Annual Environmental Report

2020

Dromcollagher

D0316-01

CONTENTS

7 APPENDIX

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

This Annual Environmental Report has been prepared for D0316-01, Dromcollagher, in Limerick in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

New plant needed

1.2 TREATMENT SUMMARY

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

- DROMCOLLAGHER WWTP - 2020 with a Plant Capacity PE of 400, the treatment type is 2 - Secondary treatment

1.3 ELV OVERVIEW

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF1900D0316SW001	DROMCOLLAGHER WWTP - 2020	Treated	Non-Compliant	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceo mg/l COD-Cr mg/l Suspended Solids mg/l Total Phosphorus (as P) mg/l

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
Small Stream Risk Score Assessment	Yes

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 DROMCOLLAGHER WWTP - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - DROMCOLLAGHER WWTP - 2020

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

Parameters	Number of Samples	Annual Max	Annual Mean
Total Nitrogen mg/l	12	99.1	40.47
Total Phosphorus (as P) mg/l	12	11.2	5.96
COD-Cr mg/l	12	1221	570.9
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	702	239.72
Hydraulic Capacity	N/A	220	192

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional ‘Operational Performance Summary’. The design of the wastewater tretament plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF1900D0316SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	14	3	1	86.36	Fail
Suspended Solids mg/l	35	87.5	N/A	12	5	1	36.55	Fail
BOD, 5 days with Inhibition (Carbonaceo mg/l	25	50	N/A	12	4	2	24.29	Fail
pH pH units	9	9	N/A	12	N/A	N/A	7.47	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	12	5	5	5.24	Fail
Total Phosphorus (as P) mg/l	1	1.2	N/A	12	9	8	1.85	Fail
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	12	N/A	N/A	1.45	

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

Cause of Exceedance(s):

Plant is old and overloading and needs replacing.

Significance of Results:

5 parameters failed during 2020

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1900D0316SW001

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	137921, 121475	RS24A020310	No	No	No	No	Bad
Downstream	137582, 121873	RS24A020400	No	No	No	No	Bad

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

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
BOD - 5 days (Total) mg/l	RS24A020310	1.737	RS24A020400	3.325	1.5	105.8

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Ammonia-Total (as N) mg/l	RS24A020310	0.046	RS24A020400	1.567	0.065	2339.9
ortho-Phosphate (as P) - unspecified mg/l	RS24A020310	0.063	RS24A020400	0.402	0.035	969.3
Dissolved Oxygen % O2	RS24A020310	94.092	RS24A020400	80.017		
Temperature °C	RS24A020310	10.142	RS24A020400	10.671		
pH pH units	RS24A020310	7.7	RS24A020400	7.706		

Significance of Results:

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

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

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

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

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - DROMCOLLAGHER WWTP - 2020

2.1.4.1 Treatment Efficiency Report - DROMCOLLAGHER WWTP - 2020

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	17065	1365	92
TN	2881	N/A	N/A
TP	424	104	76
COD	40641	4811	88
SS	N/A	2054	N/A

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

2.1.4.2 Treatment Capacity Report Summary - DROMCOLLAGHER WWTP - 2020

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

DROMCOLLAGHER WWTP - 2020	
Peak Hydraulic Capacity (m^3/day) - As Constructed	257
DWF to the Treatment Plant (m^3/day)	100
Current Hydraulic Loading - annual max (m^3/day)	220
Average Hydraulic loading to the Treatment Plant (m^3/day)	192
Organic Capacity (PE) - As Constructed	400
Organic Capacity (PE) - Collected Load (peak week)[Note1]	759
Organic Capacity (PE) - Remaining	0
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

2.1.5 SLUDGE / OTHER INPUTS - DROMCOLLAGHER WWTP - 2020

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

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

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2020.			

3.2 REPORTED INCIDENTS SUMMARY

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Irish Water but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Breach of ELV	WWTP upgrade required to meet ELV	1	Yes	No
Abatement Equipment offline	WWTP biological sludge issue	1	No	Yes
Uncontrolled release	Adverse Weather	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
	Plant or equipment maintenance at WWTP	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	4
Number of Incidents reported to the EPA via EDEN in 2020	4
Explanation of any discrepancies between the two numbers above	No difference.

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

A summary of the operation of the storm water overflows and their significance where known is included below:

4.1.1 SWO IDENTIFICATION

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2020 (No. of events)	Total volume discharged in 2020 (m3)	Monitoring Status
SW3	137933, 121481	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	137936, 121479	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS.

4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0316-SIP:01	Additional treatment to meet the ELVs with commencement date 31/12/2021	C	31/12/2021	No	At Planning Stage		
D0316-SIP:02	Installation of interim (package) secondary treatment plant	C	31/12/2015	Yes	At Planning Stage		

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

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
There are no Improvements Programme for this Agglomeration.				

4.2.3 SEWER INTEGRITY RISK ASSESSMENT

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Table.

5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2016	No	
Small Stream Risk Score Assessment	Yes	2019	Yes	5.2

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2016

5.2 SMALL STREAM RISK SCORE ASSESSMENT

The Small Stream Risk Score Assessment Report is included in Appendix 7.2 - Small Stream Risk Score Assessment. A summary of the findings of this report is included below.

Parameter	Value
Condition 5 Improvement Programme Reference	Ref. 4.2 Specified Improvement Programme

Parameter	Value
Does SSRS indicate discharges are posing a pollution risk?	Yes
Does improvement programme include any procedural and/or infrastructal works?	Yes
Downstream SSRS Water Quality Risk	Stream At Risk
SSRS Required?	Yes
Upstream SSRS Water Quality Risk	Probably Not At Risk
What is Downstream SSRS?	0.2
What is Upstream SSRS?	8

6 CERTIFICATION AND SIGN OFF

6.1 SUMMARY OF AER CONTENTS

Parameter	Answer
Does the AER include an Executive Summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a Technical Amendment / Review of the licence?	No
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	No
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	Yes

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

Signed: Date: 11/05/2021

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

Katherine Walshe

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient monitoring summary
Appendix 7.2 - Small Stream Risk Score Assessment

River: Ahavaragh	Code:	Date: 29-07-20	Time: 14:10
Station no.	Location: u/s of Dromcollogher		Grid (6 figure):
	Stream Order: 2nd Order.		Stream flow: Riffle ✓ / Riffle/Glide / Slow flow

Field Chemistry	
DO%	80.1
DO mg/l	7.2
Temp (°C)	14.2
Conductivity	242
pH	7.8
Bank width (cm)	400
Wet width (cm)	150
Avg Depth (cm)	30
Staff gauge	None.
Velocity	**Colour**
Torrential	None
Fast	Slight
Moderate	Moderate
Slow	High
Very slow	
Clarity	**Discharge**
Very clear	Flood
Clear	Normal
Slightly turbid	Low
Highly turbid	Very Low
	Dry
	Recent Flood

Modifications: Y/N Canalised-widened-bank erosion-arterial drainage N

Dominant Types:
Bedrock
Boulder (>128mm)
Cobble (32-128mm)
Gravel (8-32mm)
Fine Gravel (2-8mm)
Sand (0.25-2mm)
Silt (<0.25mm)

Slope: Low – Medium – High – Very High

Geology: Calcareous-Siliceous-Mixed

Substratum Condition: Calcareous-Compacted-Loose - Normal

Substratum: Stoney bottom-Muddy bottom-Mud over stones

Degree of siltation: Clean-Slight-Moderate-Heavy

Depth of mud: None/ <1cm: 1-5cm: 5-10cm: >10cm

Litter: None – Present – Moderate - Abundant

Filamentous Algae: None – Present – Moderate - Abundant

Main land use u/s:
Pasture, Urban, Bog, Tillage, Forestry, Other

Sample retained: Y / N

Shading: High – Moderate – Low - None

Cattle access Y: upstream – downstream or N

Photo: Y / N

Sewage Fungus: None – Present – Moderate - Abundant

Sampled in Minutes:
Pond net x 2
Stone wash x 2
Weed sweep x 1

General Comments:

Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:

- Group 1 = Ephemeroptera (3-tails) – note that tails may be damaged during sampling
- Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling
- Group 3 = Trichoptera
- Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera)
- Group 5 = *Asellus*
- Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab)

Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

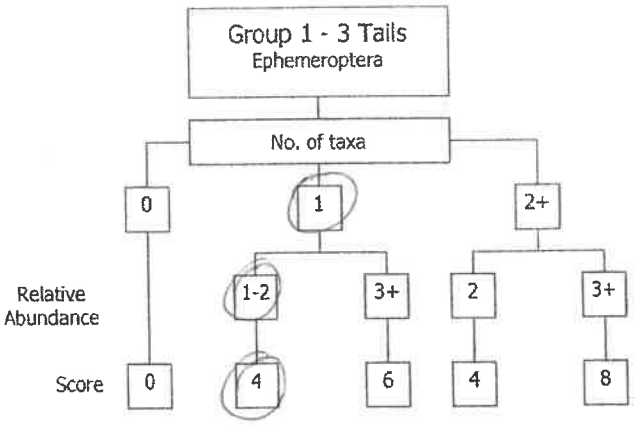
Ephemeroptera:		**Plecoptera:**	
Ecdyonurus Ab		*Leuctra* Ab	
Rhithrogena Ab		*Isoperla* Ab	
Heptagenia Ab		*Protonemura* Ab	
Ephemerella Ab		*Amphinemura* Ab	
Caenis Ab		*Perla* Ab	
Paraleptophlebia Ab		*Dinocras* Ab	
Ephemera danica Ab		Other Plecop Ab	
Other Ephem Ab		Other Plecop Ab	
Total no. of taxa	1	**Total no. of Taxa**	0
Total Relative Abundance	1	**Total Relative Abundance**	0

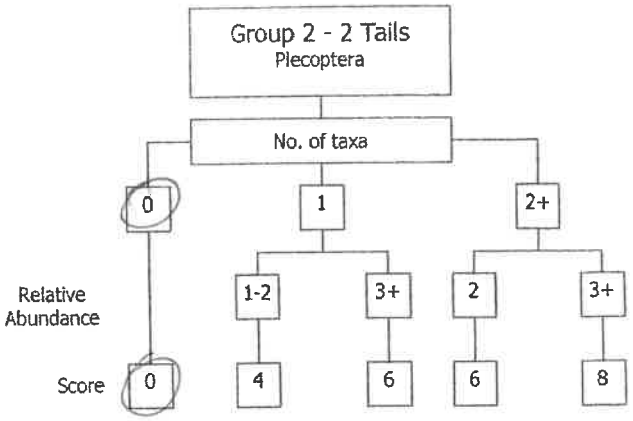
Trichoptera:		**G.OL.D:**				**Asellus:**	
Hydropsychidae Ab		*Lymnaea* (G) Ab		Chironomidae (D) Ab		Absent	
Polycentropodidae Ab		*Potamopyrgus* (G) Ab		*Chironomus* (D) Ab	2	Few/Low	✓
Rhyacophila Ab		*Planorbis* (G) Ab		Simuliidae (D) Ab	2	Common/ Numerous	
Philopotamidae Ab		*Ancylus* (G) Ab		*Dicranota* (D) Ab			
Limnephilidae Ab		*Physa* (G) Ab		Tipulidae (D) Ab			
Sericostomatidae Ab		*Lumbriculus* (Ol) Ab		Ceratopogonidae (D) Ab			
Glossosomatidae Ab		*Eiseniella* (Ol) Ab		Other GOLD Ab			
Lepidostomatidae Ab		Tubificidae (Ol) Ab					
Other Trichoptera Ab							
Total no. of Taxa	0	**Total no. of Taxa**	2	**Total Relative Abundance**	4		
Total Relative Abundance	0						

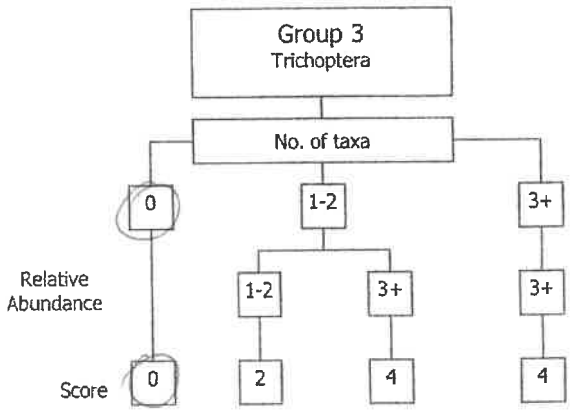
NOTE: *Asellus* must be recorded as absent if none are found

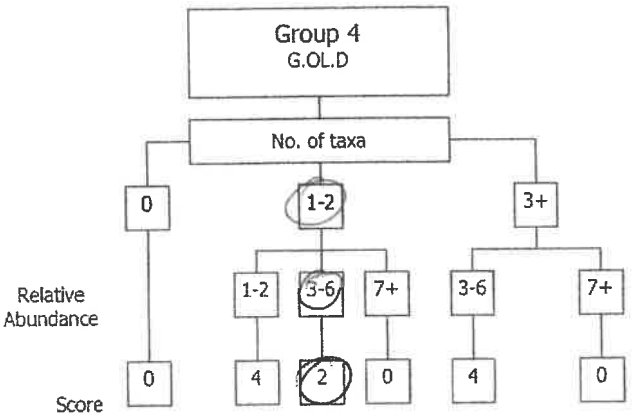
NOTE *Baetis* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Baetis* is not counted in SSRS. See Appendix B for more details on how to identify *Baetis*.

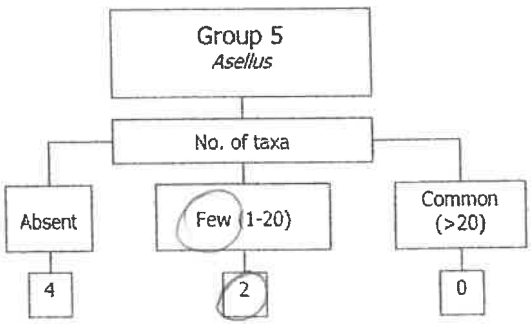
Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from ***each macroinvertebrate group*** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.











Step 2

a) Index Score Group 1	4
b) Index Score Group 2	0
c) Index Score Group 3	0
d) Index Score Group 4	2
e) Index Score Group 5	2

Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) sum (a+b+c+d+e)	8	Average Index Score (AIS) TIS/5 (5 for 5 groups)	1.6	**SSR Score** (AIS x 2)	3.2

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk		> 6.5 – 7.25 Indeterminate Stream may be at risk		<6.5 Stream at risk	✓

Surveyor (signed): A Insley Name (print): ADRIAN INSLEY Date: 29 / 07 / 20.

River: Ahavaeagh	Code:	Date: 29-07-20	Time: 14:50.
Station no.	Location: DS Dromcallogher		Grid (6 figure):
	Stream Order: 2nd Order		Stream flow: Riffle / Riffle/Glide / Slow flow

Field Chemistry	
DO%	70.1
DO mg/l	5.2
Temp (°C)	14.1
Conductivity	231
pH	7.7
Bank width (cm)	400
Wet width (cm)	150
Avg Depth (cm)	30
Staff gauge	None
Velocity	**Colour**
Torrential	None
Fast	Slight
Moderate	Moderate
Slow	High
Very slow	
Clarity	**Discharge**
Very clear	Flood
Clear	Normal
Slightly turbid	Low
Highly turbid	Very Low
	Dry
	Recent Flood

Modifications: Y/N Canalised-widened-bank erosion-arterial drainage

Dominant Types:
Bedrock
Boulder (>128mm)
Cobble (32-128mm)
Gravel (8-32mm)
Fine Gravel (2-8mm)
Sand (0.25-2mm)
Silt (<0.25mm)

Slope: Low – Medium – High – Very High

Geology: Calcareous-Siliceous-Mixed

Substratum Condition: Calcareous-Compacted-Loose - Normal

Substratum: Stoney bottom-Muddy bottom-Mud over stones

Degree of siltation: Clean-Slight-Moderate-Heavy

Depth of mud: None: <1cm: 1-5cm: 5-10cm: >10cm

Litter: None – Present – Moderate - Abundant

Filamentous Algae: None – Present – Moderate - Abundant

Main land use u/s:
Pasture — Urban
Bog — Tillage
Forestry — Other

Sample retained: Y / N

Shading: High – Moderate – Low - None

Cattle access Y: upstream – downstream or N

Photo: Y / N

Sewage Fungus: None – Present – Moderate - Abundant

Sampled in Minutes:
Pond net x 2
Stone wash x 2
Weed sweep x 1

General Comments:
Location untidy, Sewage Smell.

Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:
- Group 1 = Ephemeroptera (3-tails) – note that tails may be damaged during sampling
- Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling
- Group 3 = Trichoptera
- Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera)
- Group 5 = *Asellus*
- Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab)

Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

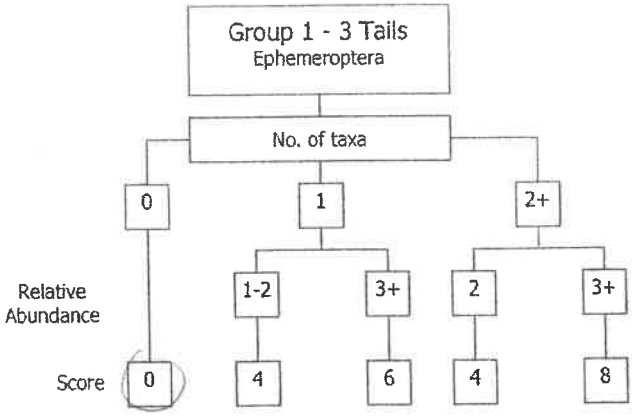
Ephemeroptera:		**Plecoptera:**	
Ecdyonurus Ab		*Leuctra* Ab	
Rhithrogena Ab		*Isoperla* Ab	
Heptagenia Ab		*Protonemura* Ab	
Ephemerella Ab		*Amphinemura* Ab	
Caenis Ab		*Perla* Ab	
Paraleptophlebia Ab		*Dinocras* Ab	
Ephemera danica Ab		Other Plecop Ab	
Other Ephem Ab		Other Plecop Ab	
Total no. of taxa	0 **Total Relative Abundance** 0	**Total no. of Taxa**	0 **Total Relative Abundance** 0

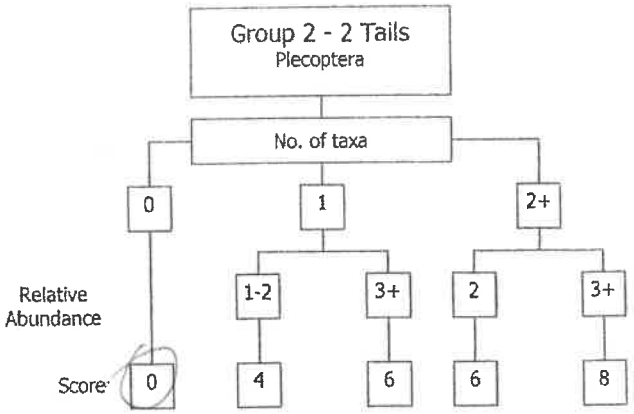
Trichoptera:		**G.O.L.D:**				***Asellus:***	
Hydropsychidae Ab		*Lymnaea* (G) Ab		Chironomidae (D) Ab		Absent	
Polycentropodidae Ab		*Potamopyrgus* (G) Ab		*Chironomus* (D) Ab	2	Few/Low	
Rhyacophila Ab		*Planorbis* (G) Ab		Simuliidae (D) Ab		Common/ Numerous	✓
Philopotamidae Ab		*Ancylus* (G) Ab		*Dicranota* (D) Ab			
Limnephilidae Ab		*Physa* (G) Ab		Tipulidae (D) Ab			
Sericostomatidae Ab		*Lumbriculus* (Ol) Ab		Ceratopogonidae (D) Ab			
Glossosomatidae Ab		*Eiseniella* (Ol) Ab		Other GOLD Ab			
Lepidostomatidae Ab		Tubificidae (Ol) Ab					
Other Trichoptera Ab							
Total no. of Taxa	0 **Total Relative Abundance** 0	**Total no. of Taxa**	1	**Total Relative Abundance**	2		

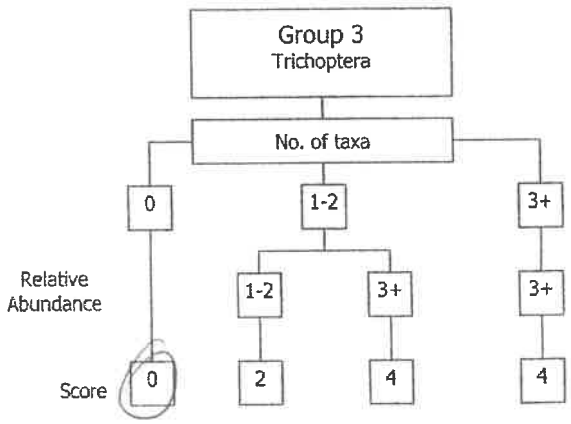
NOTE: *Asellus* must be recorded as absent if none are found

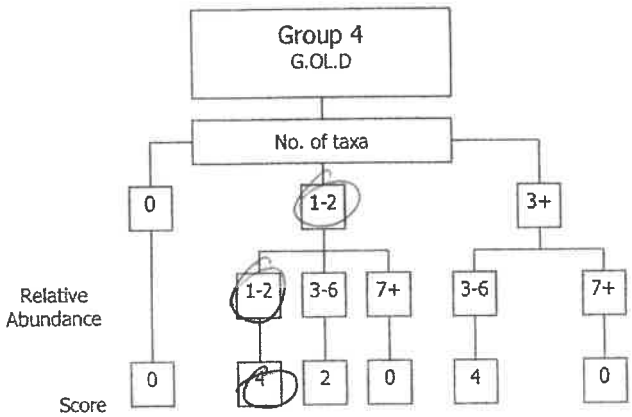
NOTE *Baetis* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Baetis* is not counted in SSRS. See Appendix B for more details on how to identify *Baetis*.

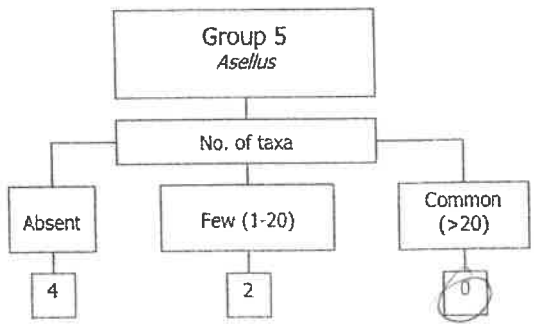
Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from ***each macroinvertebrate group*** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.











Step 2

a) Index Score Group 1	0
b) Index Score Group 2	0
c) Index Score Group 3	0
d) Index Score Group 4	4
e) Index Score Group 5	0

Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) sum (a+b+c+d+e)	4	Average Index Score (AIS) TIS/5 (5 for 5 groups)	0.8	**SSR Score** (AIS x 2)	1.6

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk		> 6.5 – 7.25 Indeterminate Stream may be at risk		<6.5 Stream at risk	✓

Surveyor (signed): A Insley Name (print): ADRIAN INSLEY Date: 29 / 07 / '20

Dromcollogher Upstream

Location							Parameter					
Station	Station Reference	Station Easting	Station Northing	Sample Reference	Sample Date		Ammonia NH3-N	pH	Biological Oxygen Demand	Dissolved Oxygen % Saturatio	Ortho-Phosphate PO4-P	Temperature
							mg/l	pH units	mg/l	% O2	mg/l	Degrees C
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20370050	07-Jan-2020		0.04	7.8	1	97.5	0.038	9
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20370470	04-Feb-2020		0.02	7.7	2.32	99.1	0.031	5.8
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20370843	03-Mar-2020		0.05	7.5	1	82.5	0.019	5.8
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20371346	12-May-2020		0.02	8	1	90.2	0.038	6.6
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20371504	02-Jun-2020		0.06	7.9	3.8	93.7	0.069	14.5
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20371833	07-Jul-2020		0.02	7.9	1	89.8	0.137	12.9
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20372154	04-Aug-2020		0.04	8.1	1	102	0.122	15.8
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20372426	01-Sep-2020		0.07	7.3	1	97.9	0.078	13.8
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20372945	13-Oct-2020		0.02	7.8	1	98	0.079	9.6
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20373211	03-Nov-2020		0.07	7.1	2	96.2	0.052	8.5
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20373335	10-Nov-2020		0.06	7.7	1	92.2	0.047	9.8
WDLW 23 Ahavarraga u/s Dromcollogher STP	RS24A020310	137921	121476	20373565	01-Dec-2020		0.05	7.6	1	90	0.041	9.6
			EQS Std	individual value				6-9				
			EQS Std	good status mean			≤0.065	n/a	≤1.5		≤0.035	n/a
			EQS Std	good status 95%ile			≤0.14	n/a	≤2.6	>80, <120	≤0.075	n/a
				mean			0.035	7.7	1.4	94.1	0.063	10.1
				95%ile			0.070	8.0	3.0	100.4	0.129	15.1
				mean compliance			yes	yes	yes	yes	No	
				95%ile compliance			yes	yes	No	yes	No	--

half of level of detection for statistical purposes

exceeds Surface Waters Regulations good status

Note: Individual results which exceed the good status mean are highlighted in red

			Receiving Waters Designation (Yes/No)				Yes	Mean (mg/l)		
Ambient Monitoring Point from WWDL (or as agreed with EPA)	**Irish National Grid Reference (Easting, Northing)**	**EPA Feature Coding Tool code**	**Bathing Water**	**Drinking Water**	**FWPM**	**Shellfish**	**Current WFD Status**	**cBOD**	**o-Phosphate (as P)**	**Ammonia (as N)**
Upstream Monitoring Point	137921, 121475	RS24A020310					Poor	1.400	0.063	0.035
Downstream Monitoring Point	137582, 121873	RS24A020400	No	No	No	No	Bad	6.200	0.634	1.723
Difference								*4.800*	*0.571*	*1.688*
EQS								1.500	0.035	0.065
% of EQS								320.000%	1631.429%	2596.923%

River: Ahavaragh	Code:	Date: 29-07-20	Time: 14:10
Station no.	Location: u/s of Dromcollogher		Grid (6 figure):
	Stream Order: 2nd Order.		Stream flow: Riffle ✓ / Riffle/Glide / Slow flow

Field Chemistry	
DO%	80.1
DO mg/l	7.2
Temp (°C)	14.2
Conductivity	242
pH	7.8
Bank width (cm)	400
Wet width (cm)	150
Avg Depth (cm)	30
Staff gauge	None.
Velocity	**Colour**
Torrential	None
Fast	Slight
Moderate	Moderate
Slow	High
Very slow	
Clarity	**Discharge**
Very clear	Flood
Clear	Normal
Slightly turbid	Low
Highly turbid	Very Low
	Dry
	Recent Flood

Modifications: Y/N Canalised-widened-bank erosion-arterial drainage N

Dominant Types:
Bedrock
Boulder (>128mm)
Cobble (32-128mm)
Gravel (8-32mm)
Fine Gravel (2-8mm)
Sand (0.25-2mm)
Silt (<0.25mm)

Slope: Low – Medium – High – Very High

Geology: Calcareous-Siliceous-Mixed

Substratum Condition: Calcareous-Compacted-Loose - Normal

Substratum: Stoney bottom-Muddy bottom-Mud over stones

Degree of siltation: Clean-Slight-Moderate-Heavy

Depth of mud: None/ <1cm: 1-5cm: 5-10cm: >10cm

Litter: None – Present – Moderate - Abundant

Filamentous Algae: None – Present – Moderate - Abundant

Main land use u/s:
Pasture, Urban, Bog, Tillage, Forestry, Other

Sample retained: Y / N

Shading: High – Moderate – Low - None

Cattle access Y: upstream – downstream or N

Photo: Y / N

Sewage Fungus: None – Present – Moderate - Abundant

Sampled in Minutes:
Pond net x 2
Stone wash x 2
Weed sweep x 1

General Comments:

Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:

- Group 1 = Ephemeroptera (3-tails) – note that tails may be damaged during sampling
- Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling
- Group 3 = Trichoptera
- Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera)
- Group 5 = *Asellus*
- Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab)

Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

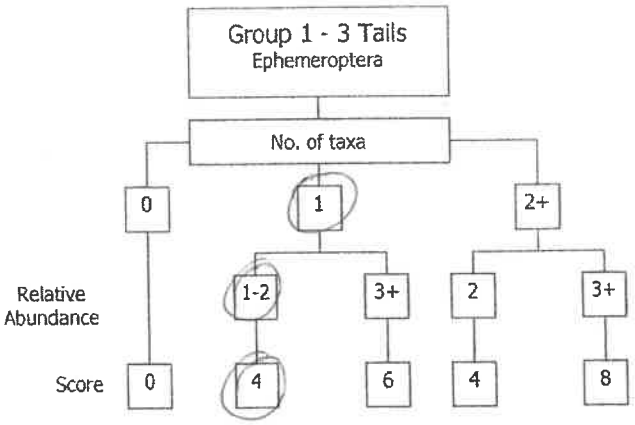
Ephemeroptera:		**Plecoptera:**	
Ecdyonurus Ab		*Leuctra* Ab	
Rhithrogena Ab		*Isoperla* Ab	
Heptagenia Ab		*Protonemura* Ab	
Ephemerella Ab		*Amphinemura* Ab	
Caenis Ab		*Perla* Ab	
Paraleptophlebia Ab		*Dinocras* Ab	
Ephemera danica Ab		Other Plecop Ab	
Other Ephem Ab		Other Plecop Ab	
Total no. of taxa	1	**Total no. of Taxa**	0
Total Relative Abundance	1	**Total Relative Abundance**	0

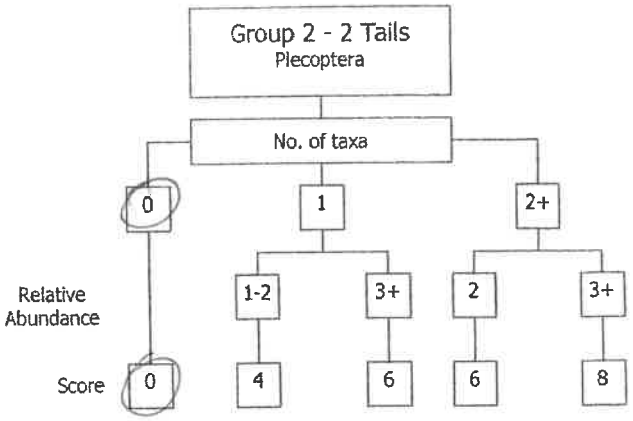
Trichoptera:		**G.OL.D:**				**Asellus:**	
Hydropsychidae Ab		*Lymnaea* (G) Ab		Chironomidae (D) Ab		Absent	
Polycentropodidae Ab		*Potamopyrgus* (G) Ab		*Chironomus* (D) Ab	2	Few/Low	✓
Rhyacophila Ab		*Planorbis* (G) Ab		Simuliidae (D) Ab	2	Common/ Numerous	
Philopotamidae Ab		*Ancylus* (G) Ab		*Dicranota* (D) Ab			
Limnephilidae Ab		*Physa* (G) Ab		Tipulidae (D) Ab			
Sericostomatidae Ab		*Lumbriculus* (Ol) Ab		Ceratopogonidae (D) Ab			
Glossosomatidae Ab		*Eiseniella* (Ol) Ab		Other GOLD Ab			
Lepidostomatidae Ab		Tubificidae (Ol) Ab					
Other Trichoptera Ab							
Total no. of Taxa	0	**Total no. of Taxa**	2	**Total Relative Abundance**	4		
Total Relative Abundance	0						

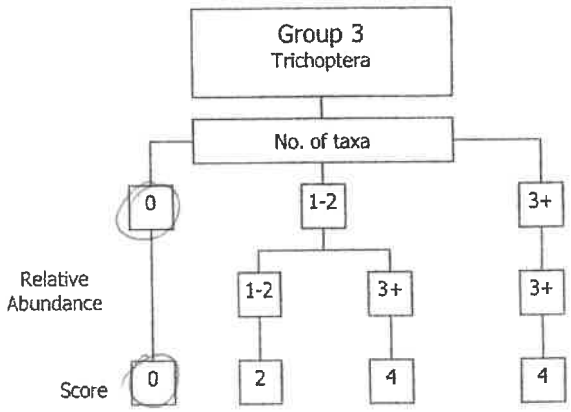
NOTE: *Asellus* must be recorded as absent if none are found

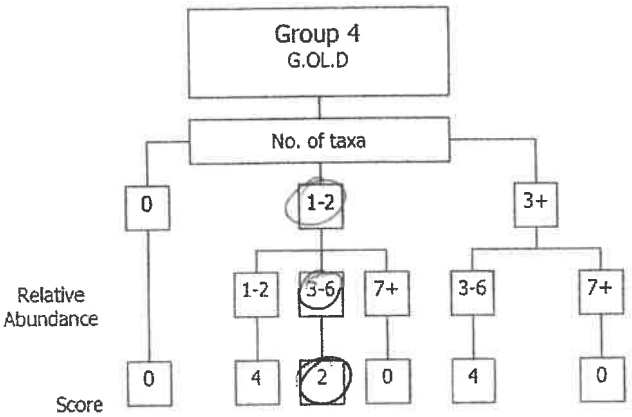
NOTE *Baetis* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Baetis* is not counted in SSRS. See Appendix B for more details on how to identify *Baetis*.

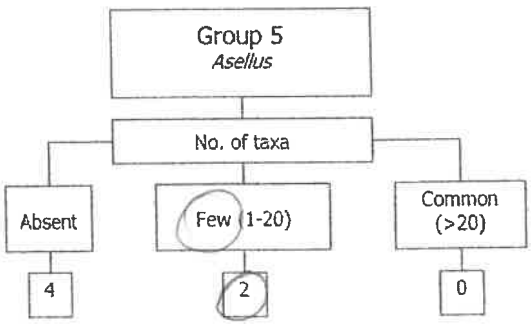
Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from ***each macroinvertebrate group*** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.











Step 2

a) Index Score Group 1	4
b) Index Score Group 2	0
c) Index Score Group 3	0
d) Index Score Group 4	2
e) Index Score Group 5	2

Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) sum (a+b+c+d+e)	8	Average Index Score (AIS) TIS/5 (5 for 5 groups)	1.6	**SSR Score** (AIS x 2)	3.2

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk		> 6.5 – 7.25 Indeterminate Stream may be at risk		<6.5 Stream at risk	✓

Surveyor (signed): A Insley Name (print): ADRIAN INSLEY Date: 29 / 07 / 20.

River: Ahavaeagh	Code:	Date: 29-07-20	Time: 14:50.
Station no.	Location: DS Dromcallogher		Grid (6 figure):
	Stream Order: 2nd Order		Stream flow: Riffle / Riffle/Glide / Slow flow

Field Chemistry	
DO%	70.1
DO mg/l	5.2
Temp (°C)	14.1
Conductivity	231
pH	7.7
Bank width (cm)	400
Wet width (cm)	150
Avg Depth (cm)	30
Staff gauge	None
Velocity	**Colour**
Torrential	None
Fast	Slight
Moderate	Moderate
Slow	High
Very slow	
Clarity	**Discharge**
Very clear	Flood
Clear	Normal
Slightly turbid	Low
Highly turbid	Very Low
	Dry
	Recent Flood

Modifications: Y/N Canalised-widened-bank erosion-arterial drainage

Dominant Types:
Bedrock
Boulder (>128mm)
Cobble (32-128mm)
Gravel (8-32mm)
Fine Gravel (2-8mm)
Sand (0.25-2mm)
Silt (<0.25mm)

Slope: Low – Medium – High – Very High

Geology: Calcareous-Siliceous-Mixed

Substratum Condition: Calcareous-Compacted-Loose - Normal

Substratum: Stoney bottom-Muddy bottom-Mud over stones

Degree of siltation: Clean-Slight-Moderate-Heavy

Depth of mud: None: <1cm: 1-5cm: 5-10cm: >10cm

Litter: None – Present – Moderate - Abundant

Filamentous Algae: None – Present – Moderate - Abundant

Main land use u/s:
Pasture — Urban
Bog — Tillage
Forestry — Other

Sample retained: Y / N

Shading: High – Moderate – Low - None

Cattle access Y: upstream – downstream or N

Photo: Y / N

Sewage Fungus: None – Present – Moderate - Abundant

Sampled in Minutes:
Pond net x 2
Stone wash x 2
Weed sweep x 1

General Comments:
Location untidy, Sewage Smell.

Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:
- Group 1 = Ephemeroptera (3-tails) – note that tails may be damaged during sampling
- Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling
- Group 3 = Trichoptera
- Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera)
- Group 5 = *Asellus*
- Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab)

Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

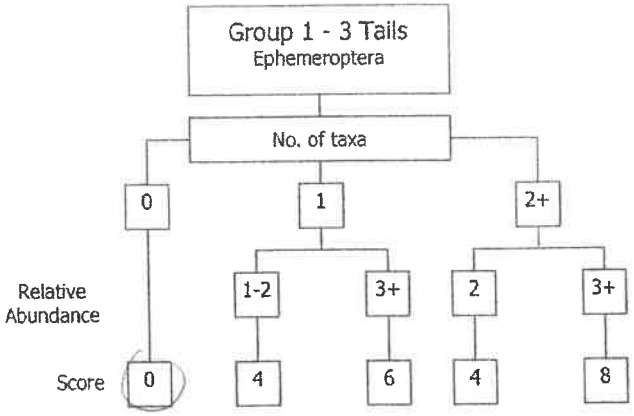
Ephemeroptera:		**Plecoptera:**	
Ecdyonurus Ab		*Leuctra* Ab	
Rhithrogena Ab		*Isoperla* Ab	
Heptagenia Ab		*Protonemura* Ab	
Ephemerella Ab		*Amphinemura* Ab	
Caenis Ab		*Perla* Ab	
Paraleptophlebia Ab		*Dinocras* Ab	
Ephemera danica Ab		Other Plecop Ab	
Other Ephem Ab		Other Plecop Ab	
Total no. of taxa	0 **Total Relative Abundance** 0	**Total no. of Taxa**	0 **Total Relative Abundance** 0

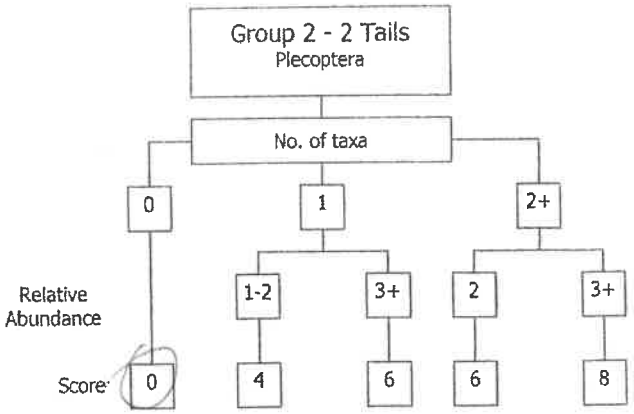
Trichoptera:		**G.O.L.D:**				***Asellus:***	
Hydropsychidae Ab		*Lymnaea* (G) Ab		Chironomidae (D) Ab		Absent	
Polycentropodidae Ab		*Potamopyrgus* (G) Ab		*Chironomus* (D) Ab	2	Few/Low	
Rhyacophila Ab		*Planorbis* (G) Ab		Simuliidae (D) Ab		Common/ Numerous	✓
Philopotamidae Ab		*Ancylus* (G) Ab		*Dicranota* (D) Ab			
Limnephilidae Ab		*Physa* (G) Ab		Tipulidae (D) Ab			
Sericostomatidae Ab		*Lumbriculus* (Ol) Ab		Ceratopogonidae (D) Ab			
Glossosomatidae Ab		*Eiseniella* (Ol) Ab		Other GOLD Ab			
Lepidostomatidae Ab		Tubificidae (Ol) Ab					
Other Trichoptera Ab							
Total no. of Taxa	0 **Total Relative Abundance** 0	**Total no. of Taxa**	1	**Total Relative Abundance**	2		

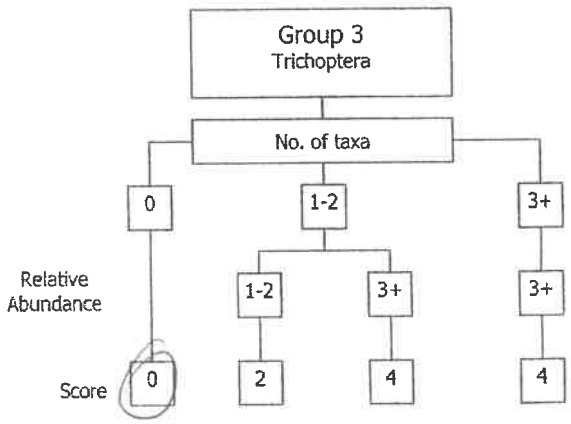
NOTE: *Asellus* must be recorded as absent if none are found

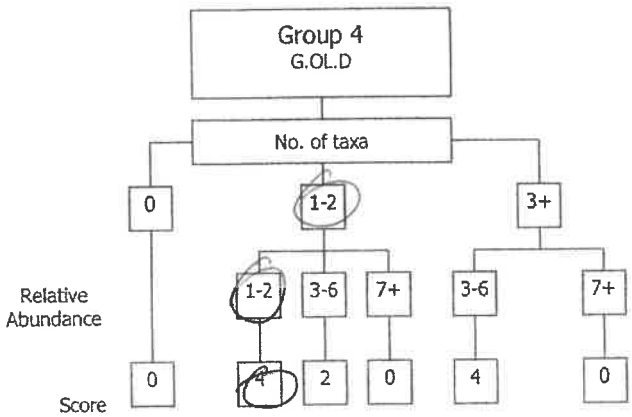
NOTE *Baetis* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Baetis* is not counted in SSRS. See Appendix B for more details on how to identify *Baetis*.

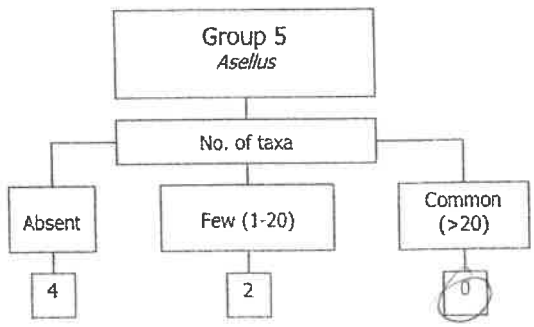
Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from ***each macroinvertebrate group*** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.











Step 2

a) Index Score Group 1	0
b) Index Score Group 2	0
c) Index Score Group 3	0
d) Index Score Group 4	4
e) Index Score Group 5	0

Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) sum (a+b+c+d+e)	4	Average Index Score (AIS) TIS/5 (5 for 5 groups)	0.8	**SSR Score** (AIS x 2)	1.6

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk		> 6.5 – 7.25 Indeterminate Stream may be at risk		<6.5 Stream at risk	✓

Surveyor (signed): A Insley Name (print): ADRIAN INSLEY Date: 29 / 07 / '20