

# Annual Environmental Report 2016

<b>Agglomeration Name:</b>	<b>Inniskeen</b>
<b>Licence Register No.</b>	<b>D0348-01</b>



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## Section 1. Executive Summary and Introduction to the 2016 AER

### 1.1 Summary Report on 2016

This Annual Environmental Report has been prepared for **D0348-01, Inniskeen**, in County **Monaghan**, in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified assessments are included as an appendix to the AER as follows:

- Sewer Integrity Risk Assessment in **Appendix 7.3**
- Small Stream Risk assessment in **Appendix 7.4**

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 1800. The treatment process includes the following:-

- Preliminary Treatment (Screens (manual))
- Secondary Treatment (Aeration)
- Nutrient Removal (Chemical dosing for phosphorus removal)
- Tertiary Treatment (Sand Filter)

The final effluent from the Primary Discharge Point was compliant with the Emission Limit Values in 2016.

67,240kgs total weight sludge was removed from the wastewater treatment plant in 2016 as dried cake. Sludge from Inniskeen WWTP was transferred to the BioCore Sludge Treatment Centre in Co Meath (SSF\_COR\_MH\_13\_0001-02) where it was lime stabilised prior to landspreading.

There were no major capital or operational changes undertaken in 2016

An Annual Statement of Measures is included in **Appendix 7.1**

## Section 2. Monitoring Reports Summary

### 2.1 Summary report on monthly influent monitoring

Table 2.1 Influent Monitoring Summary

<b>2.1.1 Monthly Influent Monitoring</b>	<b>BOD (mg / l)</b>	<b>COD (mg / l)</b>	<b>SS (mg / l)</b>	<b>TP (mg / l)</b>	<b>TN (mg / l)</b>	<b>Hydraulic Loading (m3/d)</b>	<b>Organic Loading (PE/Day)</b>
<b>Number of Samples</b>	12	12	12	12	12		
<b>Annual Max.</b>	857	4000	2075	25.1	96.9	1482	783
<b>Annual Mean</b>	107.33	321.45	190.21	2.34	15.27	145.20	391.00

Other inputs in the form of sludge/leachate are added to the WWTP after the influent monitoring point and are therefore not represented by influent monitoring. Other inputs, where relevant, are detailed in Section 3.6.

#### 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 greater than the peak Treatment Plant Capacity as detailed further in Section 3.2. The design of the wastewater treatment plant does not allow for peak values, however the peak loads have not impacted on compliance with Emission Limit Values.

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

<b>2.2.1 Effluent Monitoring Summary</b>	<b>BOD (mg/l)</b>	<b>COD (mg/l)</b>	<b>TSS (mg/l)</b>	<b>Total P (mg/l)</b>	<b>Ortho P (mg/l)</b>	<b>Ammonia NH3 (mg/l)</b>	<b>pH</b>
<b>WWDL ELV (Schedule A) where applicable</b>	10.00	125.00	10.00	2.00	1.50	2.00	6 to 9
<b>ELV with Condition 2 Interpretation included</b>	20.00	250.00	20.00	2.40	1.80	2.40	No allowable exceedances
<b>Interim % Reduction (Schedule A)</b>							
<b>Number of sample results</b>	11	11	11	11	11	11	11
<b>Number of sample results above WWDL ELV</b>	0	0	0	0	0	0	0
<b>Number of sample results above ELV with Condition 2 Interpretation</b>	0	0	0	0	0	0	N/A
<b>Annual Mean (for parameters where a mean ELV applies)</b>							
<b>Overall Compliance (Pass/Fail)</b>	Pass	Pass	Pass	Pass	Pass	Pass	Pass

### Significance of results

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

### 2.3.1. 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	Bathing Water	Drinking Water	FWPM	Shellfish	Current WFD Status
Upstream Monitoring Point	293923E 306701N	RS06F010667					Poor
Downstream Monitoring Point	293999E 306647N	RS06F010670	No	No	No	No	Poor

The results for the upstream and downstream monitoring and/or additional monitoring data sets from Irish Water are included in the Appendix 7.2.

#### Significance of results

- The WWTP was compliant with the ELV's 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 quality.
- The discharge from the WWTP doesn't have an observable negative impact on the Water Framework Directive status.
- Other potential causes of deterioration in water quality relevant to this area are unknown

### 2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 11/01/2017

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

A PRTR is not required as the PE is < 100000

## Section 3. Operational Reports Summary

### 3.1 Treatment Efficiency Report

	<b>cBOD (kg/yr)</b>	<b>COD (kg/yr)</b>	<b>SS (kg/yr)</b>	<b>Total P (kg/yr)</b>	<b>Total N (kg/yr)</b>
Influent mass loading (kg/year)	8,563	25,646	15,175	187	1,219
Effluent mass emission (kg/year)	151	1,549	363	11	797
% Efficiency (% reduction of influent load)	98%	94%	98%	94%	35%

### 3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

<b>Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/day)</b>	409
<b>Hydraulic Capacity – Design / As Constructed (peak flow) (m3/day)</b>	1,226
<b>Hydraulic Capacity – Current loading (m3/day)</b>	145
<b>Hydraulic Capacity – Remaining (m3/day)</b>	1,081
<b>Organic Capacity - Design / As Constructed (PE)</b>	1,800
<b>Organic Capacity - Current loading (PE)</b>	391
<b>Organic Capacity – Remaining (PE)</b>	1,409
<b>Will the capacity be exceeded in the next three years? (Yes / No)</b>	No
<b>Is an upgrade or expansion of the WWTP proposed? (i.e. if on Minor Programme or CIP) (Yes/No)</b>	No

### 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**

	<b>% of P.E. load generated in the agglomeration</b>	<b>Estimated / Measured</b>
<b>Load generated in the agglomeration that is collected in the sewer network</b>	Unknown	N/A
<b>Load collected in the agglomerations that enters treatment plant</b>	Unknown	N/A
<b>Load collected in the sewer network but discharges without treatment (includes SWO, EO, and any discharges that are not treated)</b>	0%	N/A

**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**

<b>Number of Complaints</b>	<b>Nature of Complaint</b>	<b>Number Open Complaints</b>	<b>Number Closed Complaints</b>
None		0	0



### 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	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Yes/No)
Abatement Equipment offline	INCI011285_Power failure followed by surge caused the plant to malfunction	Power Surge	1	No	Caretaker attended immediately after receiving the alert.	IFI	Yes	No

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**

<b>Number of Incidents in 2016</b>	1
<b>Number of Incidents reported to the EPA via EDEN in 2016</b>	1
<b>Explanation of any discrepancies between the two numbers above</b>	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	P.E.	% of load to WWTP	Included in Influent Monitoring? (Y/N)	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%			
Industrial / Commercial Sludge	0	0	0.00%			
Landfill Leachate (delivered by tanker)	0	0	0.00%			
Landfill Leachate (delivered by sewer network)	0	0	0.00%			
Other (specify)	0	0	0.00%			

## Section 4. Infrastructure Assessments and Programme of Improvements

### 4.1 Storm water overflow identification and inspection report

The Stormwater Overflow Assessment was submitted previously in AER 2015. 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 2016 (No. of events)	Total volume discharged in 2016 (m3)	Total volume discharged in 2016 (P.E.)	Estimated / Measured data
SW2	293928E 306704N	Yes	Low	Compliant	0	0	0	Estimated

**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)?	0
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	0
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2013?	0
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	No
The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)	Yes
Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1 ?	N/A

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

The Improvement Programme report included in Appendix 7.1 addresses the **Specified Improvement Programmes** as detailed in Schedules A3 and C of the WWDL. It should detail other improvements identified through assessments required under the licence.

**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
None	N/A	N/A	N/A				

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
Process Control	Ensure minimum dial out alarms are provided for inlet forward feed pumps fail to run / aeration blower fail to run.	Improved Operational Control	0%	Unknown	
Process Control	Analysis of Mixed Liquor Suspended Solids to improve process control	Improved Operational Control	100%	Complete	Operational tests carried out on an ongoing basis
Monaghan Flow Monitoring and Sampling Programme	Flow monitoring and sampling	Improved Operational Control	0%		Inniskeen on programme due to commence in 2017

**Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary**

<b>The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:</b>	<b>Risk Assessment Rating (High, Medium, Low)</b>	<b>Risk Assessment Score</b>	<b>Reference to relevant section of AER (e.g. Appendix 2 Section 4).</b>	<b>Specified improvements</b>	<b>Comment</b>
<b>Hydraulic Risk Assessment Score</b>	Medium	100	Appendix 7.3 AER 2016		
<b>Environmental Risk Assessment Score</b>	Low	120	Appendix 7.3 AER 2016		
<b>Structural Risk Assessment Score</b>	High	140	Appendix 7.3 AER 2016		
<b>Operation &amp; Maintenance Risk Assessment Score</b>	Low	20	Appendix 7.3 AER 2016		
<b>Overall Risk Score for the agglomeration</b>	Low	380	Appendix 7.3 AER 2016		

## Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Never required by condition 5 in Licence	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	Required	No	No	AER 2011
Drinking Water Abstraction Point Risk Assessment	Required	No	No	AER 2014
Shellfish Impact Assessment	Not Required	No	No	
Pearl Mussel Report	Not Required	No	No	
Toxicity/Leachate Management	Not Required	No	No	
Toxicity of Final Effluent Report	Not Required	No	No	
Small Stream Risk Score Assessment	Required	Yes	Yes	Appendix 7.4
Habitats Impact Assessment	Not Required	No	No	

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	Yes	No further screening required
Drinking Water Abstraction Point Risk Assessment	Yes	Overall risk is Low
Shellfish Impact Assessment	No	
Pearl Mussel Report	No	
Toxicity/Leachate Management	No	
Toxicity of Final Effluent Report	No	
Small Stream Risk Score Assessment	None	None
Habitats Impact Assessment	No	

## 5.1 Priority Substances Assessment

The Priority Substances Assessment was submitted previously in AER 2011 and is summarised below:

<b>Priority Substance Assessment Summary Report</b>	<b>Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.</b>
<b>Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance</b>	Desktop Study
<b>Does the assessment include a review of Trade inputs to the works?</b>	Yes
<b>Does the assessment include a review of other inputs to the works?</b>	No
<b>Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)</b>	Yes
<b>Does the assessment identify that priority substances may be impacting the receiving water?</b>	No
<b>Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?</b>	No
<b>Recommendations</b>	No further screening required
<b>Status of any improvement measures required</b>	

## 5.2 Drinking Water Abstraction Point Risk Assessment

The Drinking Water Risk Assessment was submitted previously in AER 2014

<b>Drinking Water Abstraction Point Risk Assessment Summary Report</b>	<b>Licensee self-assessment checks to determine whether all relevant information is included</b>
<b>Is a Drinking Water Abstraction Point Risk Assessment required in the 2016 AER (or outstanding from a previous AER)</b>	No
<b>Does the Drinking Water Abstraction Point Risk Assessment identify whether any of the discharges in Schedule A of the licence pose a risk to a drinking water abstraction</b>	No
<b>Does the assessment identify if any other discharge (s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)</b>	No
<b>What is the overall risk ranking applied by the licensee</b>	Yes
<b>Does the risk assessment consider the impacts of normal operation</b>	Yes
<b>Does the risk assessment consider the impacts of abnormal operation (eg. Incidents / overflows)</b>	Yes
<b>Does the risk assessment include control measures for each risk identified</b>	Yes
<b>Does the risk assessment consider operational control measures eg waste water incident notification to drinking water abstraction operator</b>	Yes
<b>Does the risk assessment include infrastructural control measures</b>	Yes
<b>Recommendations</b>	Overall risk is Low
<b>Does the Improvement Programme for the agglomeration include control measures / corrective actions to eliminate / reduce priority substances identified as having an impact on receiving water quality?</b>	N/A
<b>Status of any improvement measures required</b>	N/A



## 5.7 Small Stream Risk Score Assessment Summary

The Small Stream Risk Score Assessment Summary is included in the Appendix 7.4. A summary of the significance and operation is included below:

<b>Is an SSRS assessment required in the 2016 AER (includes outstanding assessments from previous years)?</b>	Yes
<b>What is the upstream SSRS?</b>	8
<b>Upstream SSRS Water Quality Risk</b>	Probably at Risk
<b>What is the downstream SSRS?</b>	9.6
<b>Downstream SSRS Water Quality Risk</b>	Probably at Risk
<b>Does the SSRS indicate the discharges from the agglomeration are posing a pollution risk to the receiving water ?</b>	No
<b>Where the SSRS indicates that discharge are posing a pollution risk to the receiving water, does the Improvement Programme include any procedural and/or infrastructural works to reduce the risk score associated with discharges from the agglomeration?</b>	N/A
<b>List Condition 5 Improvement Programme reference</b>	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.)	No
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, none outstanding
Ensure the following reports are included	Small Stream Risk assessment

### Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2016 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:  Date: 24/02/2017.....

**Elizabeth Arnett**  
**Head of Corporate Affairs and Environmental Regulation**

## Section 7. Appendices

### Appendix 7.1 Statement of Measures

1	Issue	No record of SWO activating or measurement of flows
	Mitigation Measure	Install SWO measurement /recorder device to measure the flows/record no of times it activates
	Status	Information on SWO will be available to assess impact on receiving water. Inniskeen on flow monitoring programme for 2017
2	Issue	2015 failure to meet ELV for Suspended Solids
	Mitigation Measure	Sand filter to be replaced
	Status	Sand filter replaced in January 2016. Discharge compliant with ELV for Suspended Solids in 2016.
3	Issue	Infiltration into the sewer line
	Mitigation Measure	Pipe to be replaced and relined
	Status	Reduced flows in periods of heavy rainfall. Complete 2016

### Specified Improvement Programme

#### a) Specified Improvement Programme

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

As per condition 5.1 of the licence, a programme of infrastructural improvements to maximise the efficiency and effectiveness of the waste water works shall be prepared and submitted:

There are no improvement works specified in Schedule C of the licence.

Under condition 5.2 (i) of the licence, the programme of infrastructural improvements shall include an assessment of the waste water treatment plant having regard to the effectiveness of the treatment provided by reference to the following:

(i) The existing level of treatment, capacity of treatment plant and associated equipment:

There is adequate capacity at the treatment plant. The capacity of the WWTP is detailed in section 3.2 of the AER; there is remaining capacity at the treatment plant.

(ii) The emission limit values specified in Schedule A: Discharges, of this licence:

The wwtp was compliant with WWDA ELV's in 2016.

(iii) The designations of the receiving water body:

The WWTP discharges to The River Fane. The receiving water is not a designated Salmonid Water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988) although the River Fane is a well-known valuable Salmonid River. The river fane is not designated as a sensitive water under the Urban Waste Water Treatment Regulations 2001. The river is not designated as an SPA, SAC or NHA. The receiving water is a drinking water abstraction further downstream.

*(iv) Water quality objective for the receiving water body:*

The WWTP discharges to the River Fane waterbody XB-06-8 this waterbody has been classified as poor with a restore 2021 objective in the Neagh Bann International River Basin District. Ambient monitoring results have been included in Appendix 7.2.

*(v) The standards and volumetric limitations applied to any industrial waste water that is licensed to discharge to the waste water works:*

There are no industries licensed to discharge to the waste water works.

*Under condition 5.2 (b) of the licence, the programme of infrastructural improvements shall include an assessment of the integrity of the waste water works having regard to:*

*(i) Capacity of the waste water works:*

There is adequate capacity at the treatment plant (section 3.2 Treatment Capacity Report).

*(ii) Leaks from the waste water works:*

There are no known leaks from the waste water treatment plant

*(iii) Misconnections between foul sewers and surface water drainage network:*

Monaghan County Councils Environment Section monitor surface water quality and investigate misconnections.

*(iv) Infiltration by surface water/ground water:*

Infiltration into the main line entering the plant has been identified and works were carried out on this line in 2016.

b) Programme of Improvements

*Under condition 5.2 (c) of the licence, the programme of infrastructural improvements shall include an assessment of all storm water overflows associated with the waste water works to determine the effectiveness of their operation and in particular identify improvements necessary to comply with the requirements of this licence:*

There are no specified improvement works in the discharge licence. The sand filter was replaced in early 2016. Wastewater was compliant with Discharge licence ELV's in 2016.

Works to reduce infiltration into the main line were carried out in 2016.

*Condition 5.3 (a) and (b) of the licence, the programme of infrastructural improvements shall include a plan for implementation for each individual improvement identified:*

None

## Appendix 7.2 Ambient Monitoring Results

Upstream Inniskeen WWTP											
Sample Date	Sample Method	Dissolved Oxygen mg/l	Temp °C	BOD mg/l	E Coli MPN/100mls	Total Nitrogen mg/l	Enterococci cfu/100 mls	Ortho Phosphorus mg/l	Ammonia mg/l	pH units	Faecal Coliforms no./100mls
05/01/16	Grab	9.76	8.2	2.9		<1		0.043	0.01	7.7	
09/02/16	Grab	11.14	6.6	2.1		<1		0.036	0.008	7.8	
02/03/16	Grab	11.52	6.9	1.99		1.3		0.036	0.022	7.8	
04/04/16	Grab	10.39	12	3.2		1.3		0.067	0.04	7.8	
09/05/16	Grab	10.16	13.9	2.1		1.2		0.018	0.038	8	
08/06/16	Grab	11.39	19.6	1.6		3.2		0.046	0.047	8	
04/07/16	Grab	9.8	17	1.8		<1		0.017	0.019	8.1	
04/07/16	Grab				816		150				1100
15/08/16	Grab	9.55	17.9	1.3		<1		0.024	0.015	8.1	
20/09/16	Grab	10.12	15.5	2.5		1.3		0.023	0.017	7.9	
12/10/16	Grab	10.53	13.4	1.8		<1		0.026	<0.0070	8.1	
07/11/16	Grab	11.33	7.2	2.2		3.2		0.024	<0.0070	8.1	
06/12/16	Grab	11.42	11.9	2.5		<1		0.028	<0.0070	8	
<b>Average</b>		<b>10.59</b>	<b>12.5</b>	<b>2.1</b>		<b>1.45</b>		<b>0.032</b>	<b>0.019</b>	<b>7.95</b>	

### Downstream Inniskeen WWTP

Sample Date	Sample Method	Dissolved Oxygen mg/l	Temp OC	BOD mg/l	E Coli MPN/100mls	Total Nitrogen mg/l	Enterocci cfu/100mls	Ortho Phosphorus mg/l	Ammonia mg/l	pH units	Faecal Coliforms no./100mls
05/01/16	Grab	9.89	8.7	4.1		<1		0.041	0.01	7.7	
09/02/16	Grab	11.12	6.7	<1		<1		0.038	0.011	7.7	
02/03/16	Grab	11.31	6.9	<2		1.3		0.035	0.025	7.8	
04/04/16	Grab	10.34	10.4	3		1.4		0.027	0.038	7.8	
09/05/16	Grab	10.2	13.7	2.3		1.2		<0.009	0.068	8	
10/06/16	Grab	11.53	19.6	1.5		<1		0.034	0.049	8.1	
04/07/16	Grab	10.15	16.1	1.6		<1		0.023	0.022	8.1	
04/07/16	Grab				6020		220				4600
15/08/16	Grab	9.62	17.9	1.3		<1		0.032	0.017	8	
20/09/16	Grab	10.21	15.6	1.4		1.3		0.024	0.019	8	
12/10/16	Grab	10.66	13	1.4		<1		0.025	0.007	8.1	
07/11/16	Grab	11.23	7.1	<1		2.9		0.031	<0.0070	8.1	
06/12/16	Grab	11.43	11.9	1		1.6		0.038	<0.0070	7.9	
<b>Average</b>		<b>10.64</b>	<b>12.3</b>	<b>1.79</b>		<b>1.3</b>		<b>0.029</b>	<b>0.023</b>	<b>7.94</b>	

## Appendix 7.3 Sewer Integrity Risk Assessment 2016

Section 1.1 Agglomeration Details						
Name		Iniskeen				
Licence Number		D0348-01				
Insert Name of Catchment if the Risk Assessment is for part of an agglomeration (only divide agglomeration where p.e. >5,000p.e. and where such division is warranted)		Iniskeen				
Date Licence Issued		10/02/2010				
Current Date		13/02/2017				
			Year	Year	Year	Year
Waste Water Works - Wastewater Treatment Plant Details		Unit	2015	2016	2017	2018
1.1	Is there an existing WWTP in operation?		Yes	Yes	Yes	Yes
Section 1.2 BOD Loading & Population Equivalent						
1.2	Average Daily Influent Flow or Average Total Flow in system (If no measured data exists, insert estimated figure)	l/day, measured	237000	145000		
1.3	Average Daily Influent BOD or Average BOD Load from area served (If no measured data exists, insert estimated figure)	mg/l, measured	40.95	107.33		
1.4	Total BOD Load	kg/day	9.70515	15.56285	0	0
1.5	Average Population Equivalent (@0.06kg/person/day)	p.e.	162	259	0	0
1.6	Estimated (existing) Non-Domestic Load	p.e.	0	0		
1.7	Estimated Domestic Load	p.e.	162	259	0	0
1.8	Occupancy Rate for the Agglomeration	pop/house	2.7	2.7		
1.9	Estimated Number of Connected Properties	houses	60	96	0	0
1.10	Number of properties within the agglomeration when compared with CSO Data or An Post Geodirectory	houses	124	124		
Section 1.3 Hydraulic Details						
1.11	Average Dry Weather Flow arriving at WWTP OR Total Average DWF in system (If no measured data exists insert estimated figure)	l/s, measured	2.04	0.678819444		
1.12	Estimated 3DWF	l/sec	6.12	2.04	0.00	0.00
1.13	Annual Average Peak Flow to WWTP or discharging from whole system if there is no existing WWTP	l/s, measured	18.94444444	4.5		
1.14	This Annual Average Peak as Multiples of Dry Weather Flow (Peaking Factor)	Nr	9.29	6.63	0.00	0.00
1.15	Highest Peak Flow Recorded (Insert UNKNOWN if no records exist)	l/s	Unknown	18.9		
1.16	Does this Peak Flow (multiple of DWF) cause hydraulic capacity problems within the network ?	---	Yes	Yes	Yes	Yes
1.17	Total Rainfall for Previous Year	mm	1269	891		
1.18	Comparison - Mean Annual Rainfall for the agglomeration	mm	1006.9	1006.9		
1.18.1	Define the Weather Station Used		Ballyhaise	Ballyhaise		
1.19	If Storm Water Storage is available at the Wastewater Treatment plant, what is the volume of the storm tank ?	m <sup>3</sup>	145	145		
1.20	Is the capacity of the storm tank sufficient to capture and retain all overflows to the tank ?	---	No	No	No	No
1.21	Total monthly average volume of Storm Water Stored or Returned for Treatment within the Waste Water Treatment Plant	m <sup>3</sup> per month	4.583333333	4.583333333		
1.22	If the answer to 1.20 above is No, What is the estimated frequency of Overflows from the Storm Tank ? (N/A if no overflow)		< 1 per month	< 1 per month	1 to 2 times per month	< 1 per month
Waste Water Works - Sewer Network Details		Unit	2015	2016	2017	2018
Section 1.4 Waste Water Works - Gravity Sewer Details						
1.23	What database is used to maintain records of the sewer network		Hard Copy Drawings only	Hard Copy Drawings only	SUS 2002	SUS 2003
1.23.1	If other or combination of the above please describe	Describe				
1.24	Total length of sewers (use drop down menus to define whether these figures are estimated or measured)	km Estimated	1.58	1.58	0.00	0.00
1.24.1	Total length of sewers > 450mm Diameter	km Estimated	0.00	0.00		
1.24.2	Total length of sewers > 300mm but ≤ 450mm in Diameter	km Estimated	0.00	0.00		
1.24.3	Total length of sewers > 225mm but ≤ 300mm in Diameter	km Measured	0.65	0.65		
1.24.4	Total length of sewers ≤ 225mm in Diameter	km Estimated	0.93	0.93		
1.24.5	Other	km Estimated	1.19	1.19		
1.25	Pipeline Material					
1.25.1	What portion of the sewer network consists of Concrete Pipes	% Estimated	0%	0%		
1.25.2	What portion of the sewer network consists of Plastic Pipes	% Estimated	0%	0%		
1.25.3	What portion of the sewer network consists of Clay materials	% Estimated	0%	0%		
1.25.4	What portion of the sewer network consists of Brick Type Sewers	% Estimated	0%	0%		
1.25.5	What portion of the sewer network consists of Other Materials	% Estimated	100%	100%		
1.26	Total number of Storm Water Overflows	Nr	1	1		



1.27	What Screening or other mechanical devices are employed at the storm water overflows					
	SW-2 located at to the north of WWTP site.	Describe	urns through W	urns through WWTP unless storm fills both W		
1.28	Water Quality at the receiving waters					
1.28.1	Where the receiving water is a river - indicate the EPA Biological Rating of the Receiving Water for each SWO below (Particularly if there is more than one receiving water within the agglomeration)					
	SW-2 located at to the north of WWTP site.	Describe	Q2-Q3	Q2-Q3		
1.28.2	Where the receiving water is a coastal water indicate the Status of the Receiving Water for each SWO below (Particularly if there is more than one receiving water within the agglomeration)					
	SW-2 located at to the north of WWTP site.	Describe	N/A	N/A		
1.28.3	With reference to the SWO's detailed above define if the receiving waters are sensitive in accordance with the Urban Wastewater Treatment Regulations as amended.					
	SW-2 located at to the north of WWTP site.	Describe	Not Listed	Not Listed		
1.28.4	With reference to the SWO's detailed above define are the receiving waters Protected Areas (designated or awaiting designation)					
	SW-2 located at to the north of WWTP site.	Designation	Not Listed	Not Listed		
1.28.5	With reference to the SWO's detailed above define do the receiving waters have any other designations.					
	SW-2 located at to the north of WWTP site. Drinking water abstraction further downstream.	Designation	Not Listed	Not Listed		
<b>Section 1.5 Waste Water Works - Pumping Stations</b>						
1.29	Number of Pumping Stations (operated by the Local Authority)	Nr	1	1		
1.30	Total Length of Rising Mains (operated by the Local Authority)	km	0.2	0.2		
1.31	Rising Main Material					
1.31.1	What portion of the rising mains consists of ductile iron pipes	% Measured	Unknown	Unknown		
1.31.2	What portion of the rising mains consists of plastic pipes	% Measured	Unknown	Unknown		
1.31.3	What portion of the rising mains consists of other materials	% Estimated	Unknown	Unknown		
1.32	Discharge Capacity of the Pump Set (s) at normal duty point					
	At Pump Station Drumass at E293368 N307007		43 l/s	43 l/s		
1.33	What percentage of the pumping stations have recorded flow data (i.e. if all pumping stations have flow meters on the rising mains then this would read 100%)	%	0.00%	0.00%		
1.34	Available Storage Capacity at Pump Stations (include pump sump and any storm water/emergency overflow tanks)					
	At Pump Station Drumass at E293368 N307007	m <sup>3</sup>	0	0		
1.35	Total Number of " <b>Licensed Secondary Discharge Points and Stormwater Overflows</b> " at pumping stations	Nr	0	0		
1.36	Total Number of " <b>Emergency Overflow Points</b> " at pumping stations	Nr	1	1		
1.37	What Screening or other mechanical devices are employed at the secondary discharge points or emergency overflows ?					
	At Pump Station Drumass at E293368 N307007	Describe	None.	None.		

1.38	Water Quality at the receiving waters at each pumping station location					
1.38.1	Where the receiving water is a river - indicate the EPA Biological Rating of the Receiving Water for each secondary discharge point or emergency overflow at each pumping station (Particularly if there is more than one receiving water within the agglomeration)					
	At Pump Station Drumass at E293368 N307007	Describe	Q2-Q3	Q2-Q3		
1.38.2	Where the receiving water is a coastal water indicate the Status of the Receiving Water for each secondary discharge point or emergency overflow at each pumping station (Particularly if there is more than one receiving water within the agglomeration)					
	At Pump Station Drumass at E293368 N307007	Describe	N/A	N/A		
1.38.3	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, define if the receiving waters are sensitive in accordance with the Urban Wastewater Treatment Regulations as amended.					
	At Pump Station Drumass at E293368 N307007		Not Listed	Not Listed		
1.38.4	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, are the receiving waters Protected Areas (designated or awaiting designation) .					
	At Pump Station Drumass at E293368 N307007	Designation	No	No		
1.38.5	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, do the receiving waters have any other designations.					
	At Pump Station Drumass at E293368 N307007	Designation	per abstraction	per abstraction downstream.		
1.39	Estimated Number of Private Pumping Stations within the agglomeration (not operated by the Local Authority)	Nr	0	0		
	<b>Section 1.6 Reporting</b>					
	<b>Section 1.6.1 Reported Number of Sewer Related Complaints ('Complaint' as defined in the Discharge Licence)</b>					
1.40	Number of Reported Complaints	Nr	0	0		
1.41	Number of Reported Complaints which have been rectified	Nr	0	0		
	<b>Section 1.6.2 Reported/Recorded/Estimated Number of Secondary Discharges</b>					
1.42	Number of Reported Secondary Discharges	Nr	0	0		
1.43	Number of Recorded Secondary Discharges	Nr	0	0		
1.44	Estimated Total Number of Secondary Discharges	Nr	0	0	0	0
	<b>Section 1.6.3 Reported/Recorded/Estimated Number of Emergency Overflow Discharges from Pumping Stations</b>					
1.45	Number of Reported Emergency Overflow Discharges	Nr	0	0		
1.46	Number of Recorded Emergency Overflow Discharges	Nr	0	0		
1.47	Estimated Total Number of Emergency Overflow Discharges	Nr	0	0	0	0
	<b>Section 1.7 Operational Staff</b>					
1.48	In the four boxes below, describe the extent of operation staff employed by the Local Authority to maintain and operate the sewer network and pumping stations <i>(The individual personnel shall not be named, only grade and level of training needs to be provided)</i>					
1.48.1	Caretaker 9 is responsible for the maintenance and operation of the Emyvale network and WWTP. This Caretaker is also responsible for the Magheraclone and Edenamo agglomerations.					

1.48.2	Caretaker operates under the supervision of a Line Manager Technician					
1.48.3	The Line Manager Technician is supervised by the Senior Executive Engineer					
1.48.4						
	<b>Waste Water Works - Investment Details</b>	<b>Unit</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
	<b>Section 1.8 Capital Investment works carried out since most recent report (including works not included on WSIP Programme or not WSIP funded)</b>					
1.49	Sewers Upgraded or Replaced	m	0	0		
1.50	Sewers Rehabilitated	m	0	0		
1.51	Manholes Rehabilitated	Nr	0	0		
1.52	Local Repairs	Nr	0	0		
1.53	Total Length of sewers Upgraded, Replaced or Rehabilitated	m	0	0	0	0
1.54	Pumping Stations Operated by Local Authority Upgraded or Repaired	Nr	0	0		
1.55	WWTW operated by Local Authority Upgraded or Replaced	Nr	0	0		
1.56	In the following two cells describe the actual Capital Investment undertaken in the reporting period.					
1.56.1	No work has been undertaken- Sand filter to be replaced in 2016, pipeline to be replaced to inlet works due to infiltration to sewer.					
1.56.2						
	<b>Section 1.9 Licence Specified Improvements Works</b>					
1.57						
	<b>Section 1.10 Other Updates Since Last Report</b>					
1.58						
1.59						
1.60						
1.61						
1.62						

## Section 2.1 Hydraulic Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
2.1	<a href="#">Has a Hydraulic Performance Assessment been undertaken for the Sewer Network (e.g., Computer Model or other Engineering Design or Design Review) ?</a>	No	40	Identified, therefore a	If the answer is <b>No</b> assess the need and cost benefit of developing a computer model or engineering design assessment of the Sewer Network and complete Query 2.12. If the answer is <b>Yes</b> proceed to Queries 2.1.1 to 2.1.4 inclusive
2.1.1	If Answer to Query 2.1 is Yes, what % of the Network is covered by the hydraulic assessment ?	N/A	0		The % coverage of the Network by the Hydraulic Assessment can be estimated by the area assessed against the area served by the Network. ENTER "N/A" IF COMPUTER MODEL or DESIGN DOES NOT EXIST. DO NOT LEAVE BLANK OR ENTER "0".
2.1.2	How many years has it been since the completion of the hydraulic assessment ?	N/A	0		Select N/A response if no design assessment or design exists.
2.1.3	Are the outcomes of the Hydraulic Assessment being implemented ?	N/A	0		Select N/A response if no design assessment or design exists.
2.1.4	How many years has it been since the outcomes of the hydraulic assessment have been implemented ?	N/A	0		Select N/A response if no hydraulic performance assessment or design exists. For ongoing works select "less than 5".
2.2	<a href="#">Has a Dynamic Computer Model been used to Assess the Hydraulic Performance of the Sewer Network ?</a>	No	10		Computer Model means a Hydroworks/Infoworks Model, Micro-Drainage Model or equivalent.
2.3	<a href="#">Has a Manhole Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Manhole Location Surveys and the Production of Record Maps" ?</a>	No	10		If the answer is <b>No</b> assess the need and cost benefit of undertaking a Manhole Survey and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.2.1
2.3.1	If yes, how many years has it been since the survey was undertaken or updated?	N/A	0		Select N/A if no Manhole Survey has been undertaken. Enter N/A value for Confidence Grade if Prompt Box is "N/A"
2.4	<a href="#">Has a Flow Survey been undertaken in accordance with WRc Documentation "A Guide to Short Term Flow Surveys of Sewer Systems" and "Contract Documents for Short Term Sewer Flows" ?</a>	No	20		If the answer is <b>No</b> assess the need and cost benefit of undertaking a Flow Monitoring Survey and complete Query 2.12. If answer is <b>Yes</b> Proceed to Query 2.5
2.5	<a href="#">What was this Flow Survey Information Used for ?</a>				
2.5.1	To Determine the extent of Problematic Sewer Catchments	No	0		Select N/A if no Flow Survey has been undertaken.
2.5.2	To Verify a Computer or Mathematical Model of the Network	No	0		Select N/A if no Flow Survey has been undertaken.
2.6	<a href="#">Have Performance Criteria been developed to determine the short, medium or long term capacity of the sewer network ?</a>	No	10		If the answer is <b>No</b> assess the Future Needs of the Sewer Network and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.8
2.7	<a href="#">How many flood events resulting from surcharge in the network have occurred in the past 3 years?</a>	None	0		Flood events in this context means water/sewage backing up from the Network causing flooding of properties or causing disruption of traffic
2.8	<a href="#">Are there deficiencies in performance criteria within the sewer network ?</a>	No	0		If the answer is <b>No</b> , Proceed to Query 2.10 and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.9
2.9	<a href="#">Have the causes of these deficiencies in the Performance Criteria been identified and rectified ?</a>	N/A	0		If the answer is <b>No</b> , consider further examination of the hydraulic model (if available) and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.10
2.10	<a href="#">Can the Hydraulic Assessment (defined in Query 2.1 above) be used to determine the benefit of reducing the contributory Impermeable Areas or extent of surface water contributions</a>	N/A	0		If the answer is <b>No</b> , consider further development of the Hydraulic Assessment (or model if available) and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.11
2.11	<a href="#">Has an Impermeable Area Survey been carried out for the agglomeration or parts of the agglomeration ?</a>	No	10		If the answer is <b>No</b> , consider the need and cost benefit of undertaking an Impermeable Survey for parts of the agglomeration which are under hydraulic pressure and complete Query 2.12.
<b>Total Risk Assessment Score (RAS)</b>			<b>100</b>		
2.12	<a href="#">Prepare Assessment of Needs &amp; Sewer Upgrade Implementation Plan</a>	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
2.13	In the AER provide Summary of Proposed Works or Direction to be taken to improve hydraulic efficiency				

Section 3.1 Environmental Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
3.1	<u>What Environmental or Discharge Quality Data is available with regard to the sewer network ?</u>	largely anecdotal	20		Select N/A if no discharges, secondary discharges or overflows from network; if discharges do exist complete Query 3.12
3.1.1	<u>Do trade effluents discharge to the sewer network?</u>	No	0		If the answer is <b>No</b> , proceed to Query 3.1.2. If the answer is <b>Yes</b> , Proceed to Query 3.2
3.1.2	<u>Are there Storm Water Overflows within the network ?</u>	Yes	20		If the answer is <b>No</b> , proceed to Query 3.1.3. If the answer is <b>Yes</b> , Proceed to Query 3.3
3.1.3	<u>Are there Secondary Discharges within the network (excluding Emergency Overflows at Pump Stations)?</u>	No	0		If the answer is <b>No</b> , proceed to Query 3.1.4.
3.1.4	<u>Is there any evidence that exfiltration is occurring from the network ?</u>	Unknown	20		If the answer is <b>No</b> , does all wastewater enter a wastewater treatment plant (insert summary details in the AER)? If <b>Yes</b> , Proceed to Query 3.6
3.2	<u>If Answer to Query 3.1.1 is "Yes", what % of trade effluents have a licence to Discharge to the Public Sewer ?</u>	N/A	0		Select N/A if answer to Query 3.1.1 is <b>No</b> . If not all trade effluents are licenced, Local Authority should consider issuing and controlling such discharges under the appropriate Legislation.
3.2.1	<u>Are all licenced trade Discharges compliant with their relevant licence and associated conditions.</u>	N/A	0		Answer N/A if none of the trade effluents are licenced. Answer <b>No</b> if this information is unknown. If the answer is <b>Unknown</b> or <b>No</b> , consider issuing a direction to the relevant Licencee. If the answer is <b>Yes</b> , no further action is needed.
3.2.2	<u>If Answer to Query 3.2.1 is "No", state what % of Trade Discharges are NOT compliant with their relevant licence and associated conditions (where that non-compliance led to enforcement action)</u>	N/A	0		Select <b>N/A</b> if answer to Query 3.2.1 is <b>Yes</b> . If <b>N/A</b> is selected as answer to Query 3.2.2
3.3	<u>In accordance with the DoEHLG paper "Procedures &amp; Criteria in relation to Storm Water Overflows", what % of storm water overflows in the system have been classified for their significance?</u>	N/A	0		If the answer is <b>No</b> , consider a review of each discharge within the sewer network complete and Query 3.11. If the answer is <b>Yes</b> , proceed to Query 3.6
3.4	<u>Have samples from any Secondary Discharges within the system been analysed ?</u>	N/A	0		Select N/A if no secondary discharges in system. If the answer to Query 3.4 is <b>No</b> , consider examining the quality of each secondary discharge within the sewer network complete Query 3.11. If the answer is <b>Yes</b> , proceed to Query 3.11
3.5	<u>What percentage of discharges from the system are known to cause environmental pollution of the receiving waters ?</u>	None	0		If the answer is greater than 50% then detail, in the AER, the Improvement Programme necessary to reduce this percentage.
3.6	<u>In relation to possible exfiltration has a risk analysis of ground water contamination or pollution been undertaken ?</u>	No	20		Select <b>N/A</b> if answer to Query 3.6 is <b>No</b> . If the answer is <b>No</b> , consider undertaking ground water risk analysis and complete Query 3.12 If the answer is <b>Yes</b> , proceed to Query 3.6
3.6.1	<u>If Answer to Query 3.6 is "Yes", have any groundwater aquifers been identified in the area of the Network and/or Discharge Points?</u>	No	0		Select <b>N/A</b> if no risk analysis of groundwater contamination has been undertaken.
3.6.2	<u>If Answer to Query 3.6.1 is "Yes", state the classification of groundwater aquifer identified in the area?</u>	N/A	0		Select <b>N/A</b> if no risk analysis of groundwater contamination has been undertaken.
3.6.3	<u>In relation to Query 3.6.1, is the aquifer used as a source for Public, Private or Group Water Supply Schemes?</u>	N/A	0		Select <b>N/A</b> if no risk analysis of groundwater contamination has been undertaken.
3.7	<u>Has an Impact Assessment of each Storm Water Overflow been undertaken in accordance with the DoEHLG paper "Procedures &amp; Criteria in relation to Storm Water Overflows" including setting performance criteria?</u>	No	40		If the answer is <b>No</b> , consider assessing the risk category of the receiving waters. If the answer is <b>Yes</b> , proceed to Query 3.8 and provide summary details of the assessment in the AER.
3.8	<u>What percentage of storm water overflows comply with the performance criteria referred to in Query 3.7?</u>	N/A	0		Select <b>N/A</b> if answer to Query 3.7 is <b>No</b> or if there are no SWOs in system. <b>(Risk Score is locked at 0 if no SWOs in system is stated in Agglomeration Details)</b>
3.9	<u>Have the causes of these Capacity Deficiencies (storm water overflows &amp; Secondary Discharges) been identified ?</u>	N/A	0		Select <b>N/A</b> if answer to Query 3.7 is <b>No</b> or if there are no SWOs in system. If the answer to Query 3.9 is <b>No</b> , consider further examination of the environmental model in the AER.
<b>Total Risk Assessment Score (RAS)</b>			<b>120</b>		
3.10	<u>Prepare Assessment of Needs &amp; Sewer Upgrade Implementation Plan</u>	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
3.11	Provide Summary Details (in the AER) of records upstream and downstream of licenced discharges with regard to Environmental Performance of the network. These details can be included as part of the AER submitted for the agglomeration.				

**Section 4.1 Structural Risk Assessment**

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
4.1	<u>Has a CCTV Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Sewer Condition Inspections" and "Manual of Sewer Condition Classification" ?</u>	No	10		If the answer is <b>No</b> assess the need and benefit of undertaking CCTV Survey. If <b>Yes</b> Proceed to Query 4.2
4.1.1	How many years has it been since the completion of the CCTV Survey?	N/A	0		If no CCTV has been undertaken, select "N/A" response
4.2	<u>What was this CCTV Survey Information Used for?</u>	N/A	10		Select N/A if answer to Query 4.1 is NO.
4.3	<u>Has the CCTV Survey been used to Assess the Structural Condition of the Sewer Network or targeted sections of the Sewer Network?</u>	No	5		If no CCTV has been undertaken, select "No" response. If the answer is <b>No</b> assess the need and benefit of undertaking an assessment of the Structural Condition of the Sewer Network. If the answer is <b>Yes</b> proceed to Q
4.4	<u>Have Performance Criteria been developed to determine the short, medium or long term structural condition of the sewer network ?</u>	No	5		If the answer is <b>No</b> , enter "unknown" in response to Queries 4.4.1 to 4.4.5; consider assessing the Future Needs of the Sewer Network. If the answer is <b>Yes</b> proceed to Queries 4
4.4.1	What % of the Total Sewer Length contains Collapsed or Imminent Collapse of Sewers (Grade 5)	unknown	30		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 5 collapse, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.2	What % of Total Sewer Length contains Sewers Likely to Collapse (Grade 4)	unknown	25		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 4 condition, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.3	What % of Total Sewer Length contains sewers with Further Possible Deterioration (Grade 3)	unknown	10		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 3 deterioration, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.4	What % of Total Sewer Length contains sewers with Minimal Collapse (Grade 2)	unknown	5		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 2 feature, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.5	What % of Total Sewer Length contains sewers of Acceptable Structural Condition (Grade 1)	unknown	5		Insert Percentage of Overall Network Length. If information is not available type "Unknown" into Prompt Box
<b>If all % lengths are known, Check Total Length = 100%</b>			<b>75</b>		If answers to Queries 4.4.1, 4.4.2 or 4.4.3 are above a set level, the RAS for Query 4 is automatically set at the maximum of 140.
4.5	<u>What % of the deficiencies, as detailed in Items 4.4.1, 4.4.2 and 4.4.3, have been rectified ?</u>	N/A	35		Select N/A if answer to Query 4.4 is <b>No</b> . If the answer is <b>No</b> , Proceed to Query 4.6 If the answer is <b>Yes</b> , what monitoring is in place to ensure continued acceptance of structural condition? Proceed to Query 4.7
4.6	<u>Have the causes of the Structural Deficiencies (Grades 3, 4 and 5) been identified or is there a Preventative Maintenance Programme in place?</u>	N/A	0		If the answer is <b>No</b> , consider further examination of the sewer network, the structural loading conditions, gradients and possible H <sub>2</sub> S Formation. If Yes completed Query 4.7
<b>Total Risk Assessment Score (RAS)</b>			<b>140</b>		

4.7	<u>Prepare Assessment of Needs &amp; Sewer Rehabilitation Implementation Plan</u>	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
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### Section 5.1 O&M Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
5.1	<u>Are complaints of an environmental nature recorded and held in a central database?</u>	Yes	0		Consider setting up Central Database for Complaints
5.2	<u>Is there an emergency response procedure in place?</u>	No	20		Consider setting up target response times for dealing with Complaints
5.3	<u>What has been the highest frequency of flooding in the network due to hydraulic inadequacy, over the past 5 years?</u>	None	0		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.4	<u>What has been the highest frequency of flooding in the network due to operational causes over the past 5 years?</u>	None	0		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.5	<u>What has been the highest frequency of surcharging of critical sewers in the network, over the past 5 years?</u>	None	0		Select the highest number of events in any 12 month period.
5.6	<u>What has been the highest frequency of reportable incidents in the network, over the past 5 years?</u>	None	0		Select the highest number of events in any 12 month period.
5.7	<u>What has been the highest frequency of reportable incidents due to discharges, for whatever reason, from Pumping Station Emergency Overflows in the network, over the past 5 years?</u>	None	0		Select the highest number of events at any given Pumping Station in any 12 month period.
5.8	<u>What has been the highest frequency of blockages in sewers in the network over the past 5 years?</u>	None	0		Select the highest number of events per km of sewer network in any 12 month period.
5.9	<u>What has been the highest frequency of collapses in sewers in the network over the past 5 years?</u>	None	0		Select the highest number of events in any 12 month period.
5.10	<u>What has been the highest frequency of bursts in rising mains in the network over the past 5 years?</u>	None	0		Select the highest number of events in any 12 month period.
<b>Total Risk Assessment Score (RAS)</b>			<b>20</b>		
5.11	<u>Prepare Up Dated Operational and Maintenance Plan</u>				

### Section 6.1 Summary of Risk Assessment Scores

Element	Risk Assessment Score	Risk Category	% Risk Score	Maximum Risk Score
Section 2.1 Hydraulic Risk Assessment	100	Medium Risk	67%	150
Section 3.1 Environmental Risk Assessment	120	Low Risk	24%	500
Section 4.1 Structural Risk Assessment	140	High Risk	93%	150
Section 5.1 O&M Risk Assessment	20	Low Risk	10%	200
<b>Total RAS for Network</b>	<b>380</b>	<b>Low Risk</b>	<b>38%</b>	<b>1000</b>

If the total RAS is greater than 750, or if any of the individual RASs are greater than 75% of the Maximum Available Score, the Risk category for the Network is graded "High Risk"



## Appendix 7.4 Small Stream Risk Assessment 2016

River code: <u>XB 068</u>		Date: <u>20/10/16</u>	Time: <u>11:00</u>	Grid: <u>X 293881 Y 306715</u>
Stream accessibility: <u>Accessible</u> Inaccessible		Location: <u>upstream Innishkeen WWTP</u>		Stream Order:
DO%		Dominant Types: Bedrock		Stream flow: Riffle <u>Riffle/Glide</u> Slow flow
DO mg/l		Boulder (>128mm) ✓✓		
Temp		Cobble (32-128mm) ✓✓		Shading: <u>H - M - L - N</u>  Cattle access Y: u/s - d/s or N-  Photo: Yes or No
Conductivity		Gravel (8-32mm) ✓✓		
pH		Fine Gravel (2-8mm)		
Bank width		Sand (0.25-2mm)		
Wet Width		Silt (<0.25mm)		
Avg Depth		Substratum condition: Calcareous - <u>Compacted</u> - Loose		Sewage fungus: <u>(A - M - P - NO)</u>
Velocity:	Colour:	Substratum: <u>Stoney bottom</u> - Muddy bottom - Mud over stones		
Torrential	None	Degree of siltation: Clean - Slight - Moderate - Heavy		
Fast	Slight	Depth of mud: <u>None</u> : <1cm: 1-5cm: 5-10cm: 10cm+		
Moderate	Moderate	Litter: <u>NO - P - M - A</u>		Filamentous Algae: <u>(A - M - P - NO)</u>
Slow	High			
Very slow				
Clarity:	Discharge	Main land use u/s	Sample retained:	Sampled in Minutes:
Very clear	Flood	<u>Pasture</u>	<u>Y - N</u>	Pond net x ✓ <u>2min</u>
Clear	Normal	Bog		Stone wash x
Slightly Turbid	Low	Forestry		Weed sweep x
Highly Turbid	Recent flood	Urban		
	Very low	Tillage		
	Dry	Other		
General Comments: <u>gammarus present</u> <u>quite high flows - sample taken within 1.5m of edge - RHS looking D/S</u>				

### Macroinvertebrate Composition

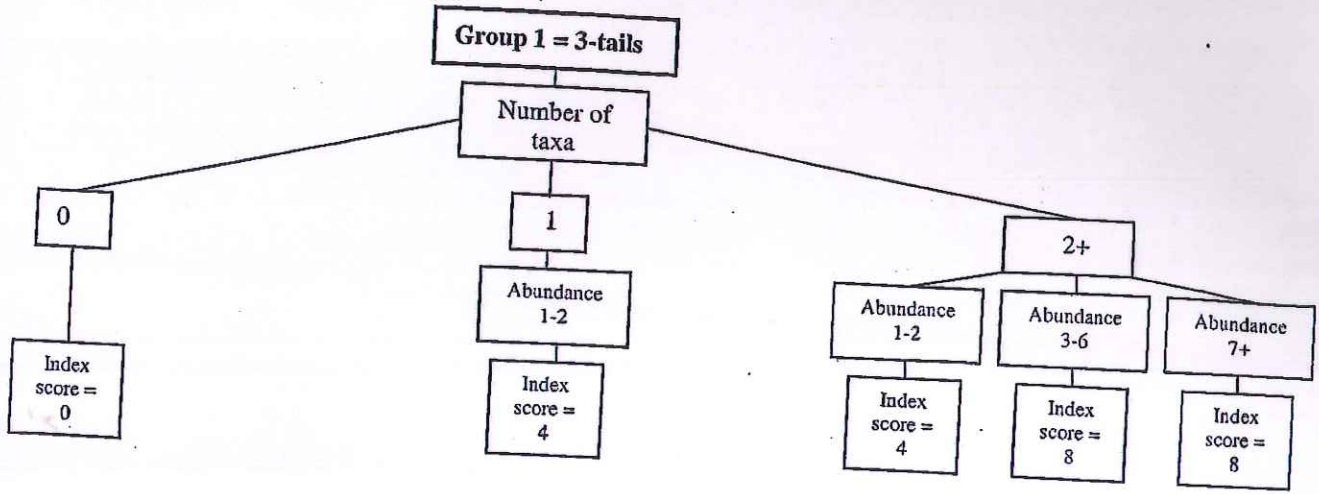
- The macroinvertebrates are divided into the following 5 specific groups:
- Group 1 = Ephemeropteran (3-tails) - note that tails may be damaged during sampling
  - Group 2 = Plecopteran (2-tails) - note that tails may be damaged during sampling
  - Group 3 = Trichopteran
  - Group 4 = GOLD (Gastropoda, Oligochaeta and Diptera)
  - Group 5 = Asellus

Calculate the total number of taxa and total abundance of each macroinvertebrate group below:  
Abundance = Ab: 1-5 macroinvertebrates = Ab 1; >6 macroinvertebrates = Ab 2

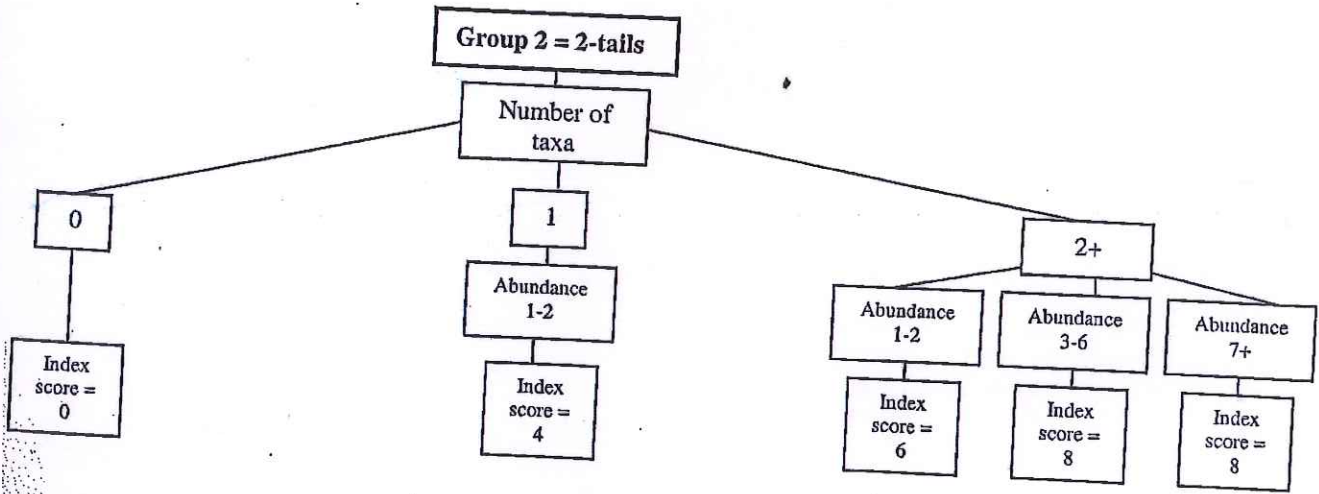
Ephemeropteran:		Plecopteran:			
Mayflies	Ecdyonurus Ab	<u>Ab 2</u>	Leuctra Ab	_____	
	Rhythrogena Ab	<u>Ab 1</u>	Isoperla Ab	_____	
	Heptagenia Ab	_____	Protonemura Ab	_____	
	Ephemerella Ab	_____	Amphinemura Ab	_____	
	Caenis Ab	<u>Ab 1</u>	Perla Ab	_____	
	Paraleptophlebia Ab	_____	Dinocras Ab	_____	
	Ephemera danica Ab	_____	Taeniopterygidae Ab	_____	
	Ab	_____	Ab	_____	
Total no. of taxa	<u>4</u>	Total	<u>4</u>	Total no. of taxa	<u>0</u>
Trichopteran:		GOLD		Asellus: Ab <u>Absent</u>	
Caseless caddis	Hydropsyche Ab	<u>Ab 1</u>	Lymnaea Ab	_____	Dipteran flies
	Polycentropus Ab	<u>Ab 1</u>	Potamopyrgus Ab	_____	
	Rhyacophila Ab	_____	Planorbis Ab	_____	
	Philopotamus Ab	_____	Ancylus Ab	_____	
	Linnephilidae Ab	_____	Physa Ab	<u>Ab 2</u>	
Cased caddis	Sericostomatidae Ab	<u>Ab 1</u>	Lumbriculus Ab	_____	Ceratopogonidae Ab
	Glossosomatidae Ab	_____	Eiseniella Ab	_____	
	Leptostomatidae Ab	_____	Tubificidae Ab	<u>Ab 1</u>	
	Goeridae Ab	_____	Ab	_____	
	Ab	_____	Ab	_____	
	Ab	_____	Ab	_____	
Total no. of taxa	<u>3</u>	Total	<u>3</u>	Total no. of taxa	<u>3</u>

Baetis: Present/Absent Present Abundance Ab 2  
Protected species:

Calculate the Index score by circling the appropriate box representing the total number of taxa and the total abundance calculated from each macroinvertebrate group above and enter into the boxes provided below:

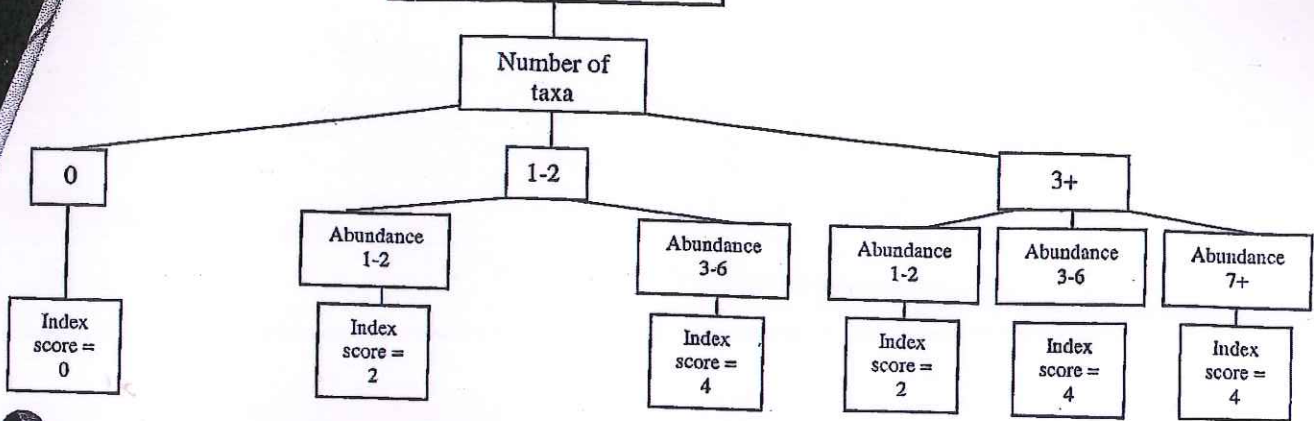


Overall Index score for 3 tails =



Overall Index score for 2-tails =

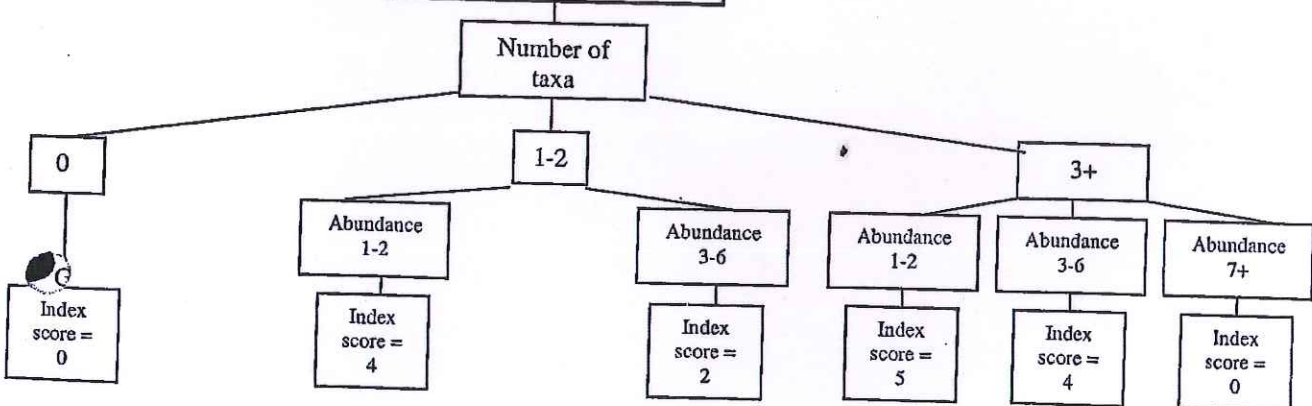
**Group 3 = Trichopterans**



Overall Index score for Trichopterans

= 4

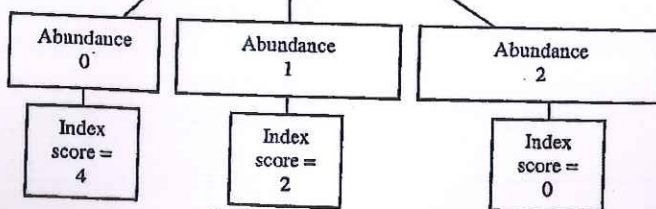
**Group 4 = GOLD**



Overall Index score for GOLD

= 4

**Group 5 = Asellus**

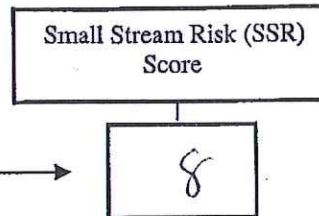


Overall Index score for Asellus

= 4

Overall Index score for 3-talls	=	8
Overall Index score for 2-talls	=	0
Overall Index score for Trichopteran	=	4
Overall Index score for GOLD	=	4
Overall Index score for Asellus	=	4
Total Index score of 5 groups (sum all 5 groups)	=	20
Average of Index score in 5 groups	=	4

x2 =



Assess the stream by comparing the final SSR Score calculated with the following categories:

- > 8 = probably not at risk
- 6.5-8 = probably at risk
- < 6.5 = at risk

Signed: Martina Hull

Date: 20/10/16

River code: XB-068	Date: 20/10/16	Time: 10:30	Grid: X 294006 Y 306656
Stream accessibility: Accessible	Location: downstream Inniskillen water	Stream Order:	
Inaccessible	Modifications: Y/N Canalised-widened-bank erosion-arterial drainage	Stream flow: Riffle Riffle/Glide Slow-flow	
DO%	Dominant Types: Bedrock	Shading: H-M-L-N	
DO mg/l	Boulder (>128mm)	Cattle access Y: u/s - d/s of N	
Temp	Cobble (32-128mm)	Photo: Yes or No	
Conductivity	Gravel (8-32mm)	Sewage fungus: (A-M-P-NO)	
pH	Fine Gravel (2-8mm)		
Bank width	Sand (0.25-2mm)		
Wet Width	Silt (<0.25mm)		
Avg Depth	Substratum condition: Calcareous - Compacted - Loose		
Velocity:	Substratum: Stoney bottom - Muddy bottom - Mud over stones		
Torrential	Colour: None		
Fast	Slight		
Moderate	Moderate		
Slow	High		
Very slow	Degree of siltation: Clean - Slight - Moderate - Heavy		
	Depth of mud: None <1cm: 1-5cm: 5-10cm: 10cm+		
	Litter: NO - P - M - A		
	Filamentous Algae: (A - M - P - NO)		
Clarity:	Discharge	Main land use w/s	Sample retained:
Very clear	Flood	Pasture ✓	Y-N
Clear	Normal	Bog ✓	
Slightly Turbid	Low	Forestry ✓	
Highly Turbid	Recent flood	Urban	
	Very low	Tillage	
	Dry	Other	
		General Comments: Baetis + gammarus abundant River flow quite high - sample taken within 3m of edge. R15	

### Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:

- Group 1 = Ephemeropteran (3-tails) - note that tails may be damaged during sampling
- Group 2 = Plecopteran (2-tails) - note that tails may be damaged during sampling
- Group 3 = Trichopteran
- Group 4 = GOLD (Gastropoda, Oligochaeta and Diptera)
- Group 5 = Asellus

Calculate the total number of taxa and total abundance of each macroinvertebrate group below:

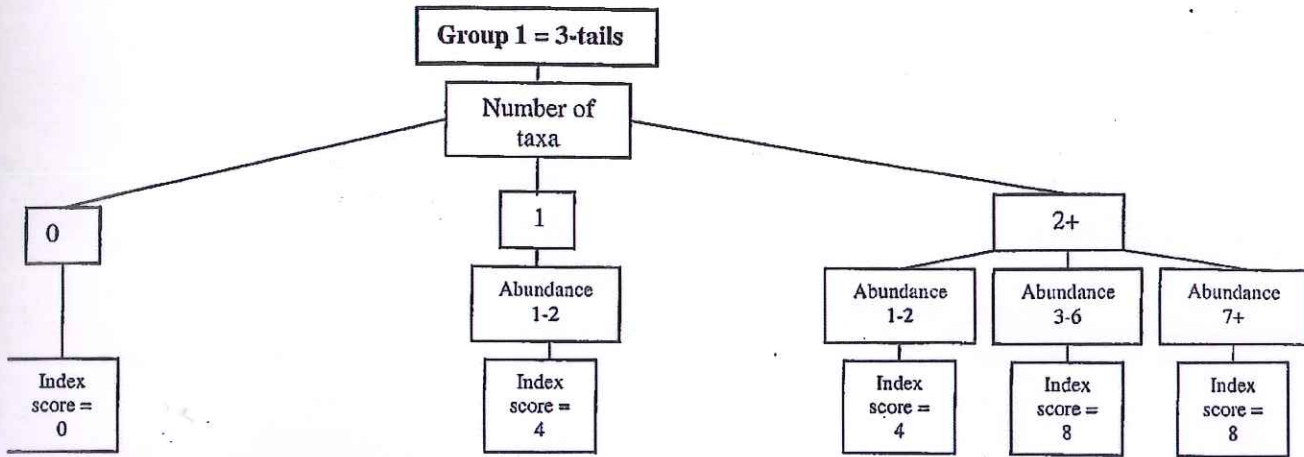
Abundance = Ab: 1-5 macroinvertebrates = Ab 1; >6 macroinvertebrates = Ab 2

Ephemeropteran:	Ecdyonurus Ab	Ab 1	Plecopteran:	Leuctra Ab	Ab 1		
Mayflies	Rhythrogena Ab	Ab 1	Stoneflies	Isoperla Ab			
	Heptagenia Ab			Protonemura Ab			
	Ephemerella Ab			Amphinemura Ab			
	Caenis Ab			Perla Ab			
	Paraleptophlebia Ab			Dinocras Ab			
	Ephemera danica Ab			Taeniopterygidae Ab			
	Ab		Ab				
	Ab		Ab				
Total no. of taxa	3	Total	3	Total no. of taxa	1	Total	1

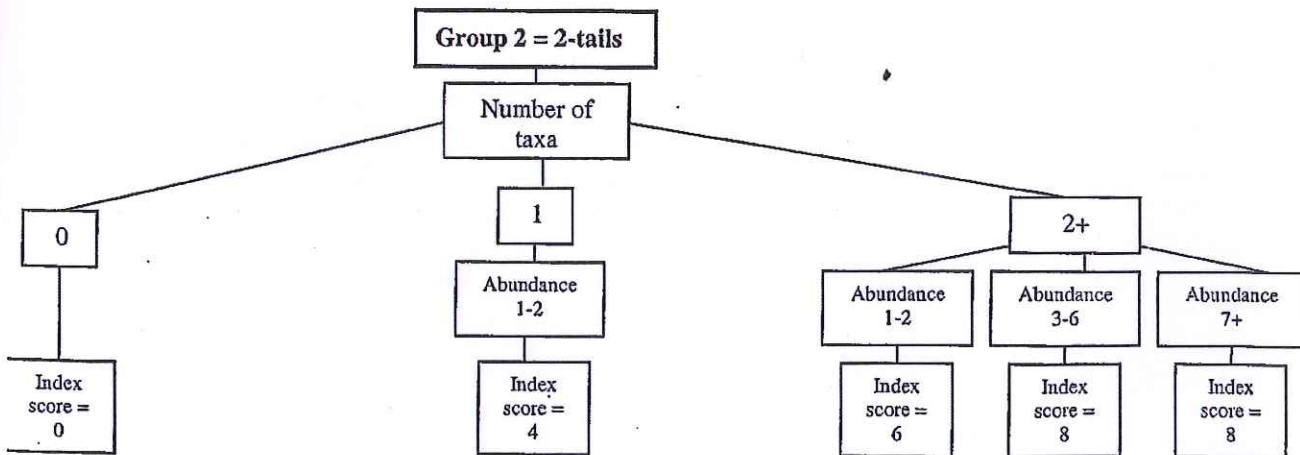
Trichopteran:	Hydropsyche Ab	Ab 1	GOLD	Lymnaea Ab		Tubifex (Worm) Ab		Asellus: Ab	Absent
Caseless caddis	Polycentropus Ab	Ab 1	Snails	Potamopyrgus Ab		Chironomidae Ab	Ab 1	Dipteran flies	
	Rhyacophila Ab	Ab 1		Planorbis Ab		Chironomus Ab	Ab 2		
	Philopotamus Ab			Ancylus Ab		Simulium Ab			
	Linnephilidae Ab			Physa Ab		Dicranota Ab			
Cased caddis	Sericostomatidae Ab		Worms	Lumbriculus Ab		Tipula Ab			
	Glossosomatidae Ab			Eiseniella Ab	Ab 1	Ceratopogonidae Ab			
	Leptostomatidae Ab			Tubificidae Ab		Ab			
	Goeridae Ab			Ab		Ab			
	Ab		Ab		Ab				
Total no. of taxa	3	Total	5	Total no. of taxa	3	Total	4		

Baetis: Present/Absent Present Abundance Ab 1  
Protected species:

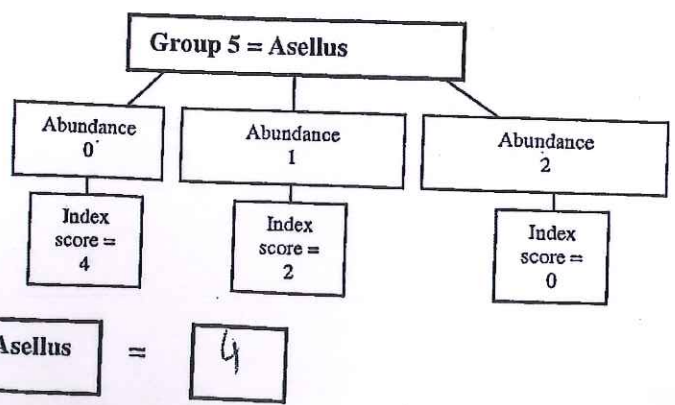
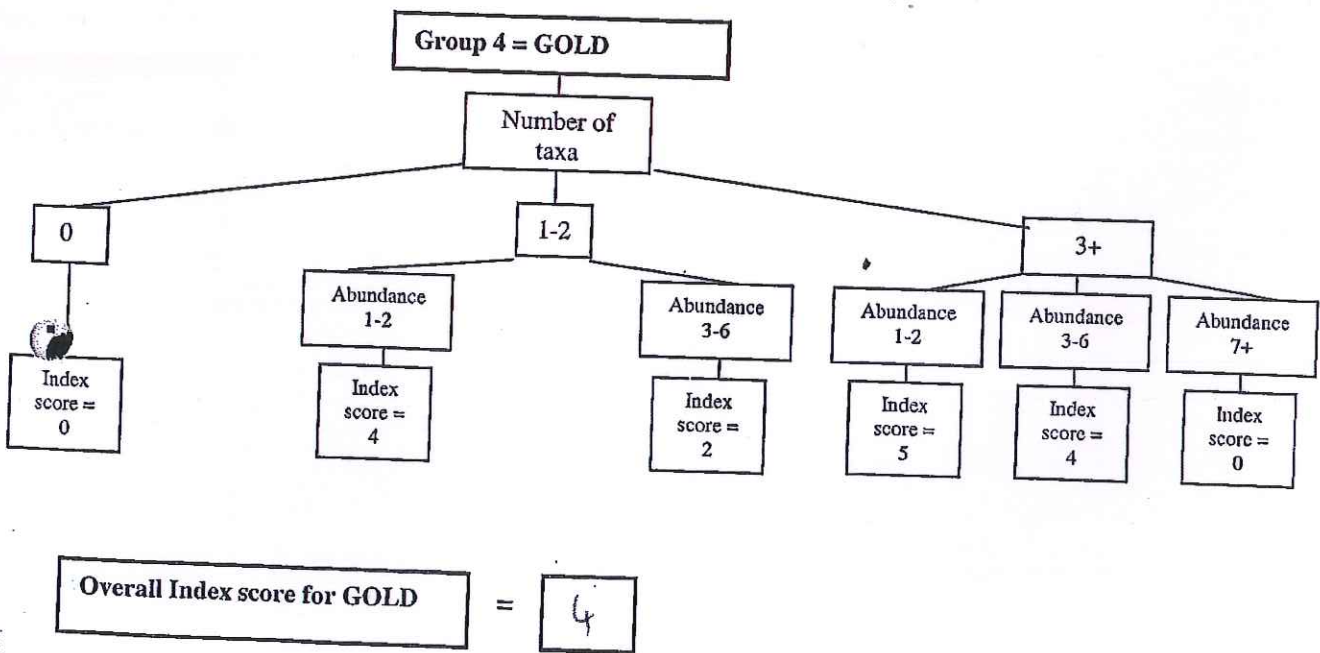
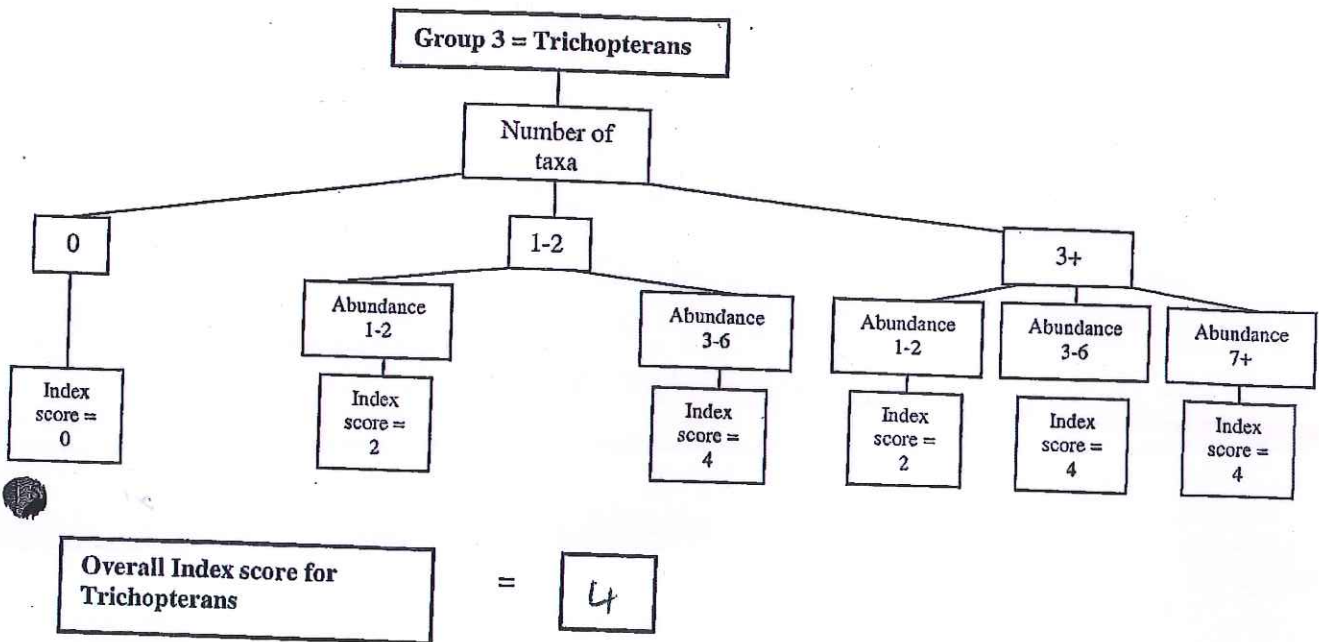
Calculate the Index score by circling the appropriate box representing the total number of taxa and the total abundance calculated from each macroinvertebrate group above and enter into the boxes provided below:



Overall Index score for 3 tails = 8

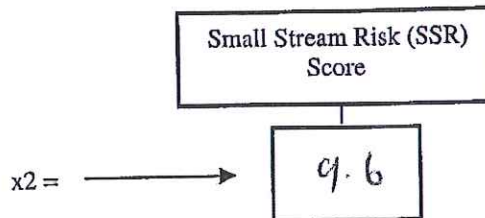


Overall Index score for 2-tails = 4





Overall Index score for 3-tails	=	8
Overall Index score for 2-tails	=	4
Overall Index score for Trichopteran	=	4
Overall Index score for GOLD	=	4
Overall Index score for Asellus	=	4
Total Index score of 5 groups (sum all 5 groups)	=	24
Average of Index score in 5 groups	=	4.8



Assess the stream by comparing the final SSR Score calculated with the following categories:

- > 8 = probably not at risk
- 6.5-8 = probably at risk
- < 6.5 = at risk

Signed: Martina Jull

Date: 20/10/16