

ATTACHMENT A.1. NON-TECHNICAL SUMMARY

1. Introduction

Ballyvourney and Ballymakeera are two contiguous settlements located approximately 15 km northwest of Macroom on the main N22 Cork to Killarney Road and are the largest settlements located within the Muskerry Gaeltacht region. The current population equivalent (p.e.) of the agglomeration is 754 (peak weekly collected load, 2020 AER).

Following a Waste Water Discharge Authorisation examination by the EPA on 28th June 2021, it was recommended that a Waste Water Discharge Authorisation (WWDA) application was prepared and submitted to the EPA for determination. It was considered that the current Ballyvourney/Ballymakeera WWDA, D0299-01, does not satisfy the environmental requirements of the WWDA Regulations as amended, and that a WWDA review was required.

Since the above examination, the Ballyvourney/Ballymakeera upgrade project consisting of a new WwTP, rising main and new outfall pipeline, and pumping station upgrade to serve the agglomeration of Ballyvourney/Ballymakeera has been completed. The aim of this upgrade project was to meet the current Waste Water Discharge Licence (WWDL) - Licence Register Number: D0299-01, issued by the EPA in accordance with the Waste Water Discharge (Authorisation) Regulations (S.I. No. 604 of 2007) (now S.I. No. 214 of 2020) on the 9th October 2015.

Refer to **Attachment A.1.2** for a map of the area of interest and **Attachment B.2.1** for a map of the Ballyvourney/Ballymakeera agglomeration.

2. Description of the waste water discharges from the waste water works serving the agglomeration

Discharge Scenario as per D0299-01:

Primary Discharge (currently SW001):

Treated effluent from the septic tank discharged directly to the Sullane River at NGR 121490E, 076158N via a 250mm outlet pipe.

Secondary Discharges:

There were no secondary discharge points from the agglomeration.

Storm Water Overflows from Pumping Station:

There was 1 no. Storm Water Overflow from the Pumping Station which was connected to a combined sewer that discharges to the Sullane River at NGR 121225E, 076310N. This was not licenced under D0299-01.

Emergency Overflows:

There was 1 no. Emergency Overflow from the Pumping Station which is connected to a combined sewer that discharges to the Sullane River at NGR 121225E, 076310N. This was not licenced under D0299-01.

Discharges as per Subject Matter of Licence Review

New Primary Discharge (SW001):

The primary discharge from the new WwTP discharges to the Sullane River at NGR 121449E, 076147N *via* a 280mm outlet pipe. The primary discharge is monitored continuously and recorded at the electromagnetic flowmeters which are installed at the WwTP.

Secondary Discharges:

There are no secondary discharge points associated the waste water works.

Storm Water Overflows from WwTP & Pumping Station

There is 1 no. SWO from the new WwTP (SW002). Upon activation this will discharge to the Sullane River *via* the primary discharge outfall at NGR 121449E, 076147N.

There is 1 no. Storm Water Overflow (SW003) from the Pumping Station, the existing overflow from Pumping Station will be retained with a new 6mm screen. It will spill when the incoming flow exceeds the 10-year Formula A flow of 39L/s. It is connected to a combined sewer that discharges to the Sullane River at NGR 121225E, 076310N.

Both overflows have been designed in compliance with the definition of '*Storm Water Overflow*' as per Regulation 3 of the Waste Water Discharge (Authorisation) Regulations, 2007, as amended and the criteria as set out in the DoEHLG '*Procedures and Criteria in Relation to Storm Water Overflows*', 1995.

Any overflow event will be monitored and recorded at the electromagnetic flowmeters which have been installed at the WwTP and Pumping Station.

Emergency Overflows

SW004 from the Pumping Station will only operate in an emergency event (*e.g.*, prolonged power outage). SW004 when activated will discharge at NGR 121225E, 076310N *via* the same combined sewer as SW003.

The design of the overflows from the WwTP and Pumping Station will significantly reduce the likelihood of untreated water entering the receiving watercourse.

Refer to **Attachment B.2.2: Map 4, Map 5, and Map 6** for the location of the discharges.

3. Description of the wastewater works and associated waste water treatment plant

Works as per D0299-01

Prior to the WwTW upgrade, which was completed in September 2021, the sewerage collection system serving Ballyvourney and Ballymakeera villages conveyed flows to a septic tank located at NGR 121370E, 076407N in Ballymakeera Village. Primary treated effluent discharged to River Sullane *via* a 250mm open end concrete pipe at NGR 121490E, 076158N. This septic tank was built at a time when the p.e. contributing to it was far less than the present p.e. (*i.e.*, 754 p.e. (*peak weekly collected load*), 2020 AER). The wastewater was not receiving proper treatment as the septic tank system was inadequate to serve the current needs of the agglomeration in terms of capacity, operation, efficiency and treated effluent quality.

In 2007 the sewer network was upgraded, new foul lines were laid, and the original foul sewer operated as a storm water system. The wastewater from the west of the

agglomeration gravitated to the septic tank and the wastewater from the east of the agglomeration gravitated to the Pumping Station at the old Dairygold Creamery site (NGR 121295E, 076419N) from where it was pumped to the septic tank *via* a rising main. This Pumping Station had an existing Dual Function Overflow (*i.e.*, overflow which operated in storm events and/or electric failure events) from the wet well which discharged flows to an adjacent culvert to the Sullane River at NGR 121225E, 076310N. This overflow did not operate in compliance with the criteria for storm water overflows, as set out in the DoEHLG Procedures and Criteria in Relation to Storm Water Overflows 1995.

Works as per Subject Matter of Licence Review

The project involved upgrading the existing Ballymakeera Pumping Station and the construction of a new WwTP with tertiary treatment, to treat a future population of 2,600PE, and to relocate the effluent discharge location, with EPA ELV requirements, to the River Sullane at NGR 121449E, 076147N.

The new WwTP located at NGR 121316E, 076048N consists of:

- New Inlet Works
 - Fine Screens
 - Coarse Screened Bypass
 - Vortex Grit Removal
 - Flow Measurement
 - Storm Overflow
 - Storm Holding Tank
- Secondary Treatment from 2No. Oxidation Ditches
- Secondary Settlement by 2No. Radial Flow FSTs
- Chemical Dosing for Phosphorus Removal
- Tertiary Treatment by Disk Filter
- Picket Fence Thickener including Sludge Storage
- New outfall

The design effluent standards (as per D0299-01) are provided in **Table A.1.1** below:

Table A.1.1 - Design Effluent Standards (as per D0299-01).

Parameter	Design Standard
pH	6.0 – 9.0
BOD	25mg/l
COD	125mg/l
Suspended Solids	35mg/l
Total Ammonia (as N)	1.5mg/l
Ortho-P (as P)	0.8mg/l

The upgraded pumping station located at NGR 121295E, 076419N receives all flows by gravity from the agglomeration and has 2 no. pumps each capable of transferring the 10-year Formula A flow of 39L/s to the new WwTP site. A new rising main, sized to carry the 30-year Formula A flow of 47.4l/s, has been installed from the Pumping Station to the new WwTP.

The overflow from the Pumping Station has been designed to function and operate as below:

- Activate during a complete mechanical/electrical failure of the Pumping Station;
- Activate when flows greater than Formula A (approx. 7 dry weather flow (DWF)) arrive at the pumping station.

4. 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 are 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, and their obligations under the Birds and Habitats Directives.

The WwTP upgrade has been designed to cater for a hydraulic and biological load of 2,600 p.e. (Design horizon to 2046). Tertiary treatment with P removal is 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 ELVs, as listed above, give effect to the principle of the Combined Approach as defined in Waste Water Discharge (Authorisation) Regulations, 2007 to 2020 in that they accommodate the Urban Waste Water Regulations and the relevant status of the receiving waterbody, the Sullane River.

The SWO from the WwTP and Pumping Station will both operate in compliance with the definition of 'Storm Water Overflow' as per Regulation 3 of the Waste Water Discharge (Authorisation) Regulations, 2007, as amended and the criteria as set out in the DoEHLG 'Procedures and Criteria in Relation to Storm Water Overflows', 1995.

Design measures to prevent deleterious discharges from the Pumping Station overflow include the below:

- Standby pump activates automatically upon failure of duty pump;
- Provision for the connection of a mobile power generator facility in the event of power failure;
- Upgraded mechanical screen - Overflows will be screened to 6 mm in all directions before discharging to the river;
- Upgrade of pump capacity from 15.7l/s to 39 l/s, *i.e.*, Formula A flow as set out in the DoEHLG Procedures and Criteria in Relation to Storm Water Overflows 1995, ensuring discharges occur during periods of high rainfall, which allows for increase dilution of discharge in receiving waterbody.

Refer to **Section C.2** for further details of the robust measures to prevent any unintended discharges to the Sullane River.

5. The proposed technology and other techniques for preventing or, where this is not possible, reducing discharges from the wastewater works

The WwTW has been designed, and will be operated, to ensure the primary discharge of treated effluent, and the activation of any Storm Water Overflows, do not cause a deterioration in the quality of the receiving waters *i.e.*, Sullane_030.

Refer to **Section C.2** for details of the measures to prevent any unintended discharges to the Sullane River.

6. Description of the receiving waterbody

Ballyvourney/Ballymakeera WwTP discharges to the Sullane River (Sullane_030). Sullane_030 is within the Lee Cork Harbour and Youghal Bay Catchment (Hydrometric Area 19). This catchment includes the area drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy Battery, Co. Cork, draining a total area of 2,153 km². The largest urban centre in the catchment is Cork City. The other main urban centres in this catchment are Ballincollig, Macroom, Carrigaline, Crosshaven, Blarney, Glanmire, Midleton, Carrigtohill, Cobh, Passage West and Belvelly.

The draft 3rd cycle Catchment Report (2021) for this hydrometric area, determined that for river waterbodies excess nutrients remain the most prevalent issue, along with morphology, organic pollution, and hydrology. Pressures identified affecting the greatest number of waterbodies within hydrometric area 19 include hydromorphology, followed by agriculture, urban run-off, urban wastewater, domestic waste water, forestry, mines and quarries and industry.

The Sullane_030 is High Status and Not at Risk. There are no identified significant pressures for the Sullane_030.

The Biological quality rating (Q Value - 2004 to 2020) within this stretch of the Sullane_030 (RS19S020200, SULLANE - Br d/s Douglas R confl) is also High (Q4-5).

The Sullane_030 waterbody trends (at Br d/s Douglas R confl, downstream of the operational discharges) for Ortho-P for 2013-2018 are Downwards (*i.e.*, decreasing concentrations); however, for Ammonia no trend is noted (*i.e.*, approximately maintaining concentration levels). For 2013-2018, both Ammonium and Ortho-P are noted as High under WFD status.

Based on ambient monitoring results upstream and downstream of the discharge for the period between January 2019 to July 2021, the mean concentration for Ammonia and Ortho-P are within the required EQSs for High status. In terms of BOD, the upstream mean concentration is slightly above mean EQS, however the downstream concentration is below the required mean EQS for High status.

Although the Sullane River is not designated as a *Margaritifera* First Order River, Freshwater Pearl Mussel (*Margaritifera margaritifera*) have been recorded, both upstream and downstream of the discharge. ELVs of 0.8 mg/l for Ortho-P, 1.5 mg/l for Ammonia and 25 mg/l for BOD have been put in place to ensure compliance with the High status standards set in European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended (now S.I. No. 77 of 2019). These ELVs were set by the EPA taking account the sensitivity of the receiving River with particular reference to the Freshwater Pearl Mussel (*Margaritifera margaritifera*) and came into effect on the 31st December 2015 under D0299-01. To inform this licence review, using the ELVs as per D0299-01, a WAC calculation was completed using the actual background concentration based on January 2019 to June 2021 ambient monitoring data and the EPA Flow Estimation of 0.26m³/s (EPA Estimated 95thile Flow at Station 19055 (Up to 2018)) and the maximum WwTP design p.e. of 2,600 (rather than the projected 10-year load of 968 p.e). The calculations confirmed that there would be sufficient assimilative capacity in the receiving water, the Sullane River, to receive the flows and loads associated with the new WwTP and to ensure that the discharge from the WwTP contributes towards maintaining High

status of the Sullane_030 in accordance with the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 (S.I. No. 77 of 2019).

There are no salmonid waterbodies, nutrient sensitive waters or drinking water abstraction points within the region of or relevance to the Ballyvourney/Ballymakeera agglomeration.

There are no European sites immediately downstream of the operational discharges. The nearest European site downstream is the Cork Harbour SPA which is located *ca.* 68 km downstream of the agglomeration. Due the distance of this site from the operational discharges, and the large dilution capacity of downstream waterbodies, it is considered that there is no likelihood of significant effects from the operation discharges on the Qualifying Interests of this sites (including *ex-situ* species).

St Gobnet's Wood SAC (Site Code: 000106) and Mullaghanish to Musheramore Mountains SPA (Site Code: 004162) are located *ca.* 1.5 km to the northwest, and *ca.* 1.3 km northeast of the discharge points respectively. The operational discharges have no hydrological connectivity with these two sites.

The Mullaghanish Bog SAC is located *ca.* 5.3 km north of the operational discharges. There is no hydrological connectivity however between the discharges and this site.

The Gearagh SAC and SPA are both approximately 9.8 km away from the operational discharges They are located on the River Lee, but upstream of the confluence with the River Sullane.

The Blackwater River SAC and Killarney National Park, Maggillycuddy's Reeks and Caragh River Catchment SAC are *ca.* 11.9 km and 8.5 km north of the operational discharges, respectively. These sites are not hydrologically connected to the Ballyvourney/Ballymakeera operational discharges.

There are 9 pNHAs and 1 NHA within 15 km of the WwTP, the closest of which is St. Gobnet's Wood (*ca.* 1.5 km north east of the WwTP). The St. Gobnet's Wood pNHA comprises terrestrial woodland habitat that is located on the Sullane River upstream from the discharge and as such there is no pathway for potential impacts. No potential ecological pathway exists by which any other NHA or pNHA could be affected by the operational discharges.

Based on the above it is considered that there is no environmental risk posed to the receiving water environment as a result of the discharges from the agglomeration.

7. Description of the likely significant effects of the discharges on the environment

The objective of the of the Ballyvourney/Ballymakeera upgrade project was to meet the requirements of the current Waste Water Discharge Licence (WWDL) - Licence Register Number: D0299-01.

Based on the effluent discharge standards (see **Table A.1.1** above) and the WAC calculations carried out for same (see **Attachment D.2.3**), and the design of the SWOs and the benefits of the pumping station upgrade works, it is considered that the operational discharges from the Ballyvourney/Ballymakeera agglomeration would have no real likelihood of significant effects on the receiving aquatic environment, alone or in combination with other plans and projects. The effluent discharge standards will ensure that the operational discharges from the agglomeration contribute towards maintaining the High status of the River Sullane in accordance with the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 (S.I. No. 77 of 2019) and

will ensure that there is no environmental risk posed to the receiving water environment as a result of the discharges from the agglomeration.

8. Measures planned to monitor discharges into the environment

Effluent Monitoring:

It is proposed that effluent from Ballyvourney/Ballymakeera WwTP will be sampled and analysed (using the standard method of analysis) as follows:

Table A.1.4 – Proposed Effluent Monitoring Regime (as per per D0299-01)

Parameter	Units	Monitoring Frequency	Analysis method/Technique
Flow	m ³ /24 hours	Continuous	Online Flow Meter
pH	pH Unit	Bi-monthly	pH Meter and recorder
cBOD	mg/l	Bi-monthly	Standard Method
COD	mg/l	Bi-monthly	Standard Method
Suspended Solids	mg/l	Bi-monthly	Standard Method
Ammonia (as N)	mg/l	Bi-monthly	Standard Method
Ortho-Phosphate (as P)	mg/l	Bi-monthly	Standard Method
Visual Inspection	Descriptive	Daily	Sample and examine for colour and odour

Ambient Monitoring:

It is proposed that ambient monitoring and analysis will continue to be carried upstream and downstream of the primary discharge, in line with any new licence requirements.

The proposed monitoring locations and parameters to be monitored are tabled below:

Table A.1.5 – Proposed Ambient Monitoring Locations and Parameters:

Monitoring Location					Name of Receiving Water
120212	E	076947	N	aSW1u	Sullane_020
122720	E	075581	N	aSW1d	Sullane_030

Table A.1.6 – Proposed Ambient Monitoring Regime (as per D0299-01)

Parameter	Units	Monitoring Frequency	Analysis method/Technique
pH	pH units	Quarterly	pH meter and Recorder
cBOD	mg/l	Quarterly	Standard method
COD	mg/l	Quarterly	Standard method
Suspended Solids	mg/l	Quarterly	Standard method
Ammonia – Total (as N)	mg/l	Quarterly	Standard method
Ortho-Phosphate (as P) unspecified	mg/l	Quarterly	Standard method
Visual inspection	-	Daily	For colour and odour

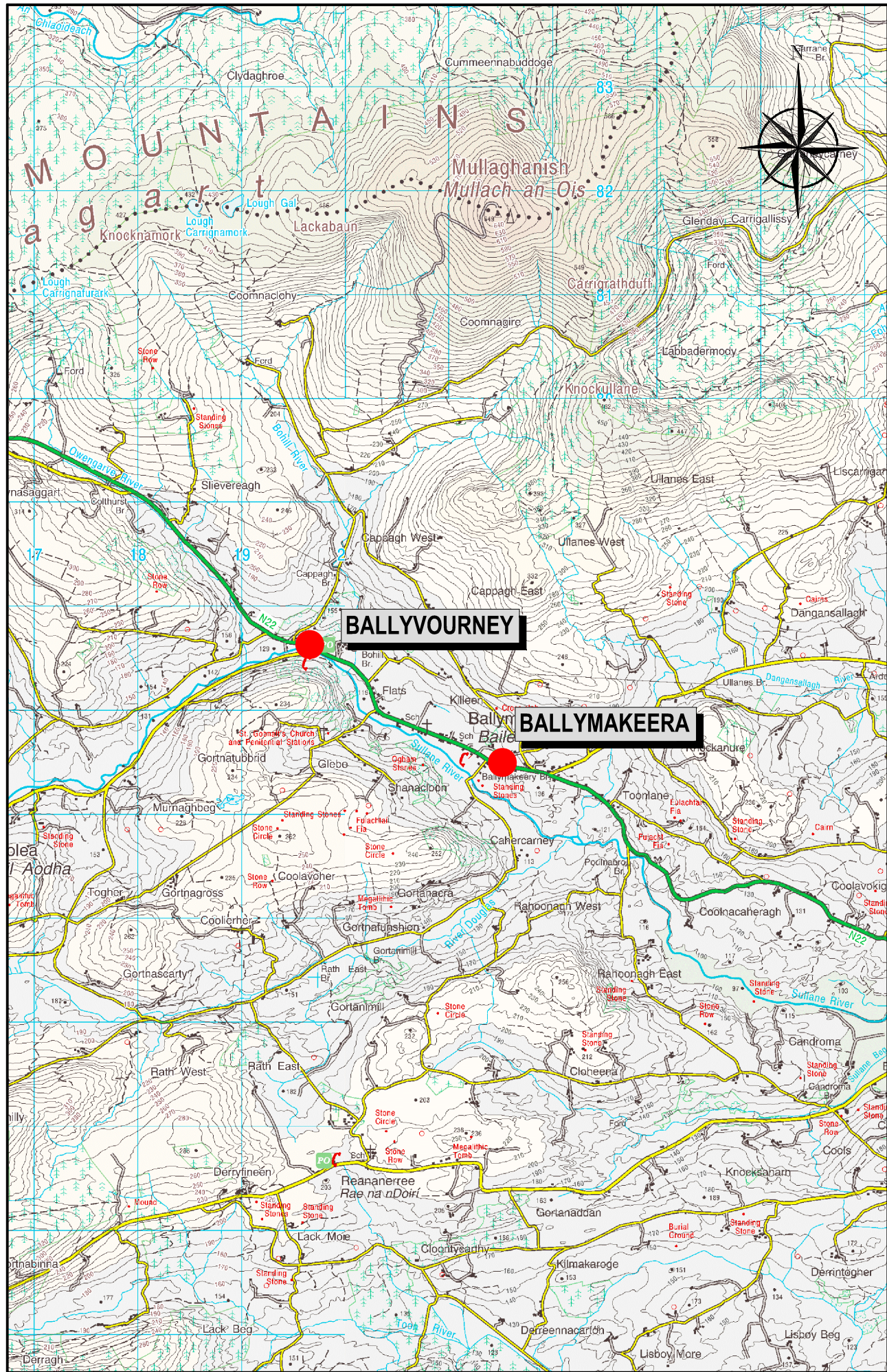
9. Hours during which the wastewater works is supervised or manned and days per week of this supervision

The WwTP runs automatically and is capable of being monitored remotely on a daily basis via the SCADA system. A dedicated curator will attend the site several times a week and the hours spent each day at the plant will vary depending on various factors or tasks e.g., sampling, weather, breakdowns in plant or maintenance works required such as cleaning of the intake screens etc. There is a 24 hour call out response to alarms from the WWTP.

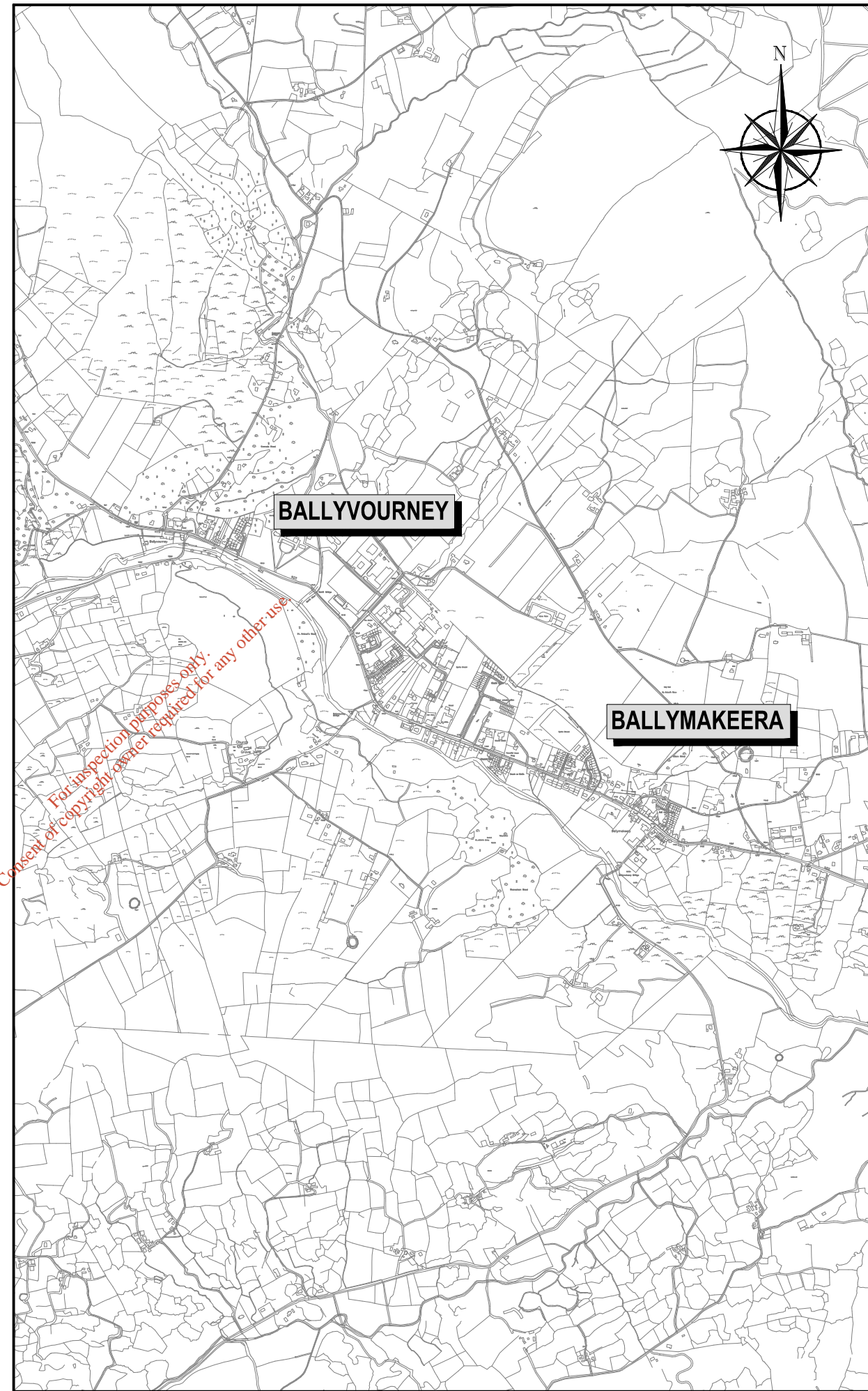
10. In the event of a review application, state the grounds for which this review application is being made

Following a Waste Water Discharge Authorisation examination by the EPA on 28th June 2021, it was recommended that a Waste Water Discharge Authorisation (WWDA) application was prepared and submitted to the EPA for determination. It was considered that the current WWDA, D0299-01, does not satisfy the environmental requirements of the WWDA Regulations as amended, and that a WWDA review was required.

Since the above examination, the Ballyvourney/Ballymakeera upgrade project consisting of a new WwTP, rising main and new outfall pipeline and upgraded pumping station to serve the agglomeration of Ballyvourney/Ballymakeera has been completed. The aim of this upgrade project was to meet the current Waste Water Discharge Licence (WWDL) - Licence Register Number: D0299-01, granted to Irish Water in accordance with the Waste Water Discharge (Authorisation) Regulations (S.I. No. 684 of 2007) (now S.I. No. 214 of 2020) on the 9th October 2015.



BALLYVOURNEY / BALLYMAKEERA LOCATION MAP
SCALE 1:50,000



BALLYVOURNEY / BALLYMAKEERA LOCATION PLAN
SCALE 1:20,000

NOTES
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SIGNED: _____
PRINT NAME: _____
POSITION: _____
DATE: _____

FOR IRISH WATER

REV	DATE	DESCRIPTION	D	C	A

DISCHARGE LICENCE

CLIENT
UISCE IRISH WATER
Colville House,
24-26 Talbot Street,
Dublin 1.
Tel. 1890 278 278 Web. www.water.ie

PROJECT
**BALLYVOURNEY / BALLYMAKEERA
WASTE WATER DISCHARGE
LICENCE APPLICATION**

TITLE
**MAP 1
AREA OF INTEREST**

SCALES	DRAWN D. Smithers	REV
AS SHOWN	DATE 03.12.2021	-
CAD REFERENCE 20893-NOD-WWDL-03	ATTACHMENT A.1.2	-