

Annual Environmental Report

2024



Kingscourt

D0083-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2024 AER

This Annual Environmental Report has been prepared for D0083-01, Kingscourt, in Cavan 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.

1.2 TREATMENT SUMMARY

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

- Kingscourt WWTP with a Plant Capacity PE of 2335, 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
TPEFF0200D0083SW001	Kingscourt WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l ortho-Phosphate (as P) - unspecified mg/l

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 KINGSCOURT WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - KINGSCOURT 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
Suspended Solids mg/l	10	740	301
BOD, 5 days with Inhibition (Carbonaceo mg/l	10	359	149
COD-Cr mg/l	10	642	374
Hydraulic Capacity	N/A	1727	982

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'.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0200D0083SW001

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)
COD-Cr mg/l	125	250	N/A	10	N/A	N/A	24	Pass
Suspended Solids mg/l	35	87.5	N/A	10	N/A	N/A	13	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	10	20	N/A	10	2	N/A	4.27	Pass
pH pH units	9	9	N/A	10	N/A	N/A	7.50	Pass
Ammonia-Total (as N) mg/l	0.5	1	N/A	10	10	10	7.86	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.1	0.2	N/A	10	10	9	0.254	Fail

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):

Refer to the Incident Section of the Report.

Significance of Results:

The WWTP is non compliant with the ELV's as set in the Wastewater Discharge Licence. The impact on the receiving waters is assessed further in Section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0200D0083SW001

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
Upstream	279752, 295581	RS06M230700	No	No	No	No	Good
Downstream	279711, 296264	RS06M230710	No	No	No	No	Good

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
BOD - 5 days (Total) mg/l	RS06M230700	1.13	RS06M230710	2.38	1.50	83.2
Ammonia-Total (as N) mg/l	RS06M230700	0.046	RS06M230710	0.391	0.065	530.8

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
ortho-Phosphate (as P) - unspecified mg/l	RS06M230700	0.035	RS06M230710	0.063	0.035	78.6
Dissolved Oxygen % O2	RS06M230700	98	RS06M230710	97	N/A	
Temperature °C	RS06M230700	10	RS06M230710	10	N/A	
pH pH units	RS06M230700	7.78	RS06M230710	7.80	N/A	
Suspended Solids mg/l	RS06M230700	23	RS06M230710	18	N/A	
Dissolved Oxygen mg/l	RS06M230700	10	RS06M230710	10	N/A	

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Ammonia-Total (as N) mg/l, ortho-Phosphate (as P) - unspecified mg/l.

The ambient monitoring results do not meet the required EQS at the downstream monitoring location. 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 - Total (as N), BOD - 5 days (Total) & ortho-Phosphate (as P), 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 - KINGSCOURT WWTP

2.1.4.1 Treatment Efficiency Report - Kingscourt 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)
SS	84516	3671	96
cBOD	41832	1174	97
TN	N/A	N/A	N/A
COD	104970	6694	94
TP	N/A	N/A	N/A

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

2.1.4.2 Treatment Capacity Report Summary - Kingscourt 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.

Kingscourt WWTP	
Peak Hydraulic Capacity (m ³ /day) - As Constructed	1500
DWF to the Treatment Plant (m ³ /day)	420
Current Hydraulic Loading - annual max (m ³ /day)	1727

Kingscourt WWTP	
Average Hydraulic loading to the Treatment Plant (m³/day)	982
Organic Capacity (PE) - As Constructed	2335
Organic Capacity (PE) - Collected Load (peak week) ^{Note1}	3282
Organic Capacity (PE) - Remaining	0
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

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 - KINGSCOURT 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)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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
There were no relevant environmental complaints in 2024.			

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)
Breach of ELV	WWTP upgrade required to meet ELV	Yes	No
Uncontrolled release	Emergency overflow caused by ragging or blocking	No	Yes
Uncontrolled release	Plant or equipment breakdown at WWTP	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2024	3
Number of Incidents reported to the EPA via EDEN in 2024	3
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 2024 (No. of events)	Total volume discharged in 2024 (m3)	Monitoring Status
SW002	279339, 295755	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	278812, 296065	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

The contents presented in this table include the most up to date information available at the time of writing. 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 (m3)?	47624
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
D0083-SIP:01	Any improvements necessary to ensure that the discharge complies with the emission limit values set in Schedule A: Discharges and Discharge Monitoring	C	31/12/2021	No	At Planning Stage	2030	
D0083-SIP:02	SW003 to be discontinued	C	31/01/2014	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
No additional improvements planned at this time.				

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
D0083-01-Small Stream Risk Score Assessment	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?	Yes
List reason e.g. additional SWO identified	Capital upgrade
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	N/A
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	Yes

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

Signed: Date: 21/05/2025

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 - Small Stream Risk Score Assessment

SSRS Compliance Monitoring: *Kingscourt* Waste Water Treatment Plant 2024



Report to Uisce Éireann

Limnos Consultancy, January 2025

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Kingscourt WWTP

Introduction

Small Streams Risk Score (SSRS) assessments on the Mullantra River upstream and downstream of the Kingscourt waste water treatment plant (WWTP) are outlined in this report. The assessments were made on 14 October 2024. Limnos Consultancy was contracted by Irish Water to undertake the surveys.

Methodology

Small Streams Risk Score (SSRS)

Samples were taken using an ISO compliant kick-sampling method compatible with the Environmental Protection Agency (EPA) Standard Operating Procedure for sampling aquatic macroinvertebrates. Samples were taken upstream and downstream of the discharge from the WWTP. SSRS results were assigned based on the macroinvertebrate fauna.

The author was the main initiator of the SSRS system developed by the Western River Basin District and the EPA under his supervision in 2005–2006 (McGarrigle 2014). He has undertaken SSRS training of local authority and other professional staff at the Local Government Water Services Training Centres around the country for over 100 personnel.

The SSRS was calculated based on selected sub-groups of the macroinvertebrates recorded. The score is calculated based on the number of taxa and their relative abundance in four main invertebrate groups as follows:

Group 1: Ephemeroptera (excluding *Baetis rhodani*)

Group 2: Plecoptera

Group 3: Trichoptera

Group 4: GOLD (Gastropoda, Oligochaeta, Diptera)

Group 5: *Asellus*

The first three groups above, mayflies, stoneflies, and caddis flies, are regarded as pollution-sensitive whereas gastropods, oligochaetes, dipterans and *Asellus* are relatively pollution-tolerant. The maximum score that can be achieved is 11.2 and threshold scores deciding the degree of risk of not being at good ecological status are as follows:

- > 7.25 Probably not at risk
- > 6.5 to 7.25 Indeterminate
- < 6.5 Stream may be at risk.

Samples were taken with a standard 1 mm mesh pond net. A 3-minute kick sample was combined with a 1-minute stonewash. Samples were placed on a white tray and, once cleaned of debris such as leaves and twigs and excessive sand or gravel by decanting and hand picking, the sample was examined carefully to identify the macroinvertebrates. At least 25 minutes were spent identifying and assigning each taxon found to a relative abundance category. Table 1 gives the definition of the relative abundance terms Few, Common, Numerous, Dominant and Excessive. The numeric code is used in the results tables below.

Table 1. SSRS Relative abundance table.

Abundance	Number of Individual Specimens	Relative abundance numeric code
Few:	1 to 5 individuals	1
Common:	6 to 20	2
Numerous:	21–50	3
Dominant:	51 to 100	4
Excessive:	>100	5

Physico-Chemical Measurements

Physico-chemical measurements were also made for dissolved oxygen, temperature and conductivity using a HACH HQ40d meter with appropriate compatible probes. Probes were calibrated before use.

Location of Sites Sampled

Figure 1 maps the sampling sites and Table 2 gives the details of the locations sampled.

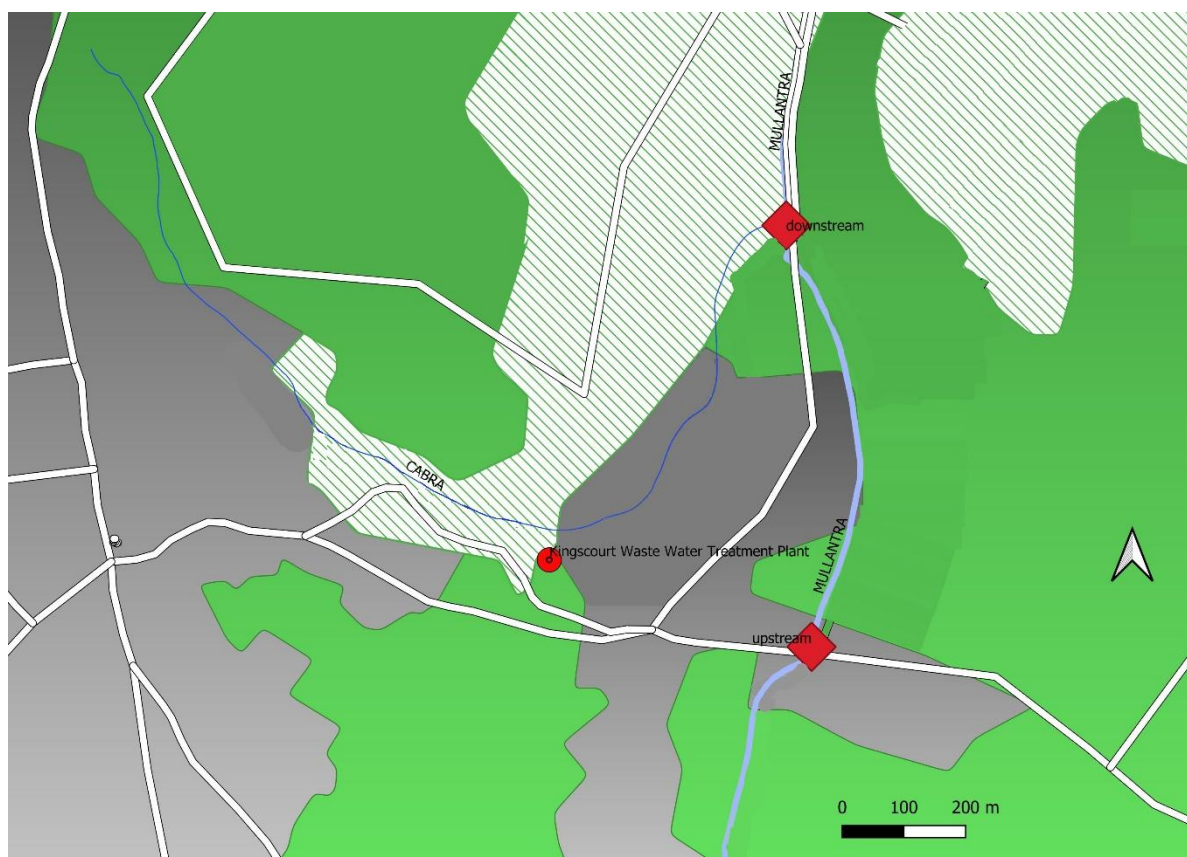


Figure 1. Location of upstream and downstream monitoring sites for Kingscourt WWTP. The river flows North.

Table 2. Location of sites sampled on the Mullantra River upstream and downstream of Kingscourt WWTP.

Location	Kingscourt WWTP Upstream	Kingscourt WWTP Downstream
EPA Code	RS06M230700	RS06M230710
Station	Br on R165 in Kingscourt	Br 600m d/s RS06M230700 (on side road)
River	Mullantra	Mullantra
Easting	279753	279711
Northing	295581	296264

Results

Site Photographs

Figure 2 shows photographs taken when sampling on the Mullantra River at the upstream and downstream of the Kingscourt WWTP on 14 October 2024.

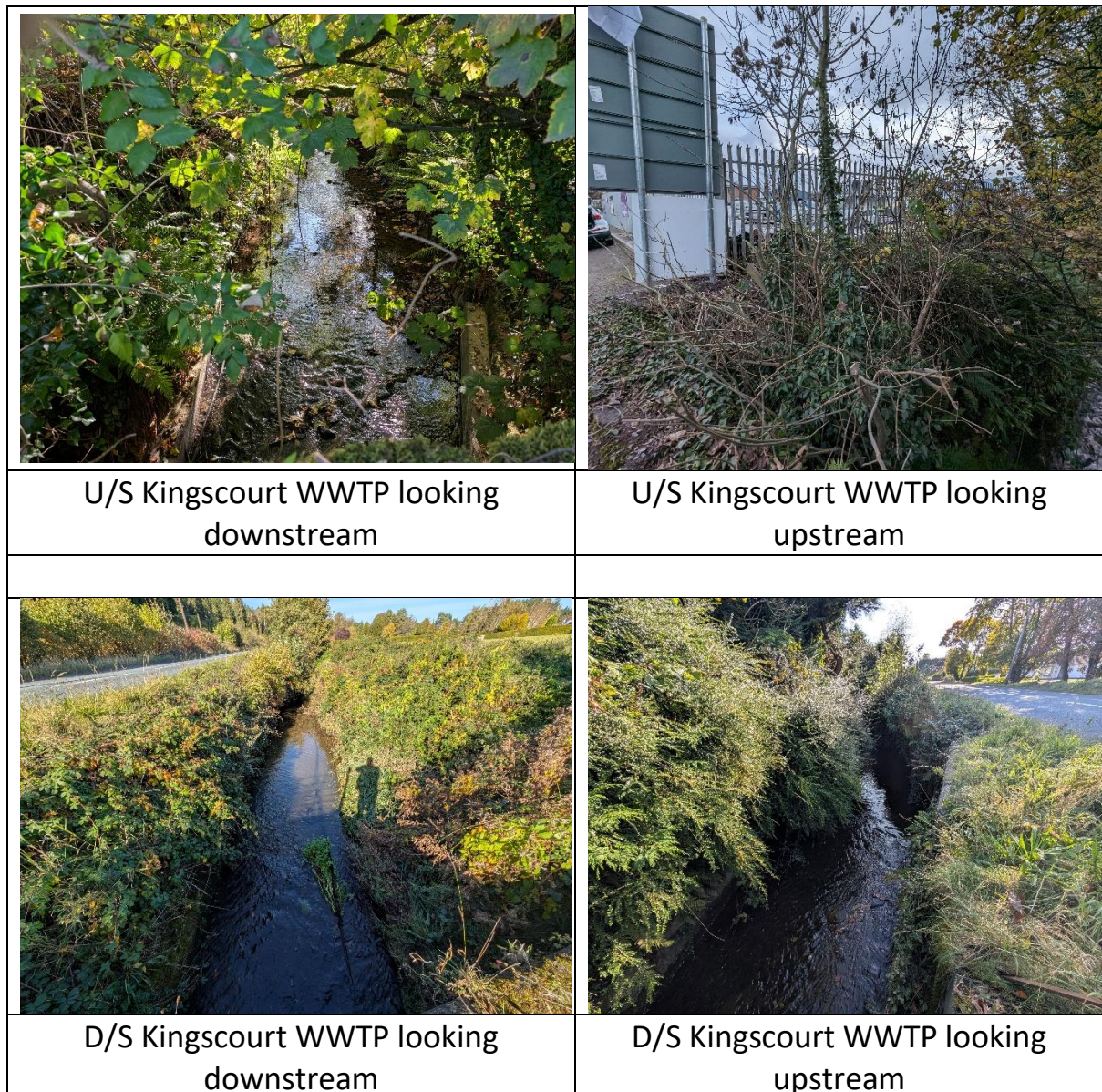


Figure 2. Upstream (U/S) and downstream (D/S) of Kingscourt WWTP.

Macroinvertebrates – SSRS

Table 3 gives the recorded macroinvertebrate taxa for the standard kick samples taken at these sites.

Table 3. Macroinvertebrates recorded upstream and downstream of Kingscourt WWTP discharge point.

			Upstream Kingscourt WWTP	Downstream Kingscourt WWTP
		River	Mullantra	Mullantra
		EPA Code	06M230700	06M230710
		Location	Bridge u/s WWTP discharge	Bridge d/s WWTP discharge
		Date of Sample	14/10/2024	14/10/2024
SSRS Group		Taxon		
1	Ephem	<i>Rhithrogena semicolorata</i>	Common	-
3	Trich	<i>Polycentropus</i>	Few	-
3	Trich	<i>Rhyacophila</i>	Few	-
3	Trich	<i>Sericostoma personatum</i>	Few	Few
4	GOLD	Ancylidae	Few	Few
4	GOLD	Chironomidae	-	Few
4	GOLD	<i>Dicranota</i>	Few	-
4	GOLD	<i>Potamopyrgus antipodarum</i>	Few	Few
4	GOLD	Simuliidae	-	Few
4	GOLD	Tipulidae	Few	-
4	GOLD	Tubificidae	Numerous	Few
5	Asellus	<i>Asellus aquaticus</i>	Few	Common
	n/a	<i>Baetis rhodani</i>	Numerous	Numerous
	n/a	<i>Elmis aenea</i>	Few	Few
	n/a	<i>Erpobdella octoculata</i>	-	Few
	n/a	<i>Gammarus</i>	Dominant	Dominant
	n/a	<i>Glossiphonia complanata</i>	-	Few
	n/a	Hydraenidae	-	Few
	n/a	<i>Hydroporus</i>	Few	-
	n/a	<i>Limnius volckmari</i>	Few	Few
	n/a	Planaria	Common	-
		Number Taxa	16	14
		SSRS	4	3.2
		Q-Value	Q3-4	Q3

The taxa are ordered from top to bottom in terms of their SSRS Grouping and general sensitivity to pollution with *Rhithrogena* at the top being the most sensitive and *Asellus* and Tubificidae at the bottom being the most tolerant. Note that not all taxa are included in the SSRS groups.

The samples contained 16 and 14 taxa, upstream and downstream, respectively. The Group 1 Ephemeroptera, *Rhithrogena*, was common at the upstream site. It had been numerous there in October 2023. It was absent from the downstream site whereas it was common there in 2023. *Ecdyonurus*, present at the upstream site in 2023, was absent from both in 2024. *Seratella* was noted at the downstream site in 2023 but was absent there in 2024. No stoneflies were recorded. Only two Trichoptera taxa were found in 2024 whereas there were five caddis recorded in 2023 – three cased and two uncased types. Both caddis recorded in 2024 were free-living, *Polycentropus* and *Rhyacophila*. In the Q-Value system the uncased Trichoptera are regarded as more tolerant than the cased types.

The downstream site had a significant cover of the blanket weed algae *Cladophora* at approximately 30% cover on the substratum. This alga is an indicator of high nutrient levels.

The sites scored SSRS values of 4 and 3.2, upstream and downstream, respectively, on the SSRS. This suggests that both sites deteriorated compared with the 2023 samples when they scored 7.2 and 6.4, respectively, upstream and downstream. The reduced number of Ephemeroptera in 2024 plus fewer Trichoptera and slightly more abundant GOLD taxa plus *Asellus* account for the reduced SSRS results.

Physico-Chemical Results

Table 4 gives the physico-chemical results for the Mullantra River, upstream and downstream of the Kingscourt WWTP. Apart from the very high conductivity at both sites, the results are unremarkable with oxygen saturation satisfactory at both sites.

Table 4. Physico-chemical results for Kingscourt River, 14 October 2024.

Station	Dissolved Oxygen (DO) % Saturation	DO mg/l	Temp. °C	Conductivity µS/cm	pH
Upstream Kingscourt WWTP	97.0	11.04	9.50	693	7.77
Downstream Kingscourt WWTP	96.2	10.42	11.70	567	8.16

Summary

The Mullantra River is in Moderate condition before it reaches the Kingscourt WWTP discharge, possibly due to upstream urban and agricultural pressures. The SSRS of 4 versus 7.2 at the upstream site in 2024 versus 2023 suggests a decline and the Q3-4 is dependent on the presence of *Rhithrogena* which is an autumn/winter species and is not likely to occur in mid summer – this would result in a Q-Value of Q3 indicating poor conditions upstream of the WWTP. The downstream site also deteriorated compared with 2023 (SSRS down from 6.4 to 3.2) but remains in poor condition at Q3. The WWTP is having some impact on the stream but it is masked somewhat by pressures upstream of Kingscourt.

Reference

McGarrigle, M. 2014. "Assessment of Small Water Bodies in Ireland." *Biology and Environment* 114B(3). doi: 10.3318/BIOE.2014.15.