Annual Environmental Report

2023

Uisce Éireann
Irish Water

Cork City

D0033-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0033-01, Cork City, in Cork 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)

- Carrigrennan (Cork City) WWTP with a Plant Capacity PE of 413200, 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
TPEFF0400D0033SW001	Carrigrennan (Cork City) WWTP	Treated	Non-Compliant	Total Nitrogen 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 CARRIGRENNAN (CORK CITY) WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CARRIGRENNAN (CORK CITY) 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
COD-Cr mg/l	261	1100	227
Suspended Solids mg/l	261	350	116
Total Nitrogen mg/l	26	31	18
BOD, 5 days with Inhibition (Carbonaceo mg/l	261	290	89
Total Phosphorus (as P) mg/l	26	3.70	2.20
Hydraulic Capacity	N/A	166410	114061

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 less 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 - TPEFF0400D0033SW001

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	261	N/A	N/A	51	Pass
Suspended Solids mg/l	35	87.5	N/A	261	3	N/A	11	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	25	50	N/A	261	N/A	N/A	6.62	Pass
Total Nitrogen mg/l	10	12	N/A	26	25	21	17	Fail
pH pH units	9	9	N/A	261	N/A	N/A	7.72	Pass
Total Phosphorus (as P) mg/l	2.5	3	N/A	26	N/A	N/A	0.541	Pass
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	26	N/A	N/A	0.241	
Appearance (on Sampling) Descriptive	N/A	N/A	N/A	261	N/A	N/A	N/A	

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)
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	26	N/A	N/A	5.78	
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	26	N/A	N/A	11	
Odour Descriptive	N/A	N/A	N/A	261	N/A	N/A	N/A	

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 Incident Section of Report

Significance of Results:

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

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0400D0033SW001

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	165691, 74463	RS19B140110	No	No	No	No	Moderate
Downstream	162843, 69176	RS19T050890	No	No	No	No	Moderate
Downstream	162863, 71034	RS19C120110	No	No	No	No	Moderate
Downstream	165003, 71212	RS19C120740	No	No	No	No	Moderate
Downstream	164101, 68782	RS19G040140	No	No	No	No	Poor
Downstream	164344, 69415	RS19G040190	No	No	No	No	Poor
Downstream	165278, 69503	RS19G040300	No	No	No	No	Poor
Downstream	165697, 70336	RS19G040490	No	No	No	No	Poor
Downstream	165401, 70768	RS19G040700	No	No	No	No	Poor
Downstream	166291, 74796	RS19G880990	No	No	No	No	Moderate
Downstream	166925, 74246	RS19B140300	No	No	No	No	Poor
Downstream	167422, 73340	RS19B140800	No	No	No	No	Poor
Downstream	168942, 73453	RS19G090400	No	No	No	No	Poor
Downstream	167868, 73539	RS19G090800	No	No	No	No	Poor
Downstream	167496, 72342	RS19K750900	No	No	No	No	Poor

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
Downstream	174650, 70440	TW04003159LE2005	No	No	No	No	Moderate
Downstream	170242, 72195	TW04003159LE2006	No	No	No	No	Moderate

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 ambient monitoring results do not meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Total Nitrogen mg/l.

The ambient monitoring results do not meet the required EQS at the downstream monitoring locations. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

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 - CARRIGRENNAN (CORK CITY) WWTP

2.1.4.1 Treatment Efficiency Report - Carrigrennan (Cork City) 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	5203951	484504	91
TN	806811	728496	9.71

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
COD	10199249	2212194	78
cBOD	4008409	289449	93
TP	96601	23438	76

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

2.1.4.2 Treatment Capacity Report Summary - Carrigrennan (Cork City) 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.

Carrigrennan (Cork City) WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	359592
DWF to the Treatment Plant (m^3/day)	59359
Current Hydraulic Loading - annual max (m^3/day)	166410
Average Hydraulic loading to the Treatment Plant (m^3/day)	114061.4
Organic Capacity (PE) - As Constructed	413200
Organic Capacity (PE) - Collected Load (peak week)[Note1]	296425
Organic Capacity (PE) - Remaining	116775
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 - CARRIGRENNAN (CORK CITY) 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 2023.			

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)
Uncontrolled release	Blocked Sewer	No	Yes
Uncontrolled release	Adverse Weather	No	Yes
Uncontrolled release	Blocked Sewer	No	Yes

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
Abatement equipment off-line	Plant or equipment breakdown at WWTP	No	No
Uncontrolled release	Blocked Sewer	No	No
Uncontrolled release	Emergency overflow caused by pump failure	No	No
Spillage	Plant or equipment breakdown at WWTP	No	No
Uncontrolled release	Emergency overflow caused by ragging or blocking	No	No
Uncontrolled release	Blocked Sewer	No	No
Uncontrolled release	Blocked Sewer	No	No
Uncontrolled release	Emergency overflow caused by power failure	No	No
Uncontrolled release	Adverse Weather	No	No
Uncontrolled release	Adverse Weather	No	No
Uncontrolled release	Adverse Weather	No	No
Uncontrolled release	Emergency overflow caused by ragging or blocking	No	Yes
Breach of ELV	Shock load to the WWTP	No	No
Breach of ELV	Adverse Weather	No	No
Abatement equipment off-line	Plant or equipment breakdown at WWTP	Yes	No
Breach of ELV	WWTP upgrade required to meet ELV	Yes	No
Uncontrolled release	Blocked Sewer	Yes	No

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Adverse Weather	Yes	No
Uncontrolled release	Emergency overflow caused by ragging or blocking	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	22
Number of Incidents reported to the EPA via EDEN in 2023	22
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 (m3)	Monitoring Status
CSO08	167442,72569	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO09	167442,72569	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO10	167427,72737	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
CSO11	167427,72737	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO19	167427,72737	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO20	167427,72737	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored

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 (m3)	Monitoring Status
CSO13	167405,73414	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
CSO14	167499,73710	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO18	167458,73281	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO21	167445,72650	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO62	168815,73446	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165219,69285	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
PS07	162898,69881	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS08	162794,70707	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO02	165720,71690	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
CSO03	165987,71724	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
CSO04	166772,72082	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO05	166965,72159	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO06	167054,72194	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
CSO07	167469,72139	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165605,70430	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO71	176683,69726	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	168304,72007	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO22	167558,72135	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO23	167663,72130	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO24	168078,72052	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
CSO25	168078,72052	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
CSO26	168078,72052	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO28	169332,72303	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO29	170463,72270	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO30	170703,72271	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
CSO33	170270,72107	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
CSO35	168322,71868	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO41	167533,71538	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO42	167457,71546	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO43	167260,71521	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
CSO44	167185,71501	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO45	167185,71501	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO46	167185,71501	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
CSO47	166415,71478	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
CSO48	165975,71326	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
CSO49	164347,69423	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
PS04	163247,69974	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO51	171683,69814	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
CSO52	165283,71154	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO53	165309,70832	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
CSO54	165602,70434	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO55	165598,70436	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO56	165705,69791	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO58	166295,69286	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO59	168668,69893	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
PS15	168668,69893	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO60	170005,69672	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
CSO61	170046,70086	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
CSO64	171597,71826	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO65	171597,71826	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
CSO66	171597,71826	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO67	168313,70079	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO68	168313,70079	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS01	170768,72079	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS03	166610,71492	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS20	167273,72119	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
PS21	167386,71575	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
PS14	165509,71592	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
SD25	165262,71318	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS05	164731,69408	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored

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 (m3)	Monitoring Status
CSO01	165014,71472	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
S46	170572,69837	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS35	172686,69671	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS33	174421,71067	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
S52	175958,72971	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
S51	177331,73293	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS32	175350,71492	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS34	177738,71255	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
CSO37	167915,71715	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
CSO38	167915,71715	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored

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 (m3)	Monitoring Status
CSO39	167915,71715	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO40	167915,71715	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	167915,71715	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	167915,71715	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	169935,73933	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163148,71116	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	164731,69408	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
CSO27	168765,72118	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	168765,72117	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
PS30	168765,72118	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored

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 (m3)	Monitoring Status
PS22	167119,71591	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
PS10	164943,71226	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS06	164252,69363	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	165219,69285	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165219,69285	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165219,69285	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165219,69285	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165219,69285	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165219,69285	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165219,69285	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
PS12	165281,71163	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
PS16	169118,69210	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS27	172264,72015	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS27	171683,69814	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS19	173151,70547	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
PS29	171176,72149	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS29	170607,72270	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS31	169812,72296	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
PS18	173059,71356	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	173033,69515	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
TBC	165485,71594	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	178044,73158	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	169716,69464	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	TBC
TBC	167607,71505	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
S50	172783,74201	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	175264,72770	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	172531,69505	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	168978,73744	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	167494,72138	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163370,69997	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
TBC	167164,70670	Yes	TBC	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	167141,70691	Yes	TBC	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	173059,71356	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	167273,72120	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	167134,70914	Yes	TBC	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	164417,69289	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163576,71182	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	162362,69315	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	-,-	Yes	TBC	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	167128,71579	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
TBC	173059,71356	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165231,69266	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	172588,71875	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	168979,73744	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	-,-	Yes	TBC	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	168979,73744	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	-,-	Yes	TBC	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	168979,73744	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	163243,69976	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	172682,73906	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 (m3)?	unknown

SWO Summary	
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	No
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
D0033-SIP:03	Improvement in operation of, and reduction in frequency of discharge via, CS071 (S48N and S48S)	C	31/12/2020	Yes	Works Completed		
D0033-SIP:04	Upgrading of waste water works, as required, to ensure Storm Water	C	22/12/2015	Yes	At Planning Stage	TBC	DAP completed 2023. Upgrades

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
	Overflows comply with the criteria outlined in DoEHLG.						will span multiple investment plans.
D0033-SIP:02	Infiltration and inflow programme	C	22/12/2015	Yes	At Planning Stage	TBC	DAP completed 2023.
D0033-SIP:01	Cessation of discharge from SD02 (St Patrick's Bridge)	A	22/12/2015	Yes	At Planning Stage	TBC	DAP completed 2023. Upgrades will span multiple investment plans.

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
D0033-01-Priority Substances Assessment	Yes	No
D0033-01-Shellfish Impact 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?	N/A
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	No

7 APPENDIX

Appendix
Appendix 7.1 - Ambient monitoring summary

Ambeint Monitoring Report Summary Data

		Designations				
Ambient monitoring point	Irish Grid Reference	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
RS19B140110	165691, 74463	No	No	No	No	Moderate
RS19B140300	166925, 74246	No	No	No	No	Poor
RS19B140800	167422, 73340	No	No	No	No	Poor
RS19C120110	162863, 71034	No	No	No	No	Moderate
RS19C120740	165003, 71212	No	No	No	No	Moderate
RS19G040140	164101, 68782	No	No	No	No	Poor
RS19G040190	164344, 69415	No	No	No	No	Poor
RS19G040300	165278, 69503	No	No	No	No	Poor
RS19G040490	165697, 70336	No	No	No	No	Poor
RS19G040700	165401, 70768	No	No	No	No	Poor
RS19G090400	168942, 73453	No	No	No	No	Poor
RS19G090800	167868, 73539	No	No	No	No	Poor
RS19G880990	166291, 74796	No	No	No	No	Moderate
RS19K750900	167496, 72342	No	No	No	No	Poor
RS19T050890	162843, 69176	No	No	No	No	Moderate
TW04003159LE2005	174650, 70440	No	No	No	No	Moderate
TW04003159LE2006	170242, 72195	No	No	No	No	Moderate
CW05003150LE8004	178089, 65386	No	No	No	No	Moderate
TW05003157LE4005	177039, 69408	No	No	No	No	Moderate
TW05003157LE4004	174649, 70439	No	No	No	No	Moderate

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
RS19B140110	12/01/2016	0.06	1.6	73.4	0.05	7.6	1.15	0.89
RS19B140110	09/02/2016	0.04	1	103.7	0.06	7.6	3.23	2.89
RS19B140110	01/03/2016	0.06	1	103.8	0.06	7.5	3.14	2.8
RS19B140110	05/04/2016	0.04	1	81.5	0.05	8.0	3.26	2.82
RS19B140110	04/05/2016	0.02	1.2	82.3	0.04	7.8	3.43	3.11
RS19B140110	01/06/2016	0.03	3	79.2	0.04	7.9	3.79	3
RS19B140110	05/07/2016	0.004	2.7	66.9	0.08	7.9	3.2	2.67
RS19B140110	10/08/2016	0.004	1.5	74.3	0.09	8.0	2.66	2.22
RS19B140110	01/09/2016	0.01	2.6	59.6	0.09	7.8	1.81	1.56
RS19B140110	04/10/2016	0.01	1.6	62.8	0.06	7.8	1.85	1.56
RS19B140300	12/01/2016	0.061	1	78.2	0.09	7.6	2.79	2.38
RS19B140300	09/02/2016	0.047	1	80.6	0.07	7.6	2.9	2.51
RS19B140300	01/03/2016	0.070	1	92.0	0.08	7.4	3.18	2.8
RS19B140300	05/04/2016	0.023	1.2	79.0	0.07	8.3	3.22	2.87
RS19B140300	04/05/2016	0.023	1.1	85.5	0.06	7.6	3.84	3.62
RS19B140300	01/06/2016	0.031	1.2	75.2	0.07	7.9	3.79	3.4
RS19B140300	05/07/2016	0.004	1	75.7	0.10	8.1	3.15	2.82
RS19B140300	10/08/2016	0.004	1	71.7	0.10	7.8	2.24	1.98
RS19B140300	01/09/2016	0.023	1	65.3	0.12	7.7	2.22	1.89
RS19B140300	04/10/2016	0.016	1	60.1	0.10	7.7	1.48	1.11
RS19B140800	12/01/2016	0.052	1	76.8	0.07	7.2	1.63	1.33
RS19B140800	09/02/2016	0.047	1	85.5	0.07	7.5	3.86	3.36
RS19B140800	01/03/2016	0.054	1	104.8	0.07	7.1	2.24	2.13
RS19B140800	05/04/2016	0.016	1	76.8	0.08	8.2	3.51	3.11
RS19B140800	04/05/2016	0.016	1	79.9	0.05	7.6	5.05	4.84
RS19B140800	01/06/2016	0.023	1.2	66.5	0.07	7.4	4.83	4.44
RS19B140800	10/08/2016	0.004	1	65.7	0.09	7.5	2.09	1.93
RS19B140800	01/09/2016	0.031	1	64.1	0.10	7.6	2.43	2.22
RS19B140800	04/10/2016	0.000	1.2	67.4	0.10	7.2	2.04	1.78
RS19C120110	19/01/2016	0.428	2.6	71.7	0.08	7.8	3.25	2.6
RS19C120110	16/02/2016	0.037	0.8	76.2	0.05	7.7	2.87	2.64
RS19C120110	08/03/2016	0.024	0.5	84.4	0.05	7.6	2.89	2.71
RS19C120110	19/04/2016	0.001	0.3	77.4	0.04	7.6	2.32	2.18
RS19C120110	10/05/2016	0.014	2.6	72.2	0.08	7.7	5.66	4.96
RS19C120110	28/06/2016	0.062	1.9	60.6	0.03	7.8	3.17	2.8
RS19C120110	26/07/2016	0.001	0.6	55.9	0.04	7.9	2.86	2.64
RS19C120110	24/08/2016	0.001	0.8	76.7	0.06	7.7	4.05	3.78
RS19C120110	11/10/2016	0.038	0.8	89.1	0.05	7.9	1.74	1.56
RS19C120110	15/11/2016	0.045	0.8	68.3	0.06	7.8	1.13	0.89
RS19C120740	19/01/2016	0.179	1.6	66.0	0.07	7.71	3.24	2.73
RS19C120740	16/02/2016	0.163	1.1	75.4	0.06	7.66	3.39	3.07
RS19C120740	08/03/2016	0.030	0.8	79.4	0.05	7.65	3.66	3.38
RS19C120740	19/04/2016	0.103	0.5	72.0	0.05	7.58	2.89	2.64
RS19C120740	10/05/2016	0.871	3.9	67.2	0.15	7.64	4.61	3.04
RS19C120740	28/06/2016	0.436	3.0	44.2	0.04	7.6	3	2.2
RS19C120740	26/07/2016	0.576	2.2	44.4	0.05	7.47	3.98	3.2
RS19C120740	24/08/2016	0.459	1.2	46.6	0.07	7.47	2.24	1.56
RS19C120740	11/10/2016	0.280	1.3	81.1	0.05	7.62	3.72	3.33
RS19C120740	15/11/2016	0.285	1.0	55.3	0.05	7.66	1.79	1.33
RS19G040140	19/01/2016	0.022	1.2	76.0	0.06	7.41	2.4	2.38
RS19G040140	16/02/2016	0.016	0.8	74.1	0.05	7.05	2.42	2.31
RS19G040140	08/03/2016	0.049	0.4	88.8	0.04	7.01	3.47	3.36
RS19G040140	19/04/2016	0.008	0.3	70.3	0.04	6.85	2.22	2.13
RS19G040140	10/05/2016	0.004	3.1	68.7	0.05	7.84	4.01	3.67
RS19G040140	28/06/2016	0.016	0.1	61.0	0.07	7.53	4.02	3.78
RS19G040140	26/07/2016	0.001	0.4	63.7	0.05	7.46	4.89	4.63
RS19G040140	24/08/2016	0.001	0.4	74.7	0.06	7.32	3.64	3.47
RS19G040140	11/10/2016	0.034	0.9	88.0	0.08	7.59	1.01	1
RS19G040140	15/11/2016	0.044	0.9	65.4	0.06	7.27	2.29	2.22
RS19G040190	19/01/2016	0.057	1.4	101.5	0.06	7.43	1.96	1.78
RS19G040190	16/02/2016	0.075	0.7	70.8	0.05	7.52	3.15	3.02
RS19G040190	08/03/2016	0.109	0.6	78.3	0.05	7.41	2.22	2.09
RS19G040190	19/04/2016	0.078	0.7	72.4	0.07	7.32	2.52	2.27
RS19G040190	10/05/2016	0.138	1.4	66.3	0.08	7.9	3.47	3
RS19G040190	28/06/2016	0.093	2.3	51.3	0.09	7.74	2.61	2.09
RS19G040190	26/07/2016	0.019	1.8	62.4	0.12	7.92	2.7	2.33
RS19G040190	24/08/2016	0.001	0.8	64.9	0.09	7.73	2.15	1.89
RS19G040190	11/10/2016	0.053	1.1	85.3	0.08	7.91	1.41	1.33
RS19G040190	15/11/2016	0.069	0.9	64.7	0.07	7.85	1.53	1.33
RS19G040300	19/01/2016	0.817	7.6	60.0	0.27	7.43	4.8	2.84
RS19G040300	16/02/2016	0.607	3.2	76.4	0.17	7.3	3.75	2.82
RS19G040300	08/03/2016	0.194	1.5	61.7	0.08	7.52	2.09	1.78
RS19G040300	19/04/2016	0.125	0.8	62.5	0.05	7.51	3.85	3.58
RS19G040300	10/05/2016	0.557	1.6	51.3	0.08	7.61	3.09	2.24
RS19G040300	28/06/2016	0.513	7.3	28.5	0.10	7.56	3.18	1.69
RS19G040300	26/07/2016	0.756	1.7	20.0	0.15	7.38	3.19	2.11

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
RS19G040300	24/08/2016	1.019	1.5	25.7	0.20	7.3	4.06	3.44
RS19G040300	11/10/2016	1.322	1.9	48.5	0.18	7.39	3.55	2.22
RS19G040300	15/11/2016	1.252	2.2	25.7	0.14	7.41	2.01	0.67
RS19G040490	19/01/2016	0.197	1.8	50.9	0.09	7.48	3.25	2.82
RS19G040490	16/02/2016	0.342	2.0	64.3	0.10	7.46	3	2.47
RS19G040490	08/03/2016	0.218	1.7	57.6	0.08	7.58	1.78	1.44
RS19G040490	19/04/2016	0.154	1.1	51.1	0.07	7.48	2.85	2.49
RS19G040490	10/05/2016	0.378	1.6	44.6	0.08	7.76	3	2.16
RS19G040490	28/06/2016	0.622	10.0	20.1	0.17	7.48	3.65	1.47
RS19G040490	26/07/2016	0.660	3.5	27.2	0.18	7.51	2.82	1.84
RS19G040490	24/08/2016	0.801	1.4	25.8	0.19	7.37	3.17	2.13
RS19G040490	11/10/2016	0.856	2.7	47.6	0.12	7.44	2.61	1.56
RS19G040490	15/11/2016	0.894	2.5	27.9	0.21	7.49	1.77	0.89
RS19G040700	19/01/2016	0.195	2	52.8	0.08	7.57	2.39	1.98
RS19G040700	16/02/2016	0.342	2.3	57.3	0.11	7.57	2.85	2.24
RS19G040700	08/03/2016	0.194	1.4	64.2	0.08	7.66	3.2	2.89
RS19G040700	19/04/2016	0.103	0.9	56.8	0.06	7.56	2.59	2.27
RS19G040700	10/05/2016	0.315	2.2	65.9	0.08	7.76	3.18	2.49
RS19G040700	28/06/2016	0.404	13.2	10.6	0.61	7.66	4.24	1.22
RS19G040700	26/07/2016	0.386	2.7	42.8	0.20	7.7	2.72	2
RS19G040700	24/08/2016	0.624	2.0	43.8	0.17	7.55	2.15	1.31
RS19G040700	11/10/2016	0.669	3.9	66.7	0.16	7.58	2.99	2.11
RS19G040700	15/11/2016	2.676	8.8	30.7	0.41	7.56	3.92	0.22
RS19G090400	12/01/2016	0.075	1.1	78.4	0.09	7.49	0.41	0.22
RS19G090400	09/02/2016	0.086	1.3	77.4	0.10	7.53	2.05	1.56
RS19G090400	01/03/2016	0.070	1.0	96.9	0.10	7.37	3.02	2.67
RS19G090400	05/04/2016	0.140	1.8	81.1	0.10	8.22	3.69	3.18
RS19G090400	04/05/2016	0.047	1.0	71.5	0.10	7.68	3.05	2.67
RS19G090400	01/06/2016	0.148	1.4	65.1	0.12	7.7	2.81	2.24
RS19G090400	05/07/2016	0.202	1.7	66.5	0.17	7.79	2.91	2.4
RS19G090400	10/08/2016	0.187	2.4	58.6	0.24	7.77	2.15	1.6
RS19G090400	01/09/2016	0.086	1.8	62.3	0.21	7.65	1.67	1.33
RS19G090400	04/10/2016	0.070	11.0	65.9	0.13	7.65	2.22	1.89
RS19G090800	12/01/2016	0.062	1.0	81.4	0.10	7.43	0.65	0.44
RS19G090800	09/02/2016	0.054	1.0	82.7	0.11	7.51	2.62	2.11
RS19G090800	01/03/2016	0.062	1.0	106.5	0.09	7.32	3.22	2.82
RS19G090800	05/04/2016	0.047	1.3	74.8	0.09	8.33	3.18	2.69
RS19G090800	04/05/2016	0.039	1.0	76.0	0.10	7.69	3.02	2.67
RS19G090800	01/06/2016	0.117	1.4	68.3	0.12	7.57	3.85	3.27
RS19G090800	05/07/2016	0.156	1.8	71.3	0.17	7.93	2.89	2.44
RS19G090800	10/08/2016	0.039	2.3	68.1	0.22	7.77	2.24	1.89
RS19G090800	01/09/2016	0.039	1.0	66.1	0.18	7.66	1.44	1.11
RS19G090800	04/10/2016	0.031	1.0	62.7	0.14	7.42	1.24	1
RS19G880990	12/01/2016	0.061	1	85.4	0.06	7.6	2.47	2.09
RS19G880990	09/02/2016	0.078	1	83.2	0.08	7.62	3.71	3.11
RS19G880990	01/03/2016	0.062	1	87.5	0.07	7.55	2.51	2.09
RS19G880990	05/04/2016	0.016	1.3	74.8	0.08	8.37	2.62	2.22
RS19G880990	04/05/2016	0.008	1.3	79.6	0.06	7.81	4.86	4.56
RS19G880990	01/06/2016	0.016	1.1	81.0	0.08	7.99	4.72	4.22
RS19G880990	05/07/2016	0.004	1	73.7	0.11	7.95	3.27	2.89
RS19G880990	10/08/2016	0.004	1.3	80.1	0.11	8.03	2.71	2.33
RS19G880990	01/09/2016	0.023	1	68.6	0.14	7.84	2.7	2.44
RS19G880990	04/10/2016	0.008	2.3	73.8	0.14	7.82	2.48	2.11
RS19K750900	12/01/2016	0.057	1.4	88.0	0.08	6.98	1.89	1.56
RS19K750900	09/02/2016	0.047	3.3	83.0	0.10	6.97	3.67	3.24
RS19K750900	01/03/2016	0.047	1.4	103.8	0.07	6.8	2.68	2.2
RS19K750900	05/04/2016	0.031	7.3	73.8	0.09	8.31	3.85	3.33
RS19K750900	04/05/2016	0.070	24	65.7	0.14	6.94	4.53	3.78
RS19K750900	01/06/2016	0.187	17.7	50.9	0.05	7.15	4.77	3.13
RS19K750900	05/07/2016	0.856	115	34.4	0.36	7.18	4.53	0.96
RS19K750900	10/08/2016	2.022	43.3	32.9	0.22	6.99	6.66	2.98
RS19K750900	01/09/2016	0.739	4.4	30.2	0.37	6.79	3.23	2.11
RS19K750900	04/10/2016	0.008	1.8	53.1	0.15	6.89	1.68	1.33
RS19T050890	19/01/2016	1.944	10.1	76.8	0.23	7.79	6.23	3.27
RS19T050890	16/02/2016	0.037	0.6	77.0	0.05	7.7	3.32	3.13
RS19T050890	08/03/2016	0.059	0.4	85.0	0.04	7.61	3.09	2.93
RS19T050890	19/04/2016	0.008	0.4	78.4	0.04	7.57	2.39	2.22
RS19T050890	10/05/2016	0.001	0.9	70.1	0.06	7.91	3.45	3
RS19T050890	28/06/2016	0.194	5.9	68.6	0.09	8	3.66	2.98
RS19T050890	26/07/2016	0.001	0.8	62.0	0.07	8.17	3.6	3.2
RS19T050890	24/08/2016	0.001	1.1	79.2	0.09	8	1.52	1.22
RS19T050890	11/10/2016	0.043	0.9	92.4	0.05	8.14	1.96	1.78
RS19T050890	15/11/2016	0.054	0.8	70.8	0.05	8.04	1.04	0.89
TW04003159LE2005	01/02/2021	0.073	0.5	66.7	0.03	7.6	2.2	2.27
TW04003159LE2005	01/02/2021	0.176	0.5	59.5	0.04	7.8	1.6	1.37
TW04003159LE2005	01/02/2021	0.098	0.5	66.0	0.04	8	1	0.64

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
TW04003159LE2005	01/02/2021	0.055	0.5	66.5	0.03	7.6	2.1	1.92
TW04003159LE2005	01/02/2021	0.146	0.5	66.4	0.04	7.9	1.4	0.78
TW04003159LE2005	01/02/2021	0.143	0.5	73.9	0.04	8	1.1	0.73
TW04003159LE2005	18/03/2021	0.173	0.5	78.6	0.03	7.8	2.8	2.45
TW04003159LE2005	18/03/2021	0.137	0.5	70.8	0.03	8	1.2	0.71
TW04003159LE2005	18/03/2021	0.087	0.5	85.0	0.03	8.1	1.1	0.54
TW04003159LE2005	18/03/2021	0.128	0.5	73.9	0.03	8	1.9	1.82
TW04003159LE2005	18/03/2021	0.118	0.5	76.0	0.03	8.1	1.2	0.59
TW04003159LE2005	18/03/2021	0.114	0.5	86.1	0.03	8.1	1.2	0.59
TW04003159LE2005	29/04/2021	0.097	2.4	83.8	0.01	8.4	1.7	0.49
TW04003159LE2005	29/04/2021	0.12	3.2	76.0	0.01	8.4	1	0.34
TW04003159LE2005	29/04/2021	0.11	2.9	69.4	0.01	8.5	1	0.41
TW04003159LE2005	29/04/2021	0.053	1.8	81.3	0.01	8.3	2.1	1.35
TW04003159LE2005	29/04/2021	0.063	2.7	78.4	0.01	8.5	0.9	0.31
TW04003159LE2005	29/04/2021	0.0175	2.4	95.7	0.01	8.5	0.8	0.23
TW04003159LE2005	17/05/2021	0.139	1.8	84.6	0.01	8.2	1.4	1.28
TW04003159LE2005	17/05/2021	0.136	1.7	67.8	0.01	8.2	0.9	0.22
TW04003159LE2005	17/05/2021	0.154	2.1	79.6	0.01	8.2	0.9	0.18
TW04003159LE2005	17/05/2021	0.101	2	71.5	0.01	8.3	0.9	0.58
TW04003159LE2005	17/05/2021	0.129	2	67.5	0.01	8.2	1.1	0.25
TW04003159LE2005	17/05/2021	0.104	2.1	85.3	0.01	8.2	0.8	0.16
TW04003159LE2005	14/06/2021	0.071	1.5	76.7	0.01	8	1.7	1.25
TW04003159LE2005	14/06/2021	0.097	2.6	74.2	0.07	8.1	1	0.39
TW04003159LE2005	14/06/2021	0.145	2	84.3	0.01	8.1	1	0.33
TW04003159LE2005	14/06/2021	0.083	1.6	76.6	0.01	8	1.7	1.35
TW04003159LE2005	14/06/2021	0.142	2	70.6	0.03	8.2	1	0.32
TW04003159LE2005	14/06/2021	0.14	2	84.4	0.01	8.1	1.1	0.37
TW04003159LE2005	13/07/2021	0.15	1.6	87.1	0.02	8.2	1.3	1.04
TW04003159LE2005	13/07/2021	0.152	2.6	86.5	0.01	8.2	0.9	0.2
TW04003159LE2005	13/07/2021	0.147	1.7	86.0	0.01	8.2	1	0.17
TW04003159LE2005	13/07/2021	0.107	2.2	70.4	0.01	8.3	1.2	0.47
TW04003159LE2005	13/07/2021	0.121	2.7	71.1	0.08	8.3	0.9	0.17
TW04003159LE2005	13/07/2021	0.149	2.4	82.6	0.01	8.3	0.9	0.16
TW04003159LE2005	25/08/2021	0.037	4.2	82.4	0.01	8.3	1	0.68
TW04003159LE2005	25/08/2021	0.11	3.8	73.7	0.01	8.3	0.7	0.18
TW04003159LE2005	25/08/2021	0.042	1.4	72.1	0.01	8.1	0.6	0.24
TW04003159LE2005	25/08/2021	0.066	3.6	70.8	0.02	8.4	0.8	1.12
TW04003159LE2005	25/08/2021	0.05	3.2	67.3	0.01	8.3	0.6	0.18
TW04003159LE2005	25/08/2021	0.079	2.9	80.6	0.01	8.3	0.6	0.16
TW04003159LE2005	16/09/2021	0.063	1.4	78.0	0.03	8	1.3	1.19
TW04003159LE2005	16/09/2021	0.084	3.3	80.0	0.02	8.3	0.6	0.16
TW04003159LE2005	16/09/2021	0.096	2.5	92.1	0.02	8.2	0.6	0.13
TW04003159LE2005	16/09/2021	0.0175	5.6	69.3	0.01	8.4	0.8	0.57
TW04003159LE2005	16/09/2021	0.062	2.3	83.3	0.01	8.2	0.6	0.16
TW04003159LE2005	16/09/2021	0.082	2.6	84.2	0.01	8.2	0.6	0.13
TW04003159LE2005	09/11/2021	0.084	0.5	70.3	0.04	7.7	2.7	2.08
TW04003159LE2005	09/11/2021	0.123	0.5	67.6	0.04	7.8	1.2	1.03
TW04003159LE2005	09/11/2021	0.158	0.5	79.3	0.03	7.9	1.1	0.81
TW04003159LE2005	09/11/2021	0.111	0.5	70.2	0.03	7.8	1.8	1.55
TW04003159LE2005	09/11/2021	0.142	0.5	74.2	0.03	7.9	1.1	0.78
TW04003159LE2005	09/11/2021	0.123	0.5	82.8	0.03	7.9	1.1	0.66
TW04003159LE2005	01/12/2021	0.188	0.5	78.2	0.01	7.9	1.8	1.7
TW04003159LE2005	01/12/2021	0.259	0.5	72.2	0.01	8	1	0.63
TW04003159LE2005	01/12/2021	0.255	0.5	79.9	0.01	7.9	0.9	0.47
TW04003159LE2005	01/12/2021	0.241	0.5	70.7	0.01	8	1.4	1.05
TW04003159LE2005	01/12/2021	0.266	1.4	72.9	0.01	8	1.2	0.71
TW04003159LE2005	01/12/2021	0.262	0.5	82.4	0.01	7.9	1.1	0.56
TW04003159LE2006	01/02/2021	0.07	0.5	62.8	0.03	7.7	2.3	2.33
TW04003159LE2006	01/02/2021	0.26	0.5	66.1	0.06	7.9	1.4	0.84
TW04003159LE2006	01/02/2021	0.077	0.5	68.2	0.03	7.7	2.5	2.29
TW04003159LE2006	01/02/2021	0.28	0.5	75.2	0.06	7.9	1.4	0.75
TW04003159LE2006	18/03/2021	0.149	0.5	77.4	0.03	7.9	3	2.79
TW04003159LE2006	18/03/2021	0.153	0.5	75.0	0.03	8	1.4	0.65
TW04003159LE2006	18/03/2021	0.114	0.5	90.4	0.03	7.9	3	3.03
TW04003159LE2006	18/03/2021	0.169	0.5	88.4	0.03	8.1	1.3	0.64
TW04003159LE2006	29/04/2021	0.137	1.2	83.2	0.01	8.2	2.2	1.86
TW04003159LE2006	29/04/2021	0.131	4.1	77.6	0.01	8.5	1.1	0.35
TW04003159LE2006	29/04/2021	0.05	0.5	94.3	0.01	8.1	2.7	2.08
TW04003159LE2006	29/04/2021	0.069	3.1	94.8	0.01	8.5	0.9	0.4
TW04003159LE2006	17/05/2021	0.121	0.5	79.6	0.01	7.9	1.9	1.1
TW04003159LE2006	17/05/2021	0.176	1.3	82.0	0.01	8.2	1	0.24
TW04003159LE2006	17/05/2021	0.105	0.5	66.6	0.01	7.8	2.1	1.64
TW04003159LE2006	17/05/2021	0.142	2.3	81.4	0.01	8.2	0.9	0.31
TW04003159LE2006	14/06/2021	0.081	1.4	69.6	0.01	7.9	1.9	1.47
TW04003159LE2006	14/06/2021	0.2	2.2	71.0	0.01	8	1.1	0.43
TW04003159LE2006	14/06/2021	0.091	1.1	66.6	0.01	7.8	2	1.48

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
TW04003159LE2006	14/06/2021	0.173	1.4	74.1	0.01	8.1	1.1	0.42
TW04003159LE2006	13/07/2021	0.178	1.3	70.1	0.03	8	1.7	0.96
TW04003159LE2006	13/07/2021	0.201	2	65.2	0.05	8.1	1	0.17
TW04003159LE2006	13/07/2021	0.14	1.1	89.4	0.03	7.9	2	1.81
TW04003159LE2006	13/07/2021	0.168	3.6	85.0	0.01	8.3	0.7	0.15
TW04003159LE2006	25/08/2021	0.061	1	75.6	0.02	7.9	1.4	1.38
TW04003159LE2006	25/08/2021	0.148	1.6	71.2	0.02	8	0.7	0.19
TW04003159LE2006	25/08/2021	0.056	1.7	67.0	0.02	8.1	1.2	1.36
TW04003159LE2006	25/08/2021	0.121	2.7	75.5	0.01	8.2	0.6	0.17
TW04003159LE2006	16/09/2021	0.074	1.1	77.2	0.03	7.9	1.2	1.28
TW04003159LE2006	16/09/2021	0.134	1.6	82.3	0.02	8.2	0.6	0.13
TW04003159LE2006	16/09/2021	0.065	1.8	74.5	0.03	7.9	1.5	1.24
TW04003159LE2006	16/09/2021	0.142	2	84.1	0.02	8.1	0.6	0.14
TW04003159LE2006	09/11/2021	0.064	0.5	69.7	0.04	7.7	3.2	2.7
TW04003159LE2006	09/11/2021	0.153	0.5	72.4	0.04	7.8	1.1	0.67
TW04003159LE2006	09/11/2021	0.06	0.5	70.6	0.03	7.7	2.8	2.76
TW04003159LE2006	09/11/2021	0.13	0.5	80.4	0.03	7.8	1.1	0.64
TW04003159LE2006	01/12/2021	0.16	0.5	78.4	0.01	7.8	2	2.02
TW04003159LE2006	01/12/2021	0.268	0.5	71.5	0.01	7.9	1	0.41
TW04003159LE2006	01/12/2021	0.19	0.5	72.6	0.01	7.9	2	1.66
TW04003159LE2006	01/12/2021	0.248	0.5	77.8	0.01	8	1.3	0.51
TW05003157LE4005	01/02/2021	0.102	0.5	61.9	0.04	7.8	2	1.96
TW05003157LE4005	01/02/2021	0.118	0.5	64.3	0.04	7.9	1.6	1.33
TW05003157LE4005	01/02/2021	0.117	0.5	74.7	0.04	7.9	1.4	1.04
TW05003157LE4005	01/02/2021	0.115	0.5	65.0	0.04	8	1.5	1.31
TW05003157LE4005	01/02/2021	0.072	0.5	68.1	0.03	8	1	0.62
TW05003157LE4005	01/02/2021	0.044	0.5	74.5	0.03	8	0.9	0.5
TW05003157LE4005	18/03/2021	0.102	0.5	76.2	0.03	8.1	1.5	1.19
TW05003157LE4005	18/03/2021	0.097	0.5	74.6	0.03	8.1	1.5	0.9
TW05003157LE4005	18/03/2021	0.101	0.5	71.5	0.03	8.1	1.3	0.74
TW05003157LE4005	18/03/2021	0.076	0.5	76.0	0.03	8.1	1.2	0.88
TW05003157LE4005	18/03/2021	0.075	0.5	81.0	0.02	8.1	0.9	0.44
TW05003157LE4005	18/03/2021	0.0175	0.5	89.2	0.02	8.1	0.7	0.34
TW05003157LE4005	29/04/2021	0.082	2	79.2	0.01	8.5	0.9	0.38
TW05003157LE4005	29/04/2021	0.097	2.2	76.9	0.01	8.5	0.9	0.34
TW05003157LE4005	29/04/2021	0.125	2.1	75.2	0.01	8.4	0.9	0.28
TW05003157LE4005	29/04/2021	0.0175	2.2	84.4	0.01	8.5	0.7	0.27
TW05003157LE4005	29/04/2021	0.0175	1.8	84.9	0.01	8.5	0.6	0.1
TW05003157LE4005	29/04/2021	0.0175	1.9	92.5	0.01	8.5	0.6	0.08
TW05003157LE4005	17/05/2021	0.136	2.7	76.6	0.01	8.3	1	0.42
TW05003157LE4005	17/05/2021	0.152	2.9	73.4	0.02	8.3	0.9	0.35
TW05003157LE4005	17/05/2021	0.137	2.6	82.7	0.01	8.3	0.9	0.21
TW05003157LE4005	17/05/2021	0.082	1.4	76.4	0.05	8.3	0.8	0.38
TW05003157LE4005	17/05/2021	0.065	1.2	76.7	0.01	8.2	0.7	0.04
TW05003157LE4005	17/05/2021	0.102	1.2	86.2	0.01	8.2	0.6	0.04
TW05003157LE4005	14/06/2021	0.035	2.6	92.5	0.01	8.4	1.1	0.66
TW05003157LE4005	14/06/2021	0.061	2.9	77.9	0.01	8.2	1.1	0.39
TW05003157LE4005	14/06/2021	0.073	2.5	86.0	0.01	8.2	1	0.35
TW05003157LE4005	14/06/2021	0.05	2.4	76.3	0.01	8.3	0.8	0.45
TW05003157LE4005	14/06/2021	0.047	2.2	73.3	0.01	8.2	0.8	0.18
TW05003157LE4005	14/06/2021	0.044	1.8	86.9	0.01	8.2	1	0.1
TW05003157LE4005	13/07/2021	0.101	0.5	73.9	0.01	8.3	0.8	0.29
TW05003157LE4005	13/07/2021	0.126	2.2	68.2	0.01	8.2	0.8	0.19
TW05003157LE4005	13/07/2021	0.105	2.2	91.6	0.01	8.2	0.8	0.18
TW05003157LE4005	13/07/2021	0.101	2.7	71.3	0.01	8.3	0.7	0.11
TW05003157LE4005	13/07/2021	0.103	2	67.0	0.01	8.3	0.6	0.07
TW05003157LE4005	13/07/2021	0.086	1.8	91.1	0.02	8.3	0.6	0.05
TW05003157LE4005	25/08/2021	0.04	1.9	77.2	0.01	8.3	0.6	0.26
TW05003157LE4005	25/08/2021	0.044	2.3	71.2	0.01	8.2	0.6	0.19
TW05003157LE4005	25/08/2021	0.055	2.1	70.3	0.01	8.2	0.7	0.14
TW05003157LE4005	25/08/2021	0.046	2.7	68.9	0.01	8.3	0.25	0.11
TW05003157LE4005	25/08/2021	0.039	2	69.0	0.01	8.2	0.25	0.06
TW05003157LE4005	25/08/2021	0.369	1.9	78.1	0.01	8.2	0.25	0.05
TW05003157LE4005	16/09/2021	0.0175	6	81.6	0.01	8.4	0.7	0.36
TW05003157LE4005	16/09/2021	0.047	5.5	85.1	0.01	8.5	0.7	0.2
TW05003157LE4005	16/09/2021	0.074	4.8	93.3	0.01	8.4	0.6	0.14
TW05003157LE4005	16/09/2021	0.0175	2.6	96.9	0.01	8.3	0.5	0.16
TW05003157LE4005	16/09/2021	0.069	2	84.7	0.01	8.2	0.25	0.14
TW05003157LE4005	16/09/2021	0.0175	2.1	86.1	0.01	8.2	0.25	0.11
TW05003157LE4005	09/11/2021	0.118	0.5	73.0	0.03	7.8	1.6	1.34
TW05003157LE4005	09/11/2021	0.13	0.5	69.4	0.03	7.9	1.3	0.9
TW05003157LE4005	09/11/2021	0.126	1.7	86.6	0.03	7.9	1.3	0.75
TW05003157LE4005	09/11/2021	0.1	0.5	73.3	0.03	7.9	1.2	0.77
TW05003157LE4005	09/11/2021	0.056	0.5	72.5	0.03	7.9	0.9	0.5
TW05003157LE4005	09/11/2021	0.041	0.5	70.1	0.03	7.9	0.9	0.42
TW05003157LE4005	01/12/2021	0.28	1.4	77.3	0.01	7.9	1.2	0.8

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
TW05003157LE4005	01/12/2021	0.28	0.5	75.7	0.01	7.9	1.1	0.72
TW05003157LE4005	01/12/2021	0.24	0.5	82.3	0.01	8	1.1	0.66
TW05003157LE4005	01/12/2021	0.223	0.5	78.5	0.01	8	1	0.54
TW05003157LE4005	01/12/2021	0.205	0.5	87.2	0.01	8	0.9	0.49
TW05003157LE4005	01/12/2021	0.172	0.5	87.4	0.01	8	0.9	0.4

Downstream Monitoring Point Annual Mean

	Alkalinity-total (as CaCO3) mg/l	Ammonia-Total (as N) mg/l	BOD - 5 days (Total) mg/l	Chloride mg/l	Conductivity @25°C µS/cm	Dissolved Oxygen % Saturation	Dissolved Oxygen mg/l
RS19G040700	168.000	0.210	2.850	27.165	436.000	78.250	7.575
RS19G880990	84.500	0.077	2.504	21.300	289.000	97.250	11.850
RS19T050890	90.500	0.161	0.707	22.550	301.750	83.500	9.500
EQS (mean)		0.140	1.500				

	ortho-Phosphate (as P) - unspecified mg/l	pH pH units	Temp °C	Total Hardness (as CaCO3) mg/l	Total Oxidised Nitrogen (as N) mg/l	True Colour mg/litre Pt Co
RS19G040700	0.089	7.650	13.175	180.750	2.563	19.384
RS19G880990	0.132	7.850	12.650	108.000	5.250	63.750
RS19T050890	0.184	7.850	12.600	111.000	5.625	83.250
EQS (mean)	0.035					