

Annual Environmental Report 2015

Agglomeration Name:	Roscrea
Licence Register No.	D0025-01



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Section 1. Executive Summary and Introduction to the 2015 AER

1.1 Summary Report on 2015

This Annual Environmental Report has been prepared for **D0025-01, Roscrea**, in County **Tipperary**, in accordance with the requirements of the wastewater discharge licence for the agglomeration.

The agglomeration is served by a wastewater treatment plant with a Design PE of 26000. The treatment process includes the following:-

- Preliminary Treatment (including screening and grit removal)
- Primary Treatment
- Secondary Treatment (Trickling filters)
- Nutrient Removal (chemical dosing for phosphorus removal)

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2015 for the following parameters;

- Total N (mg/l)
- Total P (mg/l)

2,194,300kgs total weight sludge was removed from the wastewater treatment plant in 2015 as liquid sludge and 118,958kgs of dried solids. Sludge was transferred to H&L Environmental Services Ltd. Derryville, Moyne, Thurles, Co. Tipperary.

An Annual Statement of Measures is included See Appendix 7.1. - Annual Statement of Measures.

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Table 2.1 Influent Monitoring Summary

2.1.1 Monthly Influent Monitoring	BOD (mg / l)	COD (mg / l)	SS (mg / l)	TP (mg / l)	TN (mg / l)	Hydraulic Loading (m3/d)	Organic Loading (PE/Day)
Number of Samples	13	13	13	13	13		
Annual Max.	292	731	429	13.2	57	17296	19,929
Annual Mean	173	443	241	8	41	4,550	12,215

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.

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

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

2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring

2.2.1 Effluent Monitoring Summary	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Total P (mg/l)	Total N (mg/l)	Ammonia NH3 (mg/l)	pH	Temp (°c)	F.O.G (mg/l)
WWDL ELV (Schedule A) where applicable	20	100	30	1	15	10	6 -9	25	15
ELV with Condition 2 Interpretation included	40	200	75	1.2	18	12	6-9	30	18
Number of sample results	13	13	13	13	13	13	13	13	2
Number of sample results above WWDL ELV	0	0	0	2	13	0	0	0	0
Number of sample results above ELV with Condition 2 Interpretation	0	0	0	1	13	0	0	0	0
Annual Mean (for parameters where a mean ELV applies)									
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Fail	Fail	Pass	Pass	Pass	Pass

Significance of results

The WWTP was not compliant with the ELV's for Total P and Total N set in the wastewater discharge licence.

One non-compliance for Total P was caused by a Shock load to WWTP from an IPC Licensed Facility. The WWTP is not designed for nitrogen removal. The impact on receiving waters is assessed further in Section 2.3

2.3. Ambient Monitoring Summary

Table 2.3. Ambient Monitoring Report Summary Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool code	Receiving Waters Designation (Y/N)				WFD Status	Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?
			Bathing Water	Drinking Water	FWPM	Shellfish		
Upstream Monitoring Point - ASW2	100m upstream of SW001	none	n/a	n/a	n/a	n/a	Moderate	n/a
Downstream Monitoring Point – ASW1	100m downstream of SW001	none					Moderate	No

The results for the upstream and downstream monitoring are included as in Appendix 7.2

Significance of results

- The WWTP was non-compliant with the ELV's for TP and TN set in the wastewater discharge licence as detailed in Section 2.2.
- The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.
- A biological assessment of the river was carried out by Limnos Consultancy in Q4 2015. The report was submitted to the EPA in December 2015. Its conclusion was that all the immediate sampled points upstream of the WWTP discharge point show signs of pollution – Little Brosna and the Bunow. The Golden Grove Stream plus the additional discharge from the fish farm enter the Little Brosna downstream of the WWTP discharge point. Thus, there are a number of other pressures on the Little Brosna in the vicinity of the main Roscrea WWTP discharge. The river is in poor condition upstream and does not show a marked change downstream of the D0025-01 discharge point. If the WWTP ceased discharging it is unlikely that any improvement would be seen in the ecological status of the river.

2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 28/02/2016

2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year

PRTR not required for Roscrea in 2015.

Section 3. Operational Reports Summary

3.1 Treatment Efficiency Report

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Total P (kg/yr)	Total N (kg/yr)
Influent mass loading (kg/year)	267,506	683,628	372,730	11,925	62,698
Effluent mass emission (kg/year)	3,322	18,343	6,276	260	10,872
% Efficiency (% reduction of influent load)	99%	97%	98%	98%	83%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/year)	2,277,600
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/year)	6,832,800
Hydraulic Capacity – Current loading (m3/year)	1,660,685
Hydraulic Capacity – Remaining (m3/year)	5,172,115
Organic Capacity - Design / As Constructed (PE)	26,000
Organic Capacity - Current loading (PE)	12,215
Organic Capacity – Remaining (PE)	13,785
Will the capacity be exceeded in the next three years? (Yes / No)	No
Is an upgrade or expansion of the WWTP proposed? (i.e. if on Minor Programme or CIP) (Yes/No)	Yes

3.3 Extent of Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and created in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended).

Table 3.3 - Extent of Agglomeration Summary Report

	% of total load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomerations that enters treatment plant	Unknown
Load collected in the sewer network but discharges without treatment	Unknown

Load generated in the agglomeration that is collected in the sewer network is the total load generated and collected in the municipal network within the boundary of the agglomeration.

Load collected in the agglomerations that enters treatment plant is that portion of the previous figure which enters the waste water treatment plant.

Load collected but discharged without treatment is that portion of the first figure which is discharged without treatment.

3.4 Complaints Summary

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

Table 3.4 - Complaints Summary Table

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
1	07/01/2015 13:50:00	Drain at the back of a house is starting to flood garden in raw sewage.	Blocked sewer	Sewer unblocked	Yes
2	09/02/2015 08:20:00	Sewage coming into garden and toilet is backed up.	Blocked sewer	Sewer unblocked	Yes
3	19/02/2015 16:58:00	Blocked sewer and sewer flooding occurring. There is waste matter on the street Roscrea, Co. Tipperary	Blocked sewer	Sewer unblocked	Yes
4	19/05/2015 08:17:00	Sewer drains are blocked and overflowing into a garden.	Blocked sewer	Sewer unblocked	Yes
5	08/09/2015 12:57:00	Flooding manhole, sewerage is flowing out onto the road	Blocked sewer	Sewer unblocked	Yes

		and into a garden.			
6	06/11/2015 14:43:00	Sewerage coming up from the manhole and overflowing into a garden.	Blocked sewer	Sewer unblocked	Yes
7	11/12/2015 13:18:00	Sewer flooding in laneway.	Blocked sewer	Sewer unblocked	Yes

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

Table 3.5.1 - Summary of Incidents

3.5.1 Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Yes/No)
Non-compliance with Total N ELV.	Numerous Total N ELV breeches	WWTP not designed for N removal	1	WWTP requires upgrading	EPA	Yes	No incident is open to accommodate future non-compliances with Total N.
Non-compliance with Total Phosphorus ELV.	Total Phosphorus value of 1.37 for the final effluent on 30/9/2015. ELV for Total Phosphorus is 1.0 (1.2 with Condition 2).	Shock load to WWTP from IPC Licensed Facility.	1			Yes	Yes

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

Table 3.5.2 - Summary of Overall Incidents

Number of Incidents in 2015	2
Number of Incidents reported to the EPA via EDEN in 2015	2
Explanation of any discrepancies between the two numbers above	n/a

3.6 Sludge / Other inputs to the WWTP

Other inputs to the waste water treatment plant are summarised in Table 3.6 below.

Table 3.6 - Other Inputs

Input Type	m3/year	PE/year	% of load to WWTP	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
Domestic /Septic Tank Sludge	0	0	0.00%	Yes	Yes
Industrial / Commercial Sludge	0	0	0.00%	Yes	Yes
Landfill Leachate (delivered by tanker)	0	0	0.00%	Yes	Yes
Landfill Leachate (delivered by sewer network)	0	0	0.00%	Yes	Yes
Other	538m3 (alum sludge)	<100	<1%	Yes	Yes

Notes:

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant not included in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.

Section 4. Infrastructure Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

The Storm Water Overflow Identification & Inspection report is not included. A summary of the significance and operation is included below.

Table 4.1.1 - SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High/Med/Low)	Compliance with DoEHLG criteria	No. of times activated in 2015 (No. of events)	Total volume discharged in 2015 (m3)	Total volume discharged in 2015 (P.E.)	Estimated / Measured data
TPEFF2800 D0025SW0	E2136 95 N189	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	

02	325							
TPEFF2800 D0025SW 03	E213 6 15 N189 088	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	
TPEFF2800 D0025SW 04	E213 6 22 N189 087	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	
TPEFF2800 D0025SW 05	E213 0 50 N189 085	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	

Table 4.1.2 - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2013?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	Not assessed
The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)	Not assessed
Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1 ?	no

4.2 Report on progress made and proposals being developed to meet the improvement programme requirements.

The Improvement Programme is not included with this AER

Table 4.2.1 - Specified Improvement Programme Summary

Specified Improvement Programmes	Licence Schedule	Licence Completion Date	Date Expired	Status of Works	% Construction Work Completed	Licensee Timeframe for Completing the Work	Comments
WWTP upgrade/improvement	C	01/01/21	No	Not Started	0%	Unknown	<i>The improvement</i>

s				d			t programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
Waste water sewer network improvements	C	01/01/21	No	Not Started	0%	Unknown	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
Upgrade of sewer network to ensure SWOs comply with DoE criteria	C	01/01/21	No	Not Started	0%	Unknown	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis

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

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier / Name	Improvement Description	Improvement Source	Progress (% complete)	Expected Completion Date	Comments
n/a	n/a	WWTP assessment (Condition 5.2).	n/a	n/a	n/a
n/a	n/a	Sewer Integrity Tool (Condition 5.2).	0%	n/a	n/a
n/a	n/a	Secondary discharges assessment (Condition 5.2).	n/a	n/a	n/a
n/a	n/a	SWO assessment (Condition 4 & 5.2).	n/a	n/a	n/a
n/a	n/a	Pearl Mussel Impact Assessment (Condition 4)	n/a	n/a	n/a
n/a	n/a	Improved Operational Control	n/a	n/a	n/a

Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	Risk Assessment Rating (High, Medium, Low)	Risk Assessment Score	Reference to relevant section of AER (e.g. Appendix 2 Section 4.	Comment
Hydraulic Risk Assessment Score	Medium	100	2014 AER	
Environmental Risk Assessment Score	Low	245	2014 AER	
Structural Risk Assessment Score	High	150	2014 AER	
Operation & Maintenance Risk Assessment Score	Low	20	2014 AER	
Overall Risk Score for the agglomeration	High	515	2014 AER	Overall Assessment is probably Medium Risk.

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in this AER or outstanding from previous AER	Included in this AER / Remains outstanding	Reference to previous AER containing report or relevant section of this AER
Priority Substances Assessment	No	No	2012 AER
Drinking Water Abstraction Point Risk Assessment	no		
Habitats Impact Assessment	yes	Yes	Appendix 7.3.
Shellfish Impact Assessment	no		
Pearl Mussel Report	no		
Toxicity/Leachate Management	no	No	n/a
Toxicity of Final Effluent Report	no	No	2009 AER

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report	Status of Recommendations
Priority Substances Assessment	No	n/a	n/a
Drinking Water Abstraction Point Risk Assessment	N/A	n/a	n/a
Shellfish Impact Assessment	N/A	n/a	n/a
Pearl Mussel Report	N/A	n/a	n/a
Toxicity/Leachate Management	N/A	n/a	n/a
Toxicity of Final Effluent Report	N/A	n/a	n/a
Habitats Impact Assessment	No	n/a	n/a

5.1 Habitats Impact Assessment Report

The Habitat Impact Assessment report is included in Appendix 7.3. A summary of the findings of this report is included below.

Table 5.1 - Habitats Impact Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Is a Habitats Assessment required in the 2015 AER (or outstanding from a previous AER)	Yes
Was the scope of the study agreed in advance with NPWS?	No
Does the report include a Stage 1 screening assessment?	Yes
Does the screening identify that discharges are causing an impact on listed sites?	No
Does the report require a Stage 2 Appropriate assessment?	No
Does the report identify any European Sites (e.g. SPA, SAC, NHA) that discharges from the works could have an impact on?	No
List European sites identified	N/A
Does the report include mitigation measures for each identified impact?	N/A
Does each measure explain how the adverse impact will be avoided/reduced?	N/A
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of discharges on the a listed site (NHA, SAC, SPA)?	N/A
Status of any improvement measures required.	n/a

Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

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? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	n/a
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements	n/a
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	n/a
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	No
List outstanding reports	Storm water overflow Report

Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2015 AER.
- Monitoring Reports Summary.
- Operational Reports Summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports
- Certification and Sign Off
- Appendices

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

Signed:.....



Gerry Galvin
Chief Technical Advisor

Date: 10/03/2016

Section 7. Appendix

Appendix 7.1 - Annual Statement of Measures

Appendix 7.2 - Ambient monitoring summary

Appendix 7.3 - Habitats Impact Assessment Report

Appendix 7.1 – Annual Statement of Measures

No additional measures have been taken in 2015 in relation to prevention of environmental damage.

The need for measures to prevent environmental damage is reviewed on an annual basis.

Appendix 7.2 - Ambient monitoring summary

Table 1. Roscrea Ambient Upstream Monitoring Results for 2015

Parameter and units	15/01/15	26/02/15	12/03/15	31/03/15	23/04/15	07/05/15	17/06/15	07/07/15	18/08/15	22/09/15	08/10/15	05/11/2015	10/12/2015
Ammonia as N (mg/l as N)	0.021	0.021	0.029	0.04	0.02	<0.01	0.011	0.021	<0.01	0.024	<0.01	0.052	0.016
Ammonia as NH ₄ (mg/l NH ₄)	0.027	0.027	0.037	0.052	0.026	<0.01	0.015	0.027	<0.01	0.031	<0.01	0.066	0.02
BOD (mg/l O ₂)	1	1.4	2	1.9	1.6	1.6	1.5	1.8	1.4	1.7	1.4	1.3	1.6
Chemical Oxygen Demand (mg/l O ₂)	19	10	20	29	13	17	10	4	5	5	15	6	24
Chloride (mg/l Cl)	21.07	21.88	24.27	21.55	21.53	22.34	21.92	22.57	24.86	56.86	49.8	34.6	21.47
Conductivity @ 20°C (uS/cm)	600	633	585	573	606	589	621	619	624	676	691	684	544
Dissolved Oxygen % Saturation	86.1	90.3	89.6	89.1	88.5	86.8	92	77.9	81.2	89	90	82.4	84.5
Dissolved Oxygen (measurement) (mg/l) O ₂	10.62	10.55	10.75	10.31	10.05	9.68	10.15	7.7	8.9	9.76	10.33	9.17	9.96
E-Coli (No./100mls)						1198					3609		
Nitrates (mg/l NO ₃ as N)	3.08	2.72	2.86	2.16	2.48	3.08	2.95	2.84	2.52	2.65	2.39	2.12	2.74
Nitrites (mg/l NO ₂ as N)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.019
O-Phos (mg/l PO ₄ as P)	0.011	0.025	0.017	0.019	0.018	0.015	0.011	0.018	0.02	0.022	0.02	0.067	0.031
O-Phos (mg/l PO ₄)	0.034	0.076	0.051	0.059	0.055	0.047	0.034	0.056	0.062	0.069	0.061	0.205	0.094
pH (pH units)	8.08	7.99	8.15	8.11	8.04	8.04	8.12	7.93	7.91	8.18	8.21	8.22	8
Sulphate (mg/l SO ₄)	22.24	22.21	15.65	19.83	20.26	17.15	16.17	16.19	18.77	18.31	19.61	25.37	22.77
Suspended Solids (mg/l)	6	6.4	8.8	14.4	8	8.8	5.2	3.2	0.4	4	<0.4	3.2	9.6
Temperature (°C)	5.9	8.6	7.5	8.4	10.1	10.2	11.4	15.6	11.6	11.6	10.1	10	8.2
Total Coliforms (No./100mls)						6867					8164		
Total Nitrogen	3.5	3.3	3.3	2.3	2.8	3.5	3.4	3.1	3.3	2.8	2.9	2.3	3.4

(mg/l as N)													
Total Oxidised Nitrogen (mg/l TON as N)	3.08	2.72	2.86	2.17	2.49	3.08	2.96	2.84	2.52	2.66	2.4	2.13	2.76
Total Phosphorus (mg/l as P)	0.05	0.06	0.05	0.06	0.05	0.03	0.02	0.03	0.04	0.04	0.03	0.07	0.06

Table 2. Roscrea Ambient Downstream Monitoring Results for 2015

Parameter and units	15/01/15	26/02/15	12/03/15	31/03/15	23/04/15	07/05/15	17/06/15	07/07/15	18/08/15	22/09/15	08/10/15	05/11/2015	10/12/2015
Ammonia as N (mg/l as N)	0.04	0.055	0.057	0.046	0.037	0.029	0.035	0.025	0.023	0.027	0.027	0.097	0.024
Ammonia as NH ₄ (mg/l NH ₄)	0.052	0.07	0.073	0.059	0.047	0.037	0.045	0.032	0.03	0.035	0.034	0.125	0.031
BOD (mg/l O ₂)	1.2	1.3	1.5	2	1.6	1.5	1.3	2	1.6	1.8	1.4	1.1	1.8
Chemical Oxygen Demand (mg/l O ₂)	14	11	19	23	12	16	8	3	<4	5	16	5	24
Chloride (mg/l Cl)	21.86	24.12	25.27	22.94	22.26	27.87	24.95	27.64	32.63	34.73	35.6	36.9	21.81
Conductivity @ 20°C (uS/cm)	606	641	584	565	607	569	634	640	653	651	668	700	554
Dissolved Oxygen % Saturation	87.3	88.3	90.3	90.8	88.1	88.5	95.5	90	84.3	89.8	90.3	85.5	89.2
Dissolved Oxygen (measurement) mg/l O ₂	10.76	10.38	10.8	10.76	9.96	9.86	10.51	8.84	9.2	9.84	10.35	9.44	10.53
E-Coli (No./100ml)						833					2382		
Nitrates (mg/l NO ₃ as N)	3.08	2.79	2.89	2.13	2.61	3.13	3.27	3.27	3.33	3.43	3.48	3.35	2.7
Nitrites (mg/l NO ₂ as N)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.021	0.032	0.04	0.03	0.042	0.018
O-Phos (mg/l PO ₄ as P)	0.01	0.026	0.017	0.021	0.017	0.016	0.013	0.015	0.023	0.041	0.039	0.079	0.028
O-Phos (mg/l PO ₄)	0.031	0.081	0.052	0.064	0.051	0.05	0.039	0.045	0.072	0.127	0.119	0.244	0.086
pH (pH units)	8.12	8.04	8.19	8.14	7.97	7.99	8.14	8.02	8.03	8.06	8.22	8.08	7.95
Sulphate (mg/l SO ₄)	20.1	19.48	14.85	18.23	18.96	16.4	15.64	16.35	19.04	18.68	19.69	24.46	21.24
Suspended Solids (mg/l)	8.4	5.2	9.2	22.8	5.6	8.8	2.4	2.8	<0.4	4	<0.4	3.2	8.8
Temperature (°C)	6.1	8.3	7.7	8.2	10	10.3	11.7	15.5	11.7	11.7	10.1	10.3	8.2
Total Coliforms (No./100ml)						7701					9804		
Total Nitrogen (mg/l as N)	3.2	4	3.2	2.2	3	3.3	4.1	3.3	4.1	3.7	3.8	3.5	3.6
Total Oxidised Nitrogen (mg/l TON as N)	3.09	2.8	2.89	2.14	2.62	3.13	3.28	3.29	3.36	3.47	3.52	3.39	2.72
Total Phosphorus (mg/l as P)	0.05	0.06	0.06	0.07	0.06	0.04	0.02	0.03	0.04	0.05	0.06	0.08	0.06

Table 3. Ecological Status of Little Brosna River (upstream and downstream of Roscrea WWTP)

Parameter	Upstream	Status	Overall Status for Upstream	Downstream	Status	Overall Status for Downstream
BOD	1.55(mean)	Less than Good	Less than Good	1.55 (mean)	Less than Good	Less than good
Total Ammonia (as N)	0.021(mean)	High		0.040(mean)	High	
Orthophosphate (as P)	0.023(mean)	High		0.027(mean)	Good	

Table 4. Schedule 5 of the European Communities Environmental Objectives (Surface Waters) Regulations 2009

Parameter	Value	Status
BOD	<1.3 (mean) or <2.2 (95%ile)	High
BOD	<1.5(mean) Or <2.6(95%ile)	Good
Total Ammonia as N	<0.040 (mean) or <0.090 (95%ile)	High
Total Ammonia as N	<0.065 (mean) or <0.140 (95%ile)	Good
MRP as P	<0.025(mean) or <0.045 (95%ile)	High
MRP as P	<0.035 (mean) or <0.075 (95%ile)	Good

Appendix 7.3 - Habitats Impact Assessment Report

Irish Water Report

Appropriate Assessment Screening as part of the Roscrea Waste Water
Discharge Licence D0025-01 Annual Environmental Report



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Introduction

This report provides an Appropriate Assessment (AA) Screening of the existing Waste Water Treatment Plant (WwTP) at Roscrea, Co Tipperary, for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007), as amended. It assesses whether the on-going operation of the plant, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 Site(s) in view of best scientific knowledge and the conservation objectives of the site(s). Natura 2000 Sites are those identified as sites of European Community importance designated as Special Areas of Conservation under the Habitats Directive or as Special Protection Areas under the Birds Directive.

This report follows the guidance for AA published by the Environmental Protection Agency's (EPA) 'Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007)' (EPA, 2009); and takes account of the Department of the Environment, Heritage and Local Government's guidelines 'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities' (DoEHLG, 2009) and Circular L8/08 'Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments' (DoEHLG, 2008).

This AA Screening report was undertaken by an Irish Water ecologist with input from an ecological site survey completed by Nicholas O'Dwyer Ltd on behalf of Irish Water in 2015.

Legislative Context

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as "The Habitats Directive", provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/ECC) as codified by Directive 2009/147/EC.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (AA):

Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

Article 6(4) states:

If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Methodology

Guidance Followed

Both EU and national guidance exists in relation to Member States fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this AA Screening has had regard to the following guidance:

- Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). Environmental Protection Agency, (EPA, 2009).
- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of Environment, Heritage and Local Government, (DoEHLG, 2010).
- Circular L8/08 – Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments. Department of Environment, Heritage and Local Government, (DoEHLG, 2008).
- Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg, (EC, 2000a).
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg, (EC, 2000b).
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Brussels (EC, 2001).
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission. Office for Official Publications of the European Communities, Luxembourg, (EC, 2007).
- Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg (EC, 2006).
- Marine Natura Impact Statements in Irish Special Areas of Conservation: A working document, National Parks and Wildlife Service, Dublin (NPWS, 2012).
- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No.477 of 2011).
- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC, 2013).

Stages Involved in the Appropriate Assessment Process

Stage 1: Screening / Test of Significance

This process identifies whether the WwTP discharge is directly connected to or necessary for the management of a Natura 2000 Site(s); and identifies whether the discharge is likely to have significant impacts upon a Natura 2000 Site(s) either alone or in combination with other projects or plans.

The output from this stage is a determination for each Natura 2000 Site(s) of not significant, significant, potentially significant, or uncertain effects. The latter three determinations will cause that site to be brought forward to Stage 2.

Stage 2: Appropriate Assessment

This stage considers the impact of the WwTP discharge on the integrity of a Natura 2000 Site(s), either alone or in combination with other projects or plans, with respect to (1) the site's conservation objectives; and (2) the site's structure and function and its overall integrity. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts

The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the EPA to carry out the appropriate assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must consider alternatives (Stage 3) or proceed to Stage 4.

Stage 3: Assessment of Alternatives

This process examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 Site. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or all alternatives would result in negative impacts to the integrity of the Natura 2000 Sites then the process either moves to Stage 4 or the project is abandoned.

Stage 4: Assessment Where Adverse Impacts Remain

An assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

Stage 1: Screening / Test of Significance

In complying with the obligations under Article 6(3) and following the appropriate guidelines, this AA Screening has been structured as a stage by stage approach as follows:

- Description of the project;
- Identification of Natura 2000 sites potentially affected;
- Identification and description of individual and cumulative impacts likely to result;
- Assessment of the significance of the impacts identified above on site integrity;
- Exclusion of sites where it can be objectively concluded that there will be no significant effects; and
- Screening conclusion.

Field Walkover Surveys

A field walkover survey was undertaken by Ecologist Tony Nagle on the 19th March 2015 to identify the potential for qualifying species and habitats in the surrounding environs of the Roscrea discharge location.

Consultation

The EPA, as the competent authority, will seek NPWS advice as may be required in reaching their decision on a WwTP discharge. The NPWS can only communicate with the applicant (i.e. Irish Water) on request from the competent authority, when the formal application process to the competent authority has already commenced.

Screening

Management of the Site

The Roscrea WwTP is not directly connected with or necessary to the management of the site for nature conservation.

Description of the Project

The Roscrea agglomeration has a population equivalent of approximately 10,676 (Source: 2014 AER). The Organic Capacity - Design / As Constructed is 26,000 P.E. The Roscrea Waste Water Plant is located at Monastery Road, Roscrea, just southwest of the town centre. The primary discharge is located c2.5km west of the plant and is into the Little Brosna River at Fanure, downstream of the confluence between the Little Brosna and Bunow River (NGR 210877E, 190496N). The waste water treatment system includes screening, grit trap, primary settlement tanks, trickling biofilters, clarification and phosphorus removal. The plant also includes a sludge processing system (picket fence thickening, sludge digester and sludge centrifuge) prior to recovery off site. The sewer network in Roscrea is a combined one. There are four Stormwater Overflows each of which discharge to the Little Brosna River.

Based on a current loading of 225l/pp/day the dry weather flow for the current and future discharge is calculated at 0.0278m³/sec. The long-term 95-percentile flow for the Little Brosna River is 0.523m³/sec (EPA Hydrotool website).

Effluent data from 2015 is presented in Table 1.0 together with the Emission Limit Values (ELV's) set in the license.

Table 1.0: Roscrea WwTP Effluent Monitoring Data

Date	BOD mg/l O2	COD mg/l O2	SS mg/l	Ammonia mg/l	Total Nitrogen mg/l	Orthophosphate mg/l	Total Phosphorus
ELV's	20	100	30	10	15		1
13/01/2015	5	38	12	0.97	21.5	0.13	0.31
19/02/2015	6	37	10.8	1.06	29.3	0.159	0.37
26/03/2015	16	69	28.8	5.1	28.7	0.359	0.83
31/03/2015	10	52	23.2	2.85	20.4	0.196	0.72
14/04/2015	6	34	8	1.22	23.8	0.211	0.39
14/05/2015	10	53	17.6	1.06	27.3	0.311	0.63
04/06/2015	8	45	11.2	1.93	33.6	0.214	0.43
01/07/2015	6	34	6.4	0.66	28.5	0.209	0.36
13/08/2015	5.2	36	11.6	1.15	24.9	0.252	0.47
08/09/2015	9	44	10	1.39	26.7	0.858	1.08
01/10/2015	11	66	16.8	0.75	36.7	0.978	1.37
05/11/2015	5	41	16.8	0.82	38.9	0.278	0.53
10/12/2015	6	32	14.4	2.11	19.4	0.16	0.71

The effluent discharge meets the ELV's for all parameters apart from Total Nitrogen and two minor exceedances for Total Phosphorus. Roscrea WWTP's influent is Nitrogen-rich mainly as a

result of the wastewater from local meat processing plants. Ammonia levels discharged are low and compliant with the current limit.

Description of the Receiving Environment and Monitoring Results

The receiving water of the effluent from the Roscrea agglomeration is the Little Brosna River. The River is a designated sensitive water under the Urban Waste Water Treatment Regulations.

Results from ambient monitoring undertaken by IW upstream and downstream of the primary discharge location for 2014 are shown in Table 2.0 below.

Table 2.0: Average Monitoring Data Upstream and Downstream of Primary Discharge Location (Source: 2014 AER)

Parameter	EQS*	Upstream	Downstream
BOD	≤2.6	1.608	1.641
Ammonia	≤0.14	0.025	0.054
Orthophosphate	≤0.075	0.024	0.023

*European Communities Environmental Objectives (Surface Waters) Regulations 2009, S.I. No. 272 of 2009 (95%ile standards presented).

The monitoring results (averages and individual monthly results - AER Appendix 7.2) demonstrate that the water quality within the Little Brosna River is in compliance with Schedule 5 of the European Communities Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009) for BOD, Ammonia and Orthophosphate.

The EPA monitor the Little Brosna River for biological water quality (EPA, 2016)¹. Upstream (RS25L020100) of the discharge point the EPA assigned the river Good water quality status (Q4) in 2014, while downstream (RS25L020400) the river was assigned Moderate water quality status (Q3-4) in 2014. Two tributaries which were assigned Moderate water quality status – the Bunow and the Aghadouglass - also enter the Little Brosna River between these two monitoring stations. Further downstream, water quality improves to Good (Q4) upstream of Sharavogue Bog.

The Little Brosna River upstream and downstream of the discharge point has been assigned Moderate WFD status (2010-2012), improving to Good status ca. 2km downstream. The Little Brosna upstream and downstream of the discharge is classed as 'at risk of not achieving Good status'.

Waste Assimilative Capacity

Table 3.0 summarises the assimilative capacity calculations which are based on the current estimated loading of 10,676 PE (Source: Irish Water), 95%ile river flow (0.523 m³/s) (Source: EPA HydroTool) and water quality standards for River waterbodies in the European Communities Environmental Objectives (Surface Water) Regulations, 2009 (S.I. No. 272 of 2009).

The WAC calculations carried out for BOD, Orthophosphate and Ammonia are based on IW's 2015 effluent monitoring data (Table 1.0).

¹ <http://gis.epa.ie/Envision>

Assimilative capacity calculations have been completed on both the actual background concentrations and the EPA “*notionally clean river*” concentrations.

Table 3.0: Little Brosna River assimilative capacity (10,676 PE), using actual background concentrations and notionally clean river concentrations

Parameter		Background (mg/l)	Predicted downstream quality (mg/l)	EQS* (mg/l)
BOD	Actual Background	1.608	1.927	≤2.6
	Notionally Clean	0.260	0.647	
Ammonia	Actual Background	0.025	0.105	≤0.14
	Notionally Clean	0.008	0.089	
Ortho-P	Actual Background	0.024	0.039	≤0.075
	Notionally Clean	0.005	0.021	

The Waste Assimilative Capacity calculations tabled above indicates that the Little Brosna River has assimilative capacity for BOD, Ammonia and Orthophosphate

Field Walkover Survey

A site walkover survey was conducted by Tony Nagle (Ecologist) on the 19th of March 2015. The walkover was focussed on the Little Brosna River 320 m upstream of the WwTP and 370 m downstream of the WwTP outfall. The WwTP outfall is situated on the east bank of the Little Brosna River next to the Inland Fisheries Ireland fish farm. The river is approximately 10 m wide and approximately 0.5 m deep along most of the surveyed stretch. The river is somewhat deeper in the vicinity of the outfall. It is swift-flowing with a series of riffles and glides below the outfall but the river is more sluggish and deeper upstream of the outfall. This survey was carried out to assess the river and adjacent habitats in an attempt to identify any obvious impacts that might be attributed to effluent from Roscrea WwTP. Habitat codes (in parentheses) follow those used by Fossitt (2000)². Weather conditions were bright and sunny on the day of the survey and the river was slightly opaque (both upstream and downstream of the outfall).

The surrounding landscape is largely pastureland (GA1) divided by hedgerows (WL1) with a number of mixed broadleaf woodland areas (WD1). Tree cover is relatively sparse on the banks of the Little Brosna River west of the WwTP outfall. Occasional Ash (*Fraxinus excelsior*), Alder (*Alnus glutinosa*) and Hawthorn (*Crataegus monogyna*) occur along both banks and other plant species recorded include Bramble (*Rubus fruticosus*), Wild Rose (*Rosa* spp.), Greater Willowherb (*Epilobium hirsutum*), Lesser Celandine (*Ficaria verna*) and Reed Canary-grass (*Phalaris arundinacea*). Water Crowfoot (*Ranunculus* spp.) was recorded upstream but not downstream of the outfall in the surveyed stretch. The apparent absence of this species below the outfall may well be a result of the shaded conditions in the river caused by woodland on both banks.

There is a greater variety of tree species on both banks below the outfall including Oak (*Quercus robur*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Elm (*Ulmus* spp.), Yew (*Taxus baccata*), Elder

² Fossitt, J. A. (2000). *A Guide to Habitats in Ireland*. The Heritage Council.

(*Sambucus nigra*), Scot’s Pine (*Pinus sylvestris*) and non-native Beech (*Fagus sylvatica*). Plant growth along both river banks downstream of the outfall is reflective of the woodland conditions found on this stretch of the river and Ivy (*Hedera helix*), Wood Anemone (*Anemone nemorosa*), Tutsan (*Hypericum androsaemum*), Lords-and-ladies (*Arum maculatum*), Hartstongue Fern (*Phyllitis scolopendrium*) were recorded and the uncommon fungus, Scarlet Elfcup (*Sarcoscypha austriaca*), was also recorded at the site. The species mix along this stretch is suggestive of the habitat Oak-Ash-Hazel woodland (WN2).

Two Brimstone butterflies (*Gonepteryx rhamni*) were seen along the stretch. This species has a restricted distribution in Ireland (largely confined to the midlands and mid-west) because of the restricted range of its two food plants, the uncommon Buckthorn (*Rhamnus catharticus*) and the nationally rare Alder Buckthorn (*Alnus frangula*). The latter species has been recorded in Sharavogue Bog.

Two Common Snipe (*Gallinago gallinago*) were flushed from a field adjacent to the river during the site visit. This was the only water bird noted during the survey but this is not unusual as the river is narrow and swift-flowing along this stretch making it unsuitable for many waterbird species.

No fish species were recorded during the walkover survey as there was poor visibility in the river but analysis of fish surveys carried out by staff of Inland Fisheries Ireland at Riverstown Bridge, several kilometres downstream of the outfall in 2009 and 2012 have led to the Little Brosna River being classified as having a “Good” ecological status based on the numbers of Salmon (*Salmo salar*) and Brown Trout that were recorded on each of the surveys (Kelly *et al* 2013)³.

Brief Description of the Natura 2000 Sites

This section of the screening process describes the Natura 2000 sites within a 15km radius of the WwTP discharge location. A 15km buffer zone has been chosen as a precautionary measure, to ensure that all potentially affected Natura 2000 sites are included in the screening process, which is in line with Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities produced by the Department of the Environment, Heritage and Local Government.

Table 4.0 lists the SACs and Table 5.0 lists the SPAs that are within 15km of the WwTP discharge location, and Figure 1.0 shows their location in relation to the Roscrea WwTP discharge. The qualifying interests of each of the identified Natura 2000 Sites is also provided.

Table 4.0: SACs located within 15km from Roscrea WwTP discharge

Site Code	Site Name	Qualifying Habitats	Qualify Species
000585	Sharavogue Bog SAC	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]	
000934	Kilduff, Devilsbit Mountain SAC	European dry heaths [4030] Species-rich <i>Nardus</i> grasslands, on	

³ Kelly, F.L., Matson, R., Connor, L., Feeney, R., Morrissey, E., Wogerbauer, C. and Rocks, K. (2013). Water Framework Directive Fish Stock Survey of Rivers in the Shannon International River Basin District. Inland Fisheries Ireland, Swords Business Campus, Swords, Co. Dublin, Ireland.

Site Code	Site Name	Qualifying Habitats	Qualify Species
		siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]	
002332	Coolrain Bog SAC	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]	
000412	Slieve Bloom Mountains SAC	Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] Blanket bogs (* if active bog) [7130] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	
002147	Lisduff Fen SAC	Petrifying springs with tufa formation (Cratoneurion) [7220] Alkaline fens [7230]	<i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013]
002236	Island Fen SAC	<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Alkaline fens [7230]	

Table 5.0: SPAs located within 15km of Roscrea WwTP discharge

Site Code	Site Name	Qualifying Features – Annex I Species
004160	Slieve Bloom Mountains SPA	Hen Harrier (<i>Circus cyaneus</i>) [A082]

Possible Effects of the Waste Water Discharge in the Natura 2000 Sites

The purpose of this section of the screening is to examine the possibility that the existing waste water discharge, either individually or in combination with other plans and projects, may result in significant negative effects on the Conservation Objectives and the integrity of the Natura 2000 Sites identified.

The most apparent potential risk to a Natura 2000 Site(s) from a WwTP discharge is to the water quality of the receiving environment. It is therefore important to determine if the receiving environments water quality has the potential to interact with the qualifying interests of the Natura 2000 Sites identified.

Direct, Indirect or Secondary Impacts

Of the sites considered above only one, Sharavogue Bog SAC, is potentially connected to the Little Brosna River downstream of the discharge point. Other sites connected to the Little Brosna - Dovegrove Callows SPA, River Little Brosna Callows SPA, Middle Shannon Callows SPA and the River Shannon Callows SAC are all located greater than 20 km downstream of the discharge point and therefore were not included for screening as given the distance from Roscrea WwTP they are considered to be outside the potential zone of influence of the discharge.

Sharavogue Bog SAC is located ca. 9.2km from the discharge point. The Little Brosna runs along the western side of this SAC and maintains 'Good' water quality status at this location.

It is noted in the site synopsis for this site that the bog is unusual in that it sits on a floodplain (NPWS, 2013)⁴. There may be the potential for occasional infiltration of surface waters on the western side of the bog during extreme flood events, however the hydrology of raised bogs is predominately driven by rainfall and any surface water infiltration is not expected to affect active raised bog habitat due to drainage at the margins and the domed topography of the bog. Review of flood mapping also indicates that flooding is limited to the areas immediately adjacent to the river and does not impact the raised bog⁵. The sensitive lagg/fen habitats identified in the NPWS documentation are on the eastern side away from the influence of the river.

Eutrophication or pollution is not recorded as a pressure/threat in the Natura 2000 Data Form for the SAC. While there is the possibility of a surface water or groundwater connection between the Little Brosna and the degraded/marginal bog habitats on the western side, given the quality of surface waters in the Little Brosna and the assimilative capacity available for the discharge from Roscrea there is no potential for eutrophication impacts to any bog habitat.

The discharge from Roscrea WwTP will not impact on the conservation objectives of Sharavogue Bog SAC. No significant adverse impacts on the Annex I habitats (raised bog, degraded raised bog, Rhynchosporion vegetation) are anticipated as a result of the waste water discharge from Roscrea WwTP.

No significant adverse impacts on the qualifying interests of the remaining Natura 2000 Sites identified within 15km of the discharge location is considered likely due to the treated nature of the effluent and the lack of hydrological connection between the discharge and the relevant SACs or SPAs. The closest connected aquatic designated sites are located over 20km downstream of the discharge location. Although the effluent regularly exceeds the current ELV for Total Nitrogen, downstream waters comply with surface water regulations standards, and no sensitive qualifying aquatic habitats or species associated with any connected Natura 2000 site have been identified on the Little Brosna River within the potential zone of influence of the discharge.

Possible Cumulative Impacts with other Plans and Projects in the Area

As part of Stage 1 Screening, in addition to the existing waste water discharge, other relevant projects and plans in the relevant region must also be considered. This step aims to identify at this early stage any possible significant effects on the Natura 2000 Sites from the waste water discharge in-combination or cumulative with other plans and projects. Existing plans and projects which have been examined include:

- North Tipperary County Development Plan 2010-2016;
- Little Brosna Water Management Unit Action Plan; and
- North Tipperary Draft Biodiversity Plan, 2013-2018.

The above plans have been assessed in accordance with Article 6(3) of the Habitats Directive and Part XAB of the Planning and Development Act, 2000, and are not envisaged to result in significant effects on the integrity of the Natura 2000 network.

Monitoring data indicates that water quality improves downstream in the Little Brosna River, prior to the river approaching potentially connected Natura 2000 sites, indicating the

⁴ NPWS(2013) Sharavogue Bog SAC Site Code: 000585. Version dated 21.05.2013

⁵ <http://www.myplan.ie/viewer/> (opw flood mapping)

ongoing discharge does not have the potential to affect these sites. No aquatic-dependant qualifying habitats or species have been identified within the potential zone of influence of the discharge. As the existing discharge is not having an affect on any Natura 2000 site, there is no potential therefore for cumulative effects with any other plan or project.

Screening Assessment

Table 6.0 provides a summary of the likely significant impact of the current waste water discharge on the conservation objectives of the Natura 2000 sites potentially linked to the Roscrea WwTP as identified in Tables 4.0 and 5.0.

Table 6.0: Potential Significant Impacts on Natura 2000 sites from the Roscrea Waste Water Discharge

Site Name	Direct Impacts	Indirect/ Secondary	Resource Requirements (Drinking Water Abstraction Etc.)	Emissions (Disposal to Land, Water or Air)	Excavation Requirements	Transportation Requirements	Duration of Construction, Operation, Decommissioning
Sharavogue Bog SAC	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Kilduff, Devilsbit Mountain SAC	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Coolrain Bog SAC	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Slieve Bloom Mountains SAC	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Lisduff Fen SAC	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Island Fen SAC	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Slieve Bloom Mountains SPA	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest

Likely Changes to the Natura 2000 Site(s)

The likely changes that will arise from the Roscrea waste water discharge have been examined in the context of a number of factors that could potentially affect the integrity of the identified Natura 2000 Sites. Overall, it has been found that the current waste water discharge will not affect the integrity of the identified Natura 2000 Sites.

Table 7.0: Likely Affect on Natura 2000 Sites

Site Name	Reduction of Habitat Area	Disturbance to Key Species	Habitat or Species Fragmentation	Reduction in Species Density	Changes in Key Indicators of Conservation Value (Water Quality Etc.)	Climate Change
Sharavogue Bog SAC	None	None	None	None	None	None
Kilduff, Devilsbit Mountain SAC	None	None	None	None	None	None
Coolrain Bog SAC	None	None	None	None	None	None
Slieve Bloom Mountains SAC	None	None	None	None	None	None
Lisduff Fen SAC	None	None	None	None	None	None
Island Fen SAC	None	None	None	None	None	None
Slieve Bloom Mountains SPA	None	None	None	None	None	None

Elements of the Project where the Impacts are Likely to be Significant

No elements of the current waste water discharge are likely to cause significant impacts on NATURA 2000 Sites.

Screening Conclusions and Statement

The likely impacts that will arise from the current waste water discharge have been examined in the context of a number of factors that could potentially affect the integrity of the Natura 2000 network. None of the sites within 15km of the discharge location, or potentially connected further downstream, will be adversely affected. A finding of No Significant Effects Matrix has been completed and is presented in next section of this Screening Statement.

On the basis of the findings of this Screening for Appropriate Assessment of Natura 2000 Sites, it is concluded that the current waste water discharge from the Roscrea WwTP will not have a significant effect on the Natura 2000 network and a Stage 2 Appropriate Assessment is not required.

Finding of No Significant Effects Report Matrix

Name of project or plan	Roscrea WwTP AER
Name and location of Natura 2000 site	Sharavogue Bog SAC Kilduff, Devilsbit Mountain SAC Coolrain Bog SAC Slieve Bloom Mountains SAC Lisduff Fen SAC Island Fen SAC Slieve Bloom Mountains SPA
Description of the project or plan	<p>The Roscrea agglomeration has a population equivalent of approximately 10,676 (Source: 2014 AER). The Organic Capacity - Design / As Constructed is 26,000 P.E. The Roscrea Waste Water Plant is located at Monastery Road, Roscrea, just southwest of the town centre. The primary discharge is located c2.5km west of the plant and is into the Little Brosna River at Fanure, downstream of the confluence between the Little Brosna and Bunow River (NGR 210877E, 190496N). The waste water treatment system includes screening, grit trap, primary settlement tanks, trickling biofilters, clarification and phosphorus removal. The plant also includes a sludge processing system (picket fence thickening, sludge digester and sludge centrifuge) prior to recovery off site. The sewer network in Roscrea is a combined one. There are four Stormwater Overflows each of which discharge to the Little Brosna River.</p> <p>The effluent discharge meets the ELV's for all parameters apart from Total Nitrogen and two minor exceedances for Total Phosphorus. Roscrea WWTP's influent is Nitrogen-rich mainly as a result of the wastewater from local meat processing plants. Ammonia levels discharged are low and compliant with the current limit.</p> <p>Surface water monitoring results demonstrate that the water quality within the Little Brosna River is in compliance with Schedule 5 of the European Communities Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009) for BOD, Ammonia and Orthophosphate. The EPA monitor the Little Brosna River for biological</p>

	<p>water quality (EPA, 2016)⁶. Upstream (RS25L020100) of the discharge point the EPA assigned the river Good water quality status (Q4) in 2014, while downstream (RS25L020400) the river was assigned Moderate water quality status (Q3-4) in 2014. Two tributaries which were assigned Moderate water quality status – the Bunow and the Aghadouglas - also enter the Little Brosna River between these two monitoring stations. Further downstream, water quality improves to Good (Q4) upstream of Sharavogue Bog.</p> <p>The Waste Assimilative Capacity calculations tabled above indicates that the Little Brosna River has assimilative capacity for BOD, Ammonia and Orthophosphate</p>
Is the project or plan directly connected with or necessary to the management of the site?	No.
Are there other projects or plans that together with the project or plan being assessed could affect the site?	No.
The Assessment of Significance of Effects	
Describe how the project or plan (alone or in combination) is likely to affect the European Site(s).	<p>Of the sites considered above only one, Sharavogue Bog SAC, is potentially connected to the Little Brosna River downstream of the discharge point. Other sites connected to the Little Brosna - Dovegrove Callows SPA, River Little Brosna Callows SPA, Middle Shannon Callows SPA and the River Shannon Callows SAC are all located greater than 20 km downstream of the discharge point and therefore were not included for screening as given the distance from Roscrea WwTP they are considered to be outside the potential zone of influence of the discharge.</p> <p>Sharavogue Bog SAC is located ca. 9.2km from the discharge point. The Little Brosna runs along the western side of this SAC and maintains 'Good' water quality status at this location.</p> <p>It is noted in the site synopsis for this site that the bog is unusual in that it sits on a floodplain (NPWS, 2013)⁷. There may be the potential for occasional infiltration of surface waters on the western side of the bog during extreme flood events, however the</p>

⁶ <http://gis.epa.ie/Envision>

⁷ NPWS(2013) Sharavogue Bog SAC Site Code: 000585. Version dated 21.05.2013

	<p>hydrology of raised bogs is predominately driven by rainfall and any surface water infiltration is not expected to affect active raised bog habitat due to drainage at the margins and the domed topography of the bog. Review of flood mapping also indicates that flooding is limited to the areas immediately adjacent to the river and does not impact the raised bog⁸. The sensitive lagg/fen habitats identified in the NPWS documentation are on the eastern side away from the influence of the river.</p>
<p>Explain why these effects are not considered significant.</p>	<p>Eutrophication or pollution is not recorded as a pressure/threat in the Natura 2000 Data Form for the SAC. While there is the possibility of a surface water or groundwater connection between the Little Brosna and the degraded/marginal bog habitats on the western side, given the quality of surface waters in the Little Brosna and the assimilative capacity available for the discharge from Roscrea there is no potential for eutrophication impacts to any bog habitat.</p> <p>The discharge from Roscrea WwTP will not impact on the conservation objectives of Sharavogue Bog SAC. No significant adverse impacts on the Annex I habitats (raised bog, degraded raised bog, Rhynchosporion vegetation) are anticipated as a result of the waste water discharge from Roscrea WwTP.</p> <p>No significant adverse impacts on the qualifying interests of the remaining Natura 2000 Sites identified within 15km of the discharge location is considered likely due to the treated nature of the effluent and the lack of hydrological connection between the discharge and the relevant SACs or SPAs. The closest connected aquatic designated sites are located over 20km downstream of the discharge location. Although the effluent regularly exceeds the current ELV for Total Nitrogen, downstream waters comply with surface water regulations standards, and no sensitive qualifying aquatic habitats or species associated with any connected Natura 2000 site have been identified on the Little Brosna River within the potential zone of influence of the discharge.</p> <p>Monitoring data indicates that water quality improves downstream in the Little Brosna River, prior to the river approaching potentially connected Natura 2000 sites, indicating the ongoing discharge does not have the potential to affect these sites. No aquatic-dependant qualifying habitats or species have been</p>

⁸ <http://www.myplan.ie/viewer/> (opw flood mapping)

	identified within the potential zone of influence of the discharge. As the existing discharge is not having an affect on any Natura 2000 site, there is no potential therefore for cumulative effects with any other plan or project.
List of agencies consulted: provide contact name and telephone or e-mail address.	N/A
Response to consultation.	N/A
Data Collected to Carry Out the Assessment	
Who carried out the assessment?	Qualified Ecologist, Irish Water
Sources of data	NPWS database; EPA database; WFD Ireland database; and Information from Irish Water.
Level of assessment completed	Desktop survey
Where can the full results of the assessment be accessed and viewed?	EPA
Overall Conclusion	Stage 1 Screening indicates that the Roscrea WwTP discharge will not have a significant negative impact on the Natura 2000 network. Therefore, a Stage 2 'Appropriate Assessment' under Article 6(3) of the Habitats Directive 92/43/EEC is not required.