

# Annual Environmental Report

2023



Rathdrum

D0086-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0086-01, Rathdrum, in Wicklow in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

## 1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

There were no capital works, significant changes or operational changes undertaken in 2023.

## 1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

- Rathdrum WWTP with a Plant Capacity PE of 3500, the treatment type is 3P - Tertiary P removal.

## 1.3 ELV OVERVIEW

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF3400D0086SW001	Rathdrum WWTP	Treated	Compliant	N/A

## 1.4 LICENCE SPECIFIC REPORTING

Assessment / Report

**There are no Licence Specific Reports included in this AER.**

## 2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

### 2.1 RATHDRUM WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - RATHDRUM WWTP

A summary of influent monitoring for the treatment plant is presented below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

Parameters	Number of Samples	Annual Max	Annual Mean
Total Phosphorus (as P) mg/l	12	8.40	3.04
Total Nitrogen mg/l	12	62	23
Suspended Solids mg/l	12	303	82
COD-Cr mg/l	12	562	232
BOD, 5 days with Inhibition (Carbonaceous) mg/l	12	209	79
Hydraulic Capacity	N/A	3434	1181

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

#### Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional 'Operational Performance Summary'. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

## 2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF3400D0086SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
<b>COD-Cr mg/l</b>	125	250	N/A	12	N/A	N/A	6.66	Pass
<b>Suspended Solids mg/l</b>	20	50	N/A	12	N/A	N/A	3.49	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous) mg/l</b>	12	24	N/A	12	N/A	N/A	1.68	Pass
<b>pH pH units</b>	6	9	N/A	12	N/A	N/A	6.39	Pass
<b>Ammonia-Total (as N) mg/l</b>	3	3.6	N/A	12	N/A	N/A	0.169	Pass
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	1	1.2	N/A	12	N/A	N/A	0.150	Pass
<b>Total Nitrogen mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	9.22	
<b>Total Phosphorus (as P) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	0.216	
<b>Nitrate (as N) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	8.44	

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
<b>Nitrite (as N) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	0.094	

Notes:

- 1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
- 2 – For pH the WWDA specifies a range of pH 6 - 9

### Cause of Exceedance(s):

**Not applicable**

### Significance of Results:

The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence.

## 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF3400D0086SW001

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Ecological Status
<b>Upstream</b>	319247, 188744	RS10A050300	No	No	No	No	Good
<b>Downstream</b>	319949, 186279	RS10A050410	No	No	No	No	Good

The results for ambient results and / or additional monitoring data sets are included in the **Appendix 7.1 - Ambient Monitoring Summary**.

### Significance of Results:

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

Based on ambient monitoring results a deterioration in Ammonia concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are unknown.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.



## 2.1.4 OPERATIONAL PERFORMANCE SUMMARY - RATHDRUM WWTP

### 2.1.4.1 Treatment Efficiency Report - Rathdrum WWTP

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TP	1432	98	93
cBOD	37366	756	98
SS	38402	1574	96
COD	109190	3002	97
TN	10602	4152	61

Note: The above data is based on sample results for the number of dates reported

### 2.1.4.2 Treatment Capacity Report Summary - Rathdrum WWTP

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

Rathdrum WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	2362
DWF to the Treatment Plant (m <sup>3</sup> /day)	788
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	3434

Rathdrum WWTP	
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	1181.4
Organic Capacity (PE) - As Constructed	3500
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	2199
Organic Capacity (PE) - Remaining	1301
Will the capacity be exceeded in the next three years? (Yes/No)	No

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

## 2.1.5 SLUDGE / OTHER INPUTS - RATHDRUM WWTP

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
<b>There is no Sludge and Other Input data for the Treatment Plant included in the AER.</b>							

## 3 COMPLAINTS AND INCIDENTS

### 3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature related to the discharge(s) to water from the WWTP and network is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
<b>There were no relevant environmental complaints in 2023.</b>			

### 3.2 REPORTED INCIDENTS SUMMARY

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Uisce Éireann but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

#### 3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
<b>There were no reportable incidents in 2023.</b>			

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	0
Number of Incidents reported to the EPA via EDEN in 2023	0
Explanation of any discrepancies between the two numbers above	N/A

## 4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

### 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

A summary of the operation of the storm water overflows and their significance where known is included below:

#### 4.1.1 SWO IDENTIFICATION

WWDL Name / Code for Storm Water Overflow (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2023 (No. of events)	Total volume discharged in 2023 (m <sup>3</sup> )	Monitoring Status
<b>SW3</b>	319518,188090	Yes	Low Significance	Meeting Criteria	31	18318	Monitored
<b>SW4</b>	319287,188506	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

SWO Summary	
How much wastewater discharge by metered SWOs during the year (m <sup>3</sup> )?	18318
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	No

## 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS

### 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
<b>D0086-SIP:01</b>	Construction of pumping station at old WWTP and decommissioning of old WWTP	C	28/02/2011	Yes	Works Completed		
<b>D0086-SIP:02</b>	SW2 to cease	A	28/02/2011	Yes	Works Completed		
<b>D0086-SIP:03</b>	SW4 to become operational	A	28/02/2011	Yes	Works Completed		

A summary of the status of any other improvements identified by under Condition 5 assessments- is included below.

## 4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
<b>No additional improvements planned at this time.</b>				

## 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Tables 4.2.1 and 4.2.2.

## 5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Licence Specific Report	Required by licence	Included in this AER
<b>D0086-01-Priority Substances Assessment</b>	Yes	No



## 6 CERTIFICATION AND SIGN OFF

### 6.1 SUMMARY OF AER CONTENTS

Parameter	Answer
Does the AER include an Executive Summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for Consideration of a Technical Amendment/Review of the Licence?	No
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	Yes
List reason e.g. changes to monitoring requirements	Ambient Monitoring Location Changes
Have these processes commenced?	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	N/A

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Date: 01/03/2024

This AER has been produced by Uisce Éireann's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of,

Eleanor Roche

Head of Environmental Regulation.

## 7 APPENDIX

Appendix

**Appendix 7.1 - Ambient Monitoring Summary**

## Rathdrum 2023 Ambient Monitoring Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Receiving Waters Designation (Yes/No)			
			Bathing Water	Drinking Water	FWPM	Shellfish
Upstream Monitoring Point	319247, 188744	RS10A050300	No	No	No	No
Downstream Monitoring Point	319949, 18279	RS10A050410	No	No	No	No

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD (Mean mg/l)	o-Phosphate (as P) (Mean mg/l)	Ammonia (as N) (mean mg/l)
Upstream Monitoring Point	Good	1.027	0.0300	0.0325
Downstream Monitoring Point	Good	1.027	0.0270	0.0373
<i>Difference</i>		<i>0.000</i>	<i>-0.0030</i>	<i>0.0048</i>
EQS		1.500	0.035	0.065
% of EQS		0.000%	-8.571%	7.343%

## 2023 Ambient Monitoring Data

StationName	Sample Date	Biological Oxygen Demand	Ortho-Phosphate P	Ammonium NH4-N	Total Oxidised Nitrogen N	Total Nitrogen	Nitrite N	pH	Dissolved Oxygen % Saturation	Dissolved Oxygen	Temperature	Conductivity @ 20°C
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	% O2	mg/l	Degrees C
Upstream	10-Jan-2023	1.5	0.03	< 0.02	0.5	0.78	< 0.005	6.6	103	12.2	8.1	57
Upstream	1-Feb-2023	1.2	< 0.01	< 0.02	0.8	0.94		7.1	101	12.5	6.2	70
Upstream	7-Mar-2023	1	< 0.01	0.02	0.8	0.72	< 0.005	7	99	12.7	5.1	68
Upstream	4-Apr-2023	0.6	< 0.01	0.03	0.7	0.72	< 0.005	6.7	108	12.8	8	56
Upstream	9-May-2023	1.6	< 0.01	< 0.02	0.3	0.71	0.005	7	107	11.6	12	50
Upstream	13-June-2023	1	< 0.01	0.04	0.7	0.91	< 0.005	7.3	112	10.8	17.2	80
Upstream	25-July-2023	1.1	< 0.01	0.04	< 0.1	0.75	< 0.005	6.5	101	10.4	13.8	45
Upstream	1-Aug-2023	0.6	< 0.01	0.05	0.3	0.75	0.009	6.6	101	10.1	15.2	23
Upstream	6-Sep-2023	0.9	< 0.01	0.03	0.6	0.94	0.005	7	107	10.1	17.9	64
Upstream	7-Nov-2023	1	< 0.01	0.03	0.7		0.006	6.4	95	10.8	9.9	56
Upstream	10-Oct-2023	0.8	< 0.01	0.02	0.7	0.97	< 0.005	6.4	101	10.4	14.1	63
	<b>Mean</b>	<b>1.027</b>	<b>0.030</b>	<b>0.033</b>	<b>0.610</b>	<b>0.819</b>	<b>0.006</b>	<b>6.782</b>	<b>103.182</b>	<b>11.309</b>	<b>11.591</b>	<b>57.455</b>
	<b>95%ile</b>	<b>1.550</b>	<b>0.030</b>	<b>0.047</b>	<b>0.800</b>	<b>0.957</b>	<b>0.009</b>	<b>7.200</b>	<b>110.000</b>	<b>12.750</b>	<b>17.550</b>	<b>75.000</b>
Downstream	10-Jan-2023	1.6	0.027	0.02	0.7	0.9	0.005	6.5	103	12.1	8.1	62
Downstream	1-Feb-2023	0.9	< 0.01	0.02	1	1.37		7	101	12.6	6	70
Downstream	7-Mar-2023	0.6	< 0.01	0.05	0.8	0.77	0.007	7	99	12.7	4.9	68
Downstream	4-Apr-2023	1	< 0.01	0.02	0.8	0.8	< 0.005	6.8	109	12.8	8.3	63
Downstream	9-May-2023	1.8	< 0.01	0.02	0.3	0.75	0.006	6.8	107	11.4	12.6	49
Downstream	25-July-2023	0.9	< 0.01	0.13	0.4	1.16	< 0.005	6.3	101	10.4	13.7	45
Downstream	13-June-2023	1	< 0.01	0.05	0.7	0.71	0.005	7.8	118	11.1	18.7	81
Downstream	1-Aug-2023	0.9	< 0.01	0.03	0.3	0.77	0.009	6.8	100	10.1	15.2	46
Downstream	6-Sep-2023	0.7	< 0.01	0.02	0.7	1.06	0.005	7.2	105	10.1	17	72
Downstream	10-Oct-2023	0.7	< 0.01	0.02	0.8		< 0.005	6.3	100	10.4	14	69
Downstream	7-Nov-2023	1.2	< 0.01	0.03	0.9	1.08	< 0.005	6.4	95	10.7	10.1	64
	<b>Mean</b>	<b>1.027</b>	<b>0.027</b>	<b>0.037</b>	<b>0.673</b>	<b>0.937</b>	<b>0.006</b>	<b>6.809</b>	<b>103.455</b>	<b>11.309</b>	<b>11.691</b>	<b>62.636</b>
	<b>95%ile</b>	<b>1.700</b>	<b>0.027</b>	<b>0.090</b>	<b>0.950</b>	<b>1.276</b>	<b>0.009</b>	<b>7.500</b>	<b>113.500</b>	<b>12.750</b>	<b>17.850</b>	<b>76.500</b>

Note: Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was used in calculating the mean and 95%ile concentrations.