boherbue WwTP is located within the Brogeen_SC_010 WFD SubCatchment. It is also located within the Munster Blackwater – Allow Margaritifera Sensitive Area.

The Brogeen River and River Allow catchment is one of 27 No catchments designated as an SAC for Freshwater Pearl Mussel (FWPM). Because the Boherbue WwTP discharge is into a designated a FWPM habitat, 'High Status' rather than 'Good' status is the relevant objective of the Water Framework Directive.

However, as 'High' status is not currently being achieved upstream of the existing Boherbue WwTP discharge point, 'High' status cannot be achieved downstream of the discharge point.

## 6 DESCRIPTION OF THE LIKELY SIGNIFICANT EFFECTS OF THE DISCHARGES ON THE ENVIRONMENT

The overriding objective of the proposed upgrade at Boherbue WwTP is to provide Wastewater Treatment facilities that will comply with all relevant legislative requirements. The inclusion of tertiary treatment along with the proposed improvement in treated effluent standards will ensure that the operational discharges from Boherbue contribute towards achieving "High" status of Brogeen River and will ensure that there is no environmental risk posed to the receiving water environment (ie Blackwater Munster SAC) as a result of the discharge.

## 7 MEASURES PLANNED TO MONITOR DISCHARGES INTO THE ENVIRONMENT:

It is proposed that Final Tertiary Treated Effluent from Boherbue WwTP will be sampled and analysed (using the standard method of analysis) as follows:

| Parameter | Units | Monitoring Frequency | Analysis Method/Technique |
|---|---|---|---|
| **pH** | pH Unit | Quarterly | pH Meter and recorder |
| **DO** | %O2 | Quarterly | Electrode |
| **cBOD** | mg/l | Quarterly | Electrode |
| **COD** | mg/l | Quarterly | Colorimetric |
| **TSS** | mg/l | Quarterly | Colorimetric |
| **Temp** | deg C | Quarterly | Standard Method |
| **Orthophosphate (P)** | mg/l | Quarterly | Colorimetric |
| **Total Ammonia** | mg/l | Quarterly | Colorimetric |
| **Visual Inspection** | Descriptive | Weekly | Standard Method |

### 7.1 Ambient Monitoring:

| Station code | Station name | Distance from Primary Discharge | Grid reference |
|---|---|---|---|
| **RS18B060100** | aSW1U<br>Br N of Islandav | Approx. 1.4 km Upstream of SW001 | 125366 E, 102071 N |
| **RS18B060200** | aSW1d<br>Brogeen Br | Approx. 2.0 km Downstream of SW001 | 128762 E, 102752 N |