

# Annual Environmental Report

2018



Knockbridge

D0260-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0260-01, Knockbridge, in Louth in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports are included as an appendix to the AER as follows:

## 1.1 Licence specific reporting included in AER

Assessment / Report	Included in AER
<b>There is no Licence Specific Reports included in the AER.</b>	

## 1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant Knockbridge WWTP with a Plant Capacity PE of 1000. The treatment process includes the following:

### 1.2.1 Knockbridge WWTP

Treatment type	Yes / No	Details
<b>Preliminary Treatment</b>	No	
<b>Primary Treatment</b>	No	
<b>Secondary Treatment</b>	Yes	Conventional activated sludge.
<b>Nutrient Removal</b>	Yes	Ferric dosing
<b>Tertiary Treatment</b>	No	

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 2.2 Discharges from the agglomeration.

### 1.3 ELV Overview

#### 1.3.1 Knockbridge WWTP

Compliance Status	
Were all parameters compliant for Knockbridge WWTP treatment plant	No
Where non compliant see Table 2.2.1 for details of parameters	

### 1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
Knockbridge WWTP	Liquid Sludge	669.6	Weight (Tonnes)	0.94	Dundalk WWTP
Knockbridge WWTP	Liquid Sludge	700.23	Weight (Tonnes)	1.28	Drogheda WWTP

#### Annual Statement of Measures

There were no major capital or operational changes undertaken.

## 2 MONITORING REPORTS SUMMARY

### 2.1 Summary report on monthly influent monitoring

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

#### 2.1.1 Influent Monitoring Summary - Knockbridge WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
<b>Total Nitrogen mg/l</b>	5	97.6	84.91
<b>COD-Cr mg/l</b>	8	1440	799.78
<b>Total Phosphorus (as P) mg/l</b>	6	15.8	10.11
<b>Suspended Solids mg/l</b>	8	383	232.19
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	8	590	356.77
<b>Hydraulic Capacity</b>		207.62	68.74

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable.

#### Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2.

## 2.2 Discharges from the agglomeration

### 2.2.1 Effluent Monitoring Summary - Knockbridge WWTP

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included <sup>Note 1</sup>	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
<b>COD-Cr mg/l</b>	125	250	0	6	0	0	52.55	Pass
<b>Ammonia-Total (as N) mg/l</b>	3	3.6	0	6	1	1	3.53	Fail
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	2	2.4	0	6	0	0	0.21	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	25	50	0	6	0	0	2.38	Pass
<b>pH pH units</b>	6 to 9	0	0	6	0	0	7.16	Pass
<b>Suspended Solids mg/l</b>	25	62.5	0	6	0	0	12.59	Pass

Notes:

1- This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

#### Cause of Exceedance(s):

Plant or equipment breakdown at WWTP.

### Significance of Results:

The WWTP was non-compliant with the ELV's set in the Wastewater Discharge Licence. There was one sample non-compliant with the Ammonia N (mg/l) Condition 2 ELV. The impact on receiving waters is assessed further in Section 2.3.

## 2.3 Ambient monitoring summary

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.

### 2.3.1 Ambient Monitoring Report Summary - Knockbridge WWTP

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
<b>Upstream</b>	298808, 303160	TPEFF2100D0260SW001	No	No	No	No	Good
<b>Downstream</b>	300075, 302194	TPEFF2100D0260SW001	No	Yes	No	No	Good

### 2.3.2 Ambient Monitoring Parameter Summary - Knockbridge WWTP

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 not compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results meet the required EQS. Where the ambient monitoring results meets the EQS this 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 impact on the water quality.

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



In terms of the drinking water abstraction downstream of the discharge (i.e. Stephenstown Water Scheme is 2.7km d/s from the Knockbridge WWTP) there is no evidence to suggest that the discharge from Knockbridge is having an impact on this abstraction. Based on the drinking water risk assessment carried out it is unlikely that the water abstraction downstream will be impacted during normal operation), however there is a likelihood of impact during abnormal operation (i.e. Low to Medium Risk). Once compliance has been achieved in terms of the ELVs and the storm water overflow it is considered that the overall risk will be 'low risk'.

### 3 OPERATIONAL REPORTS SUMMARY

#### 3.1 Treatment Efficiency Report

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:

##### 3.1.1 Treatment Efficiency Report Summary - Knockbridge WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
<b>cBOD</b>	7269.81	55.46	99.24
<b>SS</b>	4731.27	293.34	93.8
<b>COD</b>	16296.68	1224.62	92.49

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

#### 3.2 Treatment Capacity Report Summary

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.

Knockbridge WWTP	
<b>Peak Hydraulic Capacity (m<sup>3</sup>/day) - As Constructed</b>	675
<b>DWF to the Treatment Plant (m<sup>3</sup>/day)</b>	225
<b>Current Hydraulic Loading - annual max (m<sup>3</sup>/day)</b>	207.62

Knockbridge WWTP	
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	68.74
Organic Capacity (PE) - As Constructed	1000
Organic Capacity (PE) - Collected Load (peak week)	671
Organic Capacity (PE) - Remaining	329
Will the capacity be exceeded in the next three years? (Yes/No)	No

### 3.3 Complaints Summary

A summary of complaints of an environmental nature is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
<b>There is no Complaint data included in the AER.</b>			

### 3.4 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 Irish Water 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.

### 3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
<b>Non-compliance</b>	Plant or equipment breakdown at WWTP	1	No	Yes

### 3.4.2 Summary of Overall Incidents

Question	Answer
<b>Number of Incidents in 2018</b>	1
<b>Number of Incidents reported to the EPA via EDEN in 2018</b>	1
<b>Explanation of any discrepancies between the two numbers above</b>	N/A

### 3.5 Sludge / Other inputs to the 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>							

## 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:

**No Appendix Included.**

#### 4.1.1 SWO Identification

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2018 (No. of events)	Total volume discharged in 2018 (m <sup>3</sup> )	Monitoring Status
<b>SW002-DISCONTINUED</b>	298841, 303154	N/A Discontinued	N/A Discontinued	N/A Discontinued			N/A Discontinued
<b>SW003</b>	298867, 303133	Yes	Low	Meeting			Not Monitored

#### 4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m <sup>3</sup> )?	Not Monitored
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 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)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
Storm Water Overflow SW002 to be discontinued	C	29/06/2015	Yes	Works Completed		

A summary of the status of any improvements identified by under Condition 5.2 is included below.

### 4.2.2 Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Expected Completion Date	Comments
<b>There are no Improvements Programme for this Agglomeration.</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 Table.

## 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 list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Drinking Water Abstraction Point Risk Assessment	Yes	2016	No	
Priority Substances Assessment	Yes	2016	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 modifications to the existing WWDL?	No
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
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: 19/03/2019

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

Eleanor Roche

Acting Head of Environmental Regulation.

## 7 APPENDIX

### Appendix

#### Appendix 7.1 - Ambient Monitoring Summary

## Knockbridge Ambient Monitoring Data

### Ambient Monitoring Report Summary Table

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	298808, 303160	RS06F010800				
Downstream Monitoring Point	300075, 302194	RS06F010850	No	Yes	No	No

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	Mean (mg/l)		
		cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	Poor	1.325	0.059	0.035
Downstream Monitoring Point	Poor	1.325	0.023	0.035
<i>Difference</i>		<i>0.000</i>	<i>-0.037</i>	<i>0.000</i>
EQS		2.600	0.075	0.140
% of EQS		0.000%	-48.667%	0.000%

## 2018 Ambient Monitoring Summary

Upstream Results						
Date		Ammonia (mg/l)	Ortho P (mg/l)	BOD (mg/l)	TSS (mg/l)	pH (mg/l)
6-Feb-2018	U/S	< 0.06	0.020	3.000	4.0	7.80
15-May-2018	U/S	< 0.06	< 0.02	< 1	2.0	8.40
3-July-2018	U/S	< 0.06	0.040	3.000	5.0	8.20
25-Oct-2018	U/S	0.070	0.049	1.100	16.0	7.86
<b>Mean</b>		<b>0.040</b>	<b>0.030</b>	<b>1.900</b>	6.8	8.07
<b>95%ile</b>		<b>0.064</b>	<b>0.048</b>	<b>3.000</b>	14.4	8.37

Downstream Results						
Date		Ammonia (mg/l)	Ortho P (mg/l)	BOD (mg/l)	TSS (mg/l)	pH (mg/l)
6-Feb-2018	D/S	< 0.06	0.020	< 1	6.0	8.20
15-May-2018	D/S	< 0.06	< 0.02	< 1	6.0	8.40
26-Sep-2018	D/S	0.070	0.060	5.0	7.0	8.30
5-Dec-2018	D/S	0.080	0.046	0.9	19.0	7.75
<b>Mean</b>		<b>0.053</b>	<b>0.034</b>	<b>1.725</b>	9.5	8.16
<b>95%ile</b>		<b>0.079</b>	<b>0.058</b>	<b>4.385</b>	17.2	8.39

**Note:** Where the concentration in the result is less than the limit of detection (LOD), a value of 50% of the LOD was used in calculating the mean and 95%ile concentrations.