

3 Site Photos



Site tree-felling and localised mulching. Felling completed and tree base and roots left in situ.



Site tree-felling and localised mulching and briar clearance. Felling completed and tree base and roots left in situ.



Site tree-felling and localised mulching.



Stacked trees from felling operations



Development of a site perimeter and works area.



Mulching and stacking felled trees. Mulching over an area marked as Japanese Knotweed.



Stacking of wood locally in suitable locations



Dense ivy-covered trees shaken and then left for 24 hours (best practice in case bats present).



Felling completed along a riparian area. No felling into the watercourse occurred. The watercourse was protected from works activity and no pollution arising from silt or hydrocarbons occurred during works.

Ends



Glashaboy FRS - Site Clearance Checklists (February) 2022

For: Arup

FFEC Ecologists on Site: Usna Keating and Simon Furney

Date: 15/03/2022

This document compiles a checklist and summary of ecological monitoring during initial clearance, for the Glashaboy Flood Relief Scheme. This checklist was filled in following its development to summarise ecological monitoring during the initial clearance phase (February 2022). Ecological monitoring was also undertaken prior to to this checklist being developed.

This report can be read in conjunction with the summary report of ecological supervision and ecological considerations and communications for this clearance phase of works, which was compiled by Flynn Furney Environmental Consultants. Photos are presented in this document to provide a context for supervision and works activities.

Site Photos



Site tree-felling and localised mulching. Felling completed and tree base and roots left in situ.



Site tree-felling and localised mulching.



Mulching and stacking felled trees. Mulching over an area marked as Japanese Knotweed.



Stacking of wood locally in suitable locations



Dense ivy-covered trees shaken and then left for 24 hours (best practice in case bats present).



Felling completed along a riparian area. No felling into the watercourse occurred. The watercourse was protected from works activity and no pollution arising from silt or hydrocarbons occurred during works.

A1

Glashaboy Advance Tree Felling Contract

Area	3 opp O'Connell Group	Date	9/2/22
Ecologist	SIMON FURNEY		

Item	Checks	Comment
Trees	Arborist Maps checked? ✓	
Knotweed	Present? NO	
	Marked? -	
	Measures? -	
Other Invasive Plant Spp.	Present? Yes	Buddleia, Clematis vitalba. Pointed out to Arborist.
	Special Measures?	Avoid.
Bats	Trees with bat potential? NO	
	Surveyed by Bat Specialist? -	
	Trees to be felled & left for 24 hours? -	
Otters	Holt Present? NO	
	Otter Specialist onsite? -	
Birds	Nesting Activity? NO	

Other Comments

Area of bare earth to be seeded to
prevent runoff into stream.

A2

Glashaboy Advance Tree Felling Contract

Area	Area 2. (sallybrook - shopping centre)	Date	Feb. 10 th , 2022
Ecologist	Usna Keating - Simon Furney		

Item	Checks	Comment
Trees	Arborist Maps checked?	Maps checked - discussed maps with arborist.
Knotweed	Present?	Yes
	Marked?	Identified location with arborist.
	Measures?	Mulch to be placed over JKW area where tracking required - & avoidance.
Other Invasive Plant Spp.	Present?	Yes. Winter heliothrips. Requested arborist to mulch over area if tracking over area was required. Avoidance also agreed
	Special Measures?	Avoid - showed areas to arborist.
Bats	Trees with bat potential?	Bat survey conducted on 9 th Feb (evening).
	Surveyed by Bat Specialist?	Yes - Bat Eco services & FFEC
	Trees to be felled & left for 24 hours?	Yes
Otters	Holt Present?	(upstream - yes)
	Otter Specialist onsite?	Otter specialist notified of status of works. Works not within 30m of holt.
Birds	Nesting Activity?	No

A3

Glashaboy Advance Tree Felling Contract

Area	Area 2 - Sallybrook	Date	11/2/21
Ecologist	Usna Keating (morn), Simon & Usna (afternoon)		

Item	Checks	Comment
Trees	Arborist Maps checked?	Yes - checked w/ arborist
Knotweed	Present?	Yes
	Marked?	No - showed area to arborist
	Measures?	Cover w/ mulch & track over. Avoid where possible. Blow tracks & sweep after being in area
Other Invasive Plant Spp.	Present?	No (showed locations of winter heliotrope during previous day).
	Special Measures?	- Avoid
Bats	Trees with bat potential?	Yes
	Surveyed by Bat Specialist?	Yes - during previous survey
	Trees to be felled & left for 24 hours?	Yes - these were shown to the arborist
Otters	Holt Present?	inspected trees from previous day - left for 24 hours. More ivy covered trees left for 24 hours. NA
	Otter Specialist onsite?	NA
Birds	Nesting Activity?	No

Glashaboy Advance Tree Felling Contract

Area	Area 2 - Sallybrook (UP of bridge + circus field)	Date	14/02/22
Ecologist	Uona Keating		

Item	Checks	Comment
Trees	Arborist Maps checked?	Yes - checked w/ arborist
Knotweed	Present?	Yes
	Marked?	None identified - showed maps to arborist & highlighted areas of jkw
	Measures?	To arborist.
Other Invasive Plant Spp.	Present?	- Avoidance, mulch over, avoid rutting ground. Tracks were washed after being in this area.
	Special Measures?	- Yes - Clematis vitalba, winter hederifera mulch Mulch in situ - & avoid where possible - remove clematis from any trees to be removed from site.
Bats	Trees with bat potential?	Yes
	Surveyed by Bat Specialist?	Yes - during previous week trees were felled and left over weekend. Trees surveyed by ecologist & left for 24 hours including one dead tree & other ivy covered tree.
	Trees to be felled & left for 24 hours?	- Yes
Otters	Holt Present?	Yes - Marked both holts
	Otter Specialist onsite?	Yes - Retained cover vegetation over holt. Marked holts & delivered materials (wood, sand) to site of artificial holt.
Birds	Nesting Activity?	- No

Glashaboy Advance Tree Felling Contract

Area	Area 1 - sheet 2,	Date	15/2/22
Ecologist	Nora Keating		

Item	Checks	Comment
Trees	Arborist Maps checked?	Yes - went over maps w/ arborist.
Knotweed	Present?	Yes - marked on map - no other areas seen.
	Marked?	Yes - marked w/ cones & cones used to inform crew of locations.
	Measures?	- Mutch used locally where large digger tracking was due to occur. Avoidance everywhere else.
Other Invasive Plant Spp.	Present?	Yes - winter heliotrope -
	Special Measures?	Avoidance - showed arborists this species & how to identify it.
Bats	Trees with bat potential?	Yes
	Surveyed by Bat Specialist?	Yes - 14 covered trees to be felled & left for 24 hours
	Trees to be felled & left for 24 hours?	Yes (see above)
Otters	Holt Present?	Yes
	Otter Specialist onsite?	Yes - Otter specialist requested trees be felled away from holt - this was followed.
Birds	Nesting Activity?	No (Holt on opposite Bank)

AS

Other Comments

Materials were delivered by other specialist to artificial holt. Help was provided to stake & deliver materials

Glashaboy Advance Tree Felling Contract

Area	Area 1 - sheet 3 of 5	Date	16/2/22
Ecologist	Ura Keating		

Item	Checks	Comment
Trees	Arborist Maps checked?	Yes - clarified clearance area w/ arborist crew (numerous trees around Sallybrook House to be retained).
Knotweed	Present?	Yes No
	Marked?	NA
	Measures?	NA
Other Invasive Plant Spp.	Present?	Yes - winter heliotrope
	Special Measures?	- Mulch over winter heliotrope where possible & track over mulch. In some areas, this was not possible - requested machine tracks to be cleaned over bark mulch before going to next site.
Bats	Trees with bat potential?	Yes
	Surveyed by Bat Specialist?	Yes
	Trees to be felled & left for 24 hours?	Yes - requested these be placed to allow any bats escape if applicable. Arborist liaised with bat ecologist in this regard.
Otters	Holt Present?	No
	Otter Specialist onsite?	NA
Birds	Nesting Activity?	NA.

A7

Glashaboy Advance Tree Felling Contract

Area	Area 1 - d/s Sallybrook house (sheet 3 of 5)	Date	17/02/22
Ecologist	Usna Keating		

Item	Checks	Comment
Trees	Arborist Maps checked?	Yes - checked maps w/ arborist. (some additional trees exist on bank & are required to be removed - not mapped)
Knotweed	Present?	No
	Marked?	NA
	Measures?	NA
Other Invasive Plant Spp.	Present?	Yes - winter heliotrope
	Special Measures?	No tracking over these species. Local use of mulch to cover some of these areas
Bats	Trees with bat potential?	Yes. Also - large sweet chestnut & Bass Leylandi to be removed (surveyed)
	Surveyed by Bat Specialist?	Yes (dusk & dawn)
	Trees to be felled & left for 24 hours?	Yes.
Otters	Holt Present?	No
	Otter Specialist onsite?	NA
Birds	Nesting Activity?	No

Other Comments

Works d/s of Sallybrook House are occurring along bank with no machine access. Therefore trees being cut by hand & lifted. Lack of tracking prevents spread of winter heliotrope. Mulch being used to suppress plant growth.

Numerous young and immature / semi-mature willow not mapped but require removal as are present within clearance zone.

ivy covered trees left for 24 hours

Appendix N

Water Quality Sampling Results (January – June 2023)

N.1 January 2023: Batch No. 23-25808



Certificate of Analysis

Customer:	Cork City Council	Project:	Glashaboy River Drainage Scheme
Address:	Water Services, Environment, Cork City Council, City Hall, Cork	Site	
Report to:	Roslyn McCarthy	Date Received:	26/01/2023
Customer PO		Condition of Sample:	
Quote No.		Date Analysed:	26/01/2023 - 28/01/2023
		Issue Date:	09/02/2023
		BATCH NUMBER:	23-25808

Conor Murphy

Conor Murphy
Operations Manager

Index to symbols used & Notes

*	Analysis is not INAB/UKAS accredited
**	Adapted from Standard Methods for the Examination of Water and Wastewater.
***	Customer specific limits
(F)	Analysis carried out at our Farranfore Laboratory.
(D)	Analysis carried out at our Dunrinc Laboratory.
LOQ	Parameter Limit of Quantification
Note 6	Subcontracted Parameter.

Notes

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- ◆ Opinions and interpretations expressed herein are outside the scope of INAB accreditation.
- ◆ The analysis report shall not be reproduced except in full without written approval of the laboratory.
- ◆ Sampling is outside the scope of the laboratory activities.

Notes for Drinking Water samples

Note A	The water should not be aggressive
Note B	Compliance must be ensured with the conditions that $[NO_3]/50 + [NO_2]/3 = 1$
Note C	Acceptable to customers and no abnormal change
Note D	In the case of surface water treatment, a parametric value not exceeding 1 NTU in the water ex treatment works must be strived for
Note F	Fluoridated supplies 0.8 mg/L; Natural supplies 1.5 mg/L.

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Customer Sample Ref:	Sallybrook	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	DOL
Our Reference:	83048 (23-25808)	Sample Matrix:	Surface Water
Date Sampled:	26/01/2023	Time Sampled:	10:50

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.10
SEP 007	* Temperature	°C		8.90
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8
SCP 052	Conductivity	µS/cm @ 20 °C	15	296
SCP 010	Suspended Solids	mg/L	2	5
SCP 027A	Total Ammonia	mg/L N	0.02	0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.02
SCP 058/058B	Turbidity	NTU	0.20	1.01

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Customer Sample Ref:	River Glashaboy (Sally Brook Bridge)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	DOL
Our Reference:	83049 (23-25808)	Sample Matrix:	Surface Water
Date Sampled:	26/01/2023	Time Sampled:	11:20

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.20
SEP 007	* Temperature	°C		8.70
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.7
SCP 052	Conductivity	µS/cm @ 20 °C	15	223
SCP 010	Suspended Solids	mg/L	2	10
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.04
SCP 058/058B	Turbidity	NTU	0.20	0.85

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Customer Sample Ref:	Trib. Glashaboy (Knocknahorgan)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	DOL
Our Reference:	83050 (23-25808)	Sample Matrix:	Surface Water
Date Sampled:	26/01/2023	Time Sampled:	11:35

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.05
SEP 007	* Temperature	°C		8.50
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9
SCP 052	Conductivity	µS/cm @ 20 °C	15	305
SCP 010	Suspended Solids	mg/L	2	< 2
SCP 027A	Total Ammonia	mg/L N	0.02	0.07
SCP 027C	Orthophosphate	mg/L P	0.01	0.08
SCP 058/058B	Turbidity	NTU	0.20	0.41

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Customer Sample Ref:	Trib. Glashaboy (Brooklodge)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	DOL
Our Reference:	83051 (23-25808)	Sample Matrix:	Surface Water
Date Sampled:	26/01/2023	Time Sampled:	11:50

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.11
SEP 007	* Temperature	°C		8.50
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8
SCP 052	Conductivity	µS/cm @ 20 °C	15	233
SCP 010	Suspended Solids	mg/L	2	< 2
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.02
SCP 058/058B	Turbidity	NTU	0.20	1.13

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Customer Sample Ref:	Trib. Glashaboy (Ballinaglanna)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	DOL
Our Reference:	83052 (23-25808)	Sample Matrix:	Surface Water
Date Sampled:	26/01/2023	Time Sampled:	12:10

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.21
SEP 007	* Temperature	°C		9.10
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8
SCP 052	Conductivity	µS/cm @ 20 °C	15	233
SCP 010	Suspended Solids	mg/L	2	4
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.02
SCP 058/058B	Turbidity	NTU	0.20	1.08

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Customer Sample Ref:	Trib. Glasgaboy (Meadowbrook)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	DOL
Our Reference:	83053 (23-25808)	Sample Matrix:	Surface Water
Date Sampled:	26/01/2023	Time Sampled:	12:40

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.09
SEP 007	* Temperature	°C		8.70
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.7
SCP 052	Conductivity	µS/cm @ 20 °C	15	229
SCP 010	Suspended Solids	mg/L	2	3
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.03
SCP 058/058B	Turbidity	NTU	0.20	0.88

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Customer Sample Ref:	Glasgabay River (Glanmire)	Customer Sample Code:	
Project:	Glashabay River Drainage Scheme	Sampled By:	DOL
Our Reference:	83054 (23-25808)	Sample Matrix:	Surface Water
Date Sampled:	26/01/2023	Time Sampled:	13:00

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.22
SEP 007	* Temperature	°C		8.80
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8
SCP 052	Conductivity	µS/cm @ 20 °C	15	233
SCP 010	Suspended Solids	mg/L	2	6
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.02
SCP 058/058B	Turbidity	NTU	0.20	1.27

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Customer Sample Ref:	Glashaboy River (Dunkettle)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	DOL
Our Reference:	83055 (23-25808)	Sample Matrix:	Surface Water
Date Sampled:	26/01/2023	Time Sampled:	10:50

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.03
SEP 007	* Temperature	°C		9.00
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8
SCP 052	Conductivity	µS/cm @ 20 °C	15	253
SCP 010	Suspended Solids	mg/L	2	6
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.03
SCP 058/058B	Turbidity	NTU	0.20	1.59

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N.2 February 2023: Batch No. 23-26489



Certificate of Analysis

Customer:	Cork City Council	Site/Project:	Glashaboy River Drainage Scheme
Local Authority:	Cork City Council, City Hall, Anglesea Street, Cork	Date Received:	27/02/2023
Customer Contact:	Roslyn McCarthy	Condition of Sample(s):	
Customer PO		Date Analysed:	27/02/2023 - 01/03/2023
Quote No.		Issue Date:	15/03/2023
		BATCH NUMBER:	23-26489

Ruth Murphy
Chemistry Laboratory Manager

Index to symbols used:

*	Analysis is not INAB/UKAS accredited
**	Adapted from Standard Methods for the Examination of Water and Wastewater.
***	S.I. No. 122 of 2014 - European Union (Drinking Water) Regulations 2014 & 2017.
(F)	Analysis carried out at our Farranfore Laboratory.
(D)	Analysis carried out at our Dunrinc Laboratory.
LOD	Parameter Limit of Quantification

Notes

Note A	The water should not be aggressive.
Note C	Acceptable to customers and no abnormal change.
Note D	In the case of surface water treatment, a parametric value not exceeding 1 NTU in the water ex treatment works must be strived for.
Note E	Irish water parametric limit for TVC is <100 cfu/mL.
Note F	Fluoridated supplies 0.8 mg/L; Natural supplies 1.5 mg/L.
Note 6	Subcontracted Parameter.

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Customer Sample Ref:	Sallybrook	Customer Sample Code:	
Entity Name:		Sample Condition:	
Site / Project:		Entity Code:	
Our Reference:	85077 (23-26489) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/02/2023	Sample Matrix:	Surface Water
		Time Sampled:	11:00

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.20	
SEP 007	* Temperature	°C		8.70	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	295	
SCP 010	Suspended Solids	mg/L	2	3	
SCP 027A	Total Ammonia	mg/L N	0.02	0.03	
SCP 027C	Orthophosphate	mg/L P	0.01	0.03	
SCP 058/058B	Turbidity	NTU	0.20	0.42	Note C & D

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Customer Sample Ref:	River Glashaboy (Sally Brook Bridge)	Customer Sample Code:	
Entity Name:		Sample Condition:	
Site / Project:		Entity Code:	
Our Reference:	85078 (23-26489) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/02/2023	Sample Matrix:	Surface Water
		Time Sampled:	11:15

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.50	
SEP 007	* Temperature	°C		7.30	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	229	
SCP 010	Suspended Solids	mg/L	2	2	
SCP 027A	Total Ammonia	mg/L N	0.02	0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.04	
SCP 058/058B	Turbidity	NTU	0.20	0.57	Note C & D

(registered office)

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directors: K. Murphy, M. Murphy & C. Murphy
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Customer Sample Ref:	Trib. Glashaboy (Knocknahorgan)	Customer Sample Code:	
Entity Name:		Sample Condition:	
Site / Project:		Entity Code:	
Our Reference:	85079 (23-26489) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/02/2023	Sample Matrix:	Surface Water
		Time Sampled:	11:30

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.30	
SEP 007	* Temperature	°C		8.40	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	329	
SCP 010	Suspended Solids	mg/L	2	< 2	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.08	
SCP 058/058B	Turbidity	NTU	0.20	0.69	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Brooklodge)	Customer Sample Code:	
Entity Name:		Sample Condition:	
Site / Project:		Entity Code:	
Our Reference:	85080 (23-26489) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/02/2023	Sample Matrix:	Surface Water
		Time Sampled:	11:45

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.20	
SEP 007	* Temperature	°C		7.20	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	243	
SCP 010	Suspended Solids	mg/L	2	3	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.02	
SCP 058/058B	Turbidity	NTU	0.20	0.74	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Ballinaglanna)	Customer Sample Code:	
Entity Name:		Sample Condition:	
Site / Project:		Entity Code:	
Our Reference:	85081 (23-26489) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/02/2023	Sample Matrix:	Surface Water
		Time Sampled:	12:10

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.98	
SEP 007	* Temperature	°C		7.70	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	244	
SCP 010	Suspended Solids	mg/L	2	3	
SCP 027A	Total Ammonia	mg/L N	0.02	0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.02	
SCP 058/058B	Turbidity	NTU	0.20	0.93	Note C & D

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Customer Sample Ref:	Trib. Glasgaboy (Meadowbrook)	Customer Sample Code:	
Entity Name:		Sample Condition:	
Site / Project:		Entity Code:	
Our Reference:	85082 (23-26489) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/02/2023	Sample Matrix:	Surface Water
		Time Sampled:	12:30

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.90	
SEP 007	* Temperature	°C		7.50	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	234	
SCP 010	Suspended Solids	mg/L	2	< 2	
SCP 027A	Total Ammonia	mg/L N	0.02	0.03	
SCP 027C	Orthophosphate	mg/L P	0.01	0.21	
SCP 058/058B	Turbidity	NTU	0.20	0.57	Note C & D

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Customer Sample Ref:	Glasgaboy River (Glanmire)	Customer Sample Code:	
Entity Name:		Sample Condition:	
Site / Project:		Entity Code:	
Our Reference:	85083 (23-26489) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/02/2023	Sample Matrix:	Surface Water
		Time Sampled:	12:40

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.10	
SEP 007	* Temperature	°C		7.90	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	242	
SCP 010	Suspended Solids	mg/L	2	< 2	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.03	
SCP 058/058B	Turbidity	NTU	0.20	0.86	Note C & D

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Customer Sample Ref:	Glashaboy River (Dunkettle)	Customer Sample Code:	
Entity Name:		Sample Condition:	
Site / Project:		Entity Code:	
Our Reference:	85084 (23-26489) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/02/2023	Sample Matrix:	Surface Water
		Time Sampled:	13:00

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.20	
SEP 007	* Temperature	°C		8.10	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	5620	
SCP 010	Suspended Solids	mg/L	2	7	
SCP 027A	Total Ammonia	mg/L N	0.02	0.03	
SCP 027C	Orthophosphate	mg/L P	0.01	0.03	
SCP 058/058B	Turbidity	NTU	0.20	1.80	Note C & D

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N.3 March 2023: Batch No. 23-27277

Certificate of Analysis

Customer:	Cork City Council	Site/Project:	Glashaboy River Drainage Scheme
Local Authority:	Cork City Council, City Hall, Anglesea Street, Cork	Date Received:	30/03/2023
Customer Contact:	Roslyn McCarthy	Condition of Sample(s):	Satisfactory
Customer PO		Date Analysed:	30/03/2023 - 11/04/2023
Quote No.		Issue Date:	14/04/2023
		BATCH NUMBER:	23-27277



Loretta Corcoran
Chief Scientific Officer

Index to symbols used:

*	Analysis is not INAB/UKAS accredited
**	Adapted from Standard Methods for the Examination of Water and Wastewater.
***	S.I. No. 122 of 2014 - European Union (Drinking Water) Regulations 2014 & 2017.
(F)	Analysis carried out at our Farranfore Laboratory.
(D)	Analysis carried out at our Dunrinc Laboratory.
LOD	Parameter Limit of Quantification

Notes

Note A	The water should not be aggressive.
Note C	Acceptable to customers and no abnormal change.
Note D	In the case of surface water treatment, a parametric value not exceeding 1 NTU in the water ex treatment works must be strived for.
Note E	Irish water parametric limit for TVC is <100 cfu/mL.
Note F	Fluoridated supplies 0.8 mg/L; Natural supplies 1.5 mg/L.
Note 6	Subcontracted Parameter.

- ◆ The results relate only to the items tested.
- ◆ Opinions and interpretations expressed herein are outside the scope of INAB accreditation.
- ◆ The analysis report shall not be reproduced except in full without written approval of the laboratory.
- ◆ Sampling is outside the scope of the laboratory activities.

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Customer Sample Ref:	Sallybrook	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	87414 (23-27277) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/03/2023	Sample Matrix:	Surface Water
		Time Sampled:	08:00

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.30	
SEP 007	* Temperature	°C		9.50	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	286	
SCP 010	Suspended Solids	mg/L	2	< 4	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.01	
SCP 058/058B	Turbidity	NTU	0.20	1.49	Note C & D

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Customer Sample Ref:	River Glashaboy (Sally Brook Bridge)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	87415 (23-27277) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/03/2023	Sample Matrix:	Surface Water
		Time Sampled:	08:30

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.50	
SEP 007	* Temperature	°C		8.90	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.7	
SCP 052	Conductivity	µS/cm @ 20 °C	15	208	
SCP 010	Suspended Solids	mg/L	2	7	
SCP 027A	Total Ammonia	mg/L N	0.02	0.04	
SCP 027C	Orthophosphate	mg/L P	0.01	0.04	
SCP 058/058B	Turbidity	NTU	0.20	2.62	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Knocknahorgan)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	87416 (23-27277) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/03/2023	Sample Matrix:	Surface Water
		Time Sampled:	08:40

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.11	
SEP 007	* Temperature	°C		9.20	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8	
SCP 052	Conductivity	µS/cm @ 20 °C	15	279	
SCP 010	Suspended Solids	mg/L	2	6	
SCP 027A	Total Ammonia	mg/L N	0.02	0.04	
SCP 027C	Orthophosphate	mg/L P	0.01	< 0.01	
SCP 058/058B	Turbidity	NTU	0.20	3.06	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Brooklodge)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	87417 (23-27277) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/03/2023	Sample Matrix:	Surface Water
		Time Sampled:	08:50

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	1023.00	
SEP 007	* Temperature	°C		9.40	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8	
SCP 052	Conductivity	µS/cm @ 20 °C	15	217	
SCP 010	Suspended Solids	mg/L	2	23	
SCP 027A	Total Ammonia	mg/L N	0.02	0.05	
SCP 027C	Orthophosphate	mg/L P	0.01	0.06	
SCP 058/058B	Turbidity	NTU	0.20	5.32	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Ballinaglanna)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	87418 (23-27277) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/03/2023	Sample Matrix:	Surface Water
		Time Sampled:	09:00

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.01	
SEP 007	* Temperature	°C		9.40	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8	
SCP 052	Conductivity	µS/cm @ 20 °C	15	217	
SCP 010	Suspended Solids	mg/L	2	9	
SCP 027A	Total Ammonia	mg/L N	0.02	0.03	
SCP 027C	Orthophosphate	mg/L P	0.01	0.01	
SCP 058/058B	Turbidity	NTU	0.20	4.95	Note C & D

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Customer Sample Ref:	Trib. Glasgaboy (Meadowbrook)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	87419 (23-27277) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/03/2023	Sample Matrix:	Surface Water
		Time Sampled:	09:10

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.15	
SEP 007	* Temperature	°C		9.00	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.7	
SCP 052	Conductivity	µS/cm @ 20 °C	15	211	
SCP 010	Suspended Solids	mg/L	2	10	
SCP 027A	Total Ammonia	mg/L N	0.02	0.04	
SCP 027C	Orthophosphate	mg/L P	0.01	0.05	
SCP 058/058B	Turbidity	NTU	0.20	2.96	Note C & D

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Customer Sample Ref:	Glasgaboy River (Glanmire)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	87420 (23-27277) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/03/2023	Sample Matrix:	Surface Water
		Time Sampled:	09:20

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.99	
SEP 007	* Temperature	°C		9.30	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	214	
SCP 010	Suspended Solids	mg/L	2	10	
SCP 027A	Total Ammonia	mg/L N	0.02	0.04	
SCP 027C	Orthophosphate	mg/L P	0.01	0.03	
SCP 058/058B	Turbidity	NTU	0.20	5.36	Note C & D

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Customer Sample Ref:	Glashaboy River (Dunkettle)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	87421 (23-27277) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/03/2023	Sample Matrix:	Surface Water
		Time Sampled:	09:30

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.12	
SEP 007	* Temperature	°C		9.10	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8	
SCP 052	Conductivity	µS/cm @ 20 °C	15	223	
SCP 010	Suspended Solids	mg/L	2	33	
SCP 027A	Total Ammonia	mg/L N	0.02	0.04	
SCP 027C	Orthophosphate	mg/L P	0.01	0.03	
SCP 058/058B	Turbidity	NTU	0.20	6.02	Note C & D

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N.4 April 2023: Batch No. 23-27967



Certificate of Analysis

Customer:	Cork City Council	Site/Project:	Glashaboy River Drainage Scheme
Local Authority:	Cork City Council, City Hall, Anglesea Street, Cork	Date Received:	27/04/2023
Customer Contact:	Roslyn McCarthy	Condition of Sample(s):	Satisfactory
Customer PO		Date Analysed:	27/04/2023 - 08/05/2023
Quote No.		Issue Date:	12/05/2023
		BATCH NUMBER:	23-27967

Conor Murphy

Conor Murphy
Operations Manager

Index to symbols used:

*	Analysis is not INAB/UKAS accredited
**	Adapted from Standard Methods for the Examination of Water and Wastewater.
***	S.I. No. 122 of 2014 and S.I No. 99 of 2023 - European Union (Drinking Water) Regulations 2014, 2017 and 2023
(F)	Analysis carried out at our Farranfore Laboratory.
(D)	Analysis carried out at our Dunrine Laboratory.
LOD	Parameter Limit of Quantification

Notes

Note A	The water should not be aggressive.
Note C	Acceptable to customers and no abnormal change.
Note D	In the case of surface water treatment, a parametric value not exceeding 1 NTU in the water ex treatment works must be strived for.
Note E	Irish water parametric limit for TVC is <100 cfu/mL.
Note F	Fluoridated supplies 0.8 mg/L; Natural supplies 1.5 mg/L.
Note 6	Subcontracted Parameter.

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- ◆ Sampling is outside the scope of the laboratory activities.

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Customer Sample Ref:	Sallybrook	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	89576 (23-27967) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/04/2023	Sample Matrix:	Surface Water
		Time Sampled:	09:00

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.12	
SEP 007	* Temperature	°C		9.80	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	293	
SCP 010	Suspended Solids	mg/L	2	5	
SCP 027A	Total Ammonia	mg/L N	0.02	0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	< 0.01	
SCP 058/058B	Turbidity	NTU	0.20	0.93	Note C & D

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Customer Sample Ref:	River Glashaboy (Sally Brook Bridge)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	89577 (23-27967) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/04/2023	Sample Matrix:	Surface Water
		Time Sampled:	09:15

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.70	
SEP 007	* Temperature	°C		10.10	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	224	
SCP 010	Suspended Solids	mg/L	2	< 2	
SCP 027A	Total Ammonia	mg/L N	0.02	0.04	
SCP 027C	Orthophosphate	mg/L P	0.01	0.04	
SCP 058/058B	Turbidity	NTU	0.20	0.92	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Knocknahorgan)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	89578 (23-27967) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/04/2023	Sample Matrix:	Surface Water
		Time Sampled:	09:30

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.00	
SEP 007	* Temperature	°C		10.10	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	316	
SCP 010	Suspended Solids	mg/L	2	3	
SCP 027A	Total Ammonia	mg/L N	0.02	0.04	
SCP 027C	Orthophosphate	mg/L P	0.01	0.03	
SCP 058/058B	Turbidity	NTU	0.20	0.80	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Brooklodge)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	89579 (23-27967) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/04/2023	Sample Matrix:	Surface Water
		Time Sampled:	09:45

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.22	
SEP 007	* Temperature	°C		9.90	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	236	
SCP 010	Suspended Solids	mg/L	2	4	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	< 0.01	
SCP 058/058B	Turbidity	NTU	0.20	1.10	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Ballinaglanna)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	89580 (23-27967) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/04/2023	Sample Matrix:	Surface Water
		Time Sampled:	10:00

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.08	
SEP 007	* Temperature	°C		10.40	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	236	
SCP 010	Suspended Solids	mg/L	2	14	
SCP 027A	Total Ammonia	mg/L N	0.02	0.03	
SCP 027C	Orthophosphate	mg/L P	0.01	< 0.01	
SCP 058/058B	Turbidity	NTU	0.20	1.11	Note C & D

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Customer Sample Ref:	Trib. Glasgaboy (Meadowbrook)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	89581 (23-27967) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/04/2023	Sample Matrix:	Surface Water
		Time Sampled:	10:15

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.10	
SEP 007	* Temperature	°C		10.00	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	228	
SCP 010	Suspended Solids	mg/L	2	2	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	< 0.01	
SCP 058/058B	Turbidity	NTU	0.20	1.23	Note C & D

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Customer Sample Ref:	Glasgaboy River (Glanmire)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	89582 (23-27967) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/04/2023	Sample Matrix:	Surface Water
		Time Sampled:	10:30

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.01	
SEP 007	* Temperature	°C		10.30	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	235	
SCP 010	Suspended Solids	mg/L	2	2	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	< 0.01	
SCP 058/058B	Turbidity	NTU	0.20	1.01	Note C & D

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Customer Sample Ref:	Glashaboy River (Dunkettle)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	89583 (23-27967) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	27/04/2023	Sample Matrix:	Surface Water
		Time Sampled:	10:45

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.15	
SEP 007	* Temperature	°C		10.00	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	690	
SCP 010	Suspended Solids	mg/L	2	6	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	< 0.01	
SCP 058/058B	Turbidity	NTU	0.20	1.79	Note C & D

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N.5 May 2023: Batch No. 23-28969



Certificate of Analysis

Customer:	Cork City Council	Project:	Glashaboy River Drainage Scheme
Address:	Water Services, Environment, Cork City Council, City Hall, Cork	Site	
Report to:	Roslyn_McCarthy@CorkCity.ie	Date Received:	29/05/2023
Customer PO		Condition of Sample:	Satisfactory
Quote No.		Date Analysed:	29/05/2023 - 02/06/2023
		Issue Date:	06/06/2023
		BATCH NUMBER:	23-28969

Ruth Murphy

Ruth Murphy
Chemistry Laboratory Manager

Index to symbols used & Notes

*	Analysis is not INAB/UKAS accredited
**	Adapted from Standard Methods for the Examination of Water and Wastewater.
***	Customer specific limits
(F)	Analysis carried out at our Farranfore Laboratory.
(D)	Analysis carried out at our Dunrinc Laboratory.
LOQ	Parameter Limit of Quantification
Note 6	Subcontracted Parameter.

Notes

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- ◆ Sampling is outside the scope of the laboratory activities.

Notes for Drinking Water samples

Note A	The water should not be aggressive
Note B	Compliance must be ensured with the conditions that $[NO_3]/50 + [NO_2]/3 = 1$
Note C	Acceptable to customers and no abnormal change
Note D	In the case of surface water treatment, a parametric value not exceeding 1 NTU in the water ex treatment works must be strived for
Note F	Fluoridated supplies 0.8 mg/L; Natural supplies 1.5 mg/L.

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Customer Sample Ref:	Sallybrook	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	Danny O Leary SSS Ltd
Our Reference:	92481 (23-28969)	Sample Matrix:	Surface Water
Date Sampled:	29/05/2023	Time Sampled:	10:00

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.90
SEP 007	* Temperature	°C		12.80
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.1
SCP 052	Conductivity	µS/cm @ 20 °C	15	298
SCP 010	Suspended Solids	mg/L	2	2
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.03
SCP 058/058B	Turbidity	NTU	0.20	0.58

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Customer Sample Ref:	River Glashaboy (Sally Brook Bridge)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	Danny O Leary SSS Ltd
Our Reference:	92482 (23-28969)	Sample Matrix:	Surface Water
Date Sampled:	29/05/2023	Time Sampled:	10:30

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.80
SEP 007	* Temperature	°C		12.90
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0
SCP 052	Conductivity	µS/cm @ 20 °C	15	231
SCP 010	Suspended Solids	mg/L	2	< 2
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.04
SCP 058/058B	Turbidity	NTU	0.20	0.50

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Customer Sample Ref:	Trib. Glashaboy (Knocknahorgan)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	Danny O Leary SSS Ltd
Our Reference:	92483 (23-28969)	Sample Matrix:	Surface Water
Date Sampled:	29/05/2023	Time Sampled:	11:00

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.01
SEP 007	* Temperature	°C		13.10
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.2
SCP 052	Conductivity	µS/cm @ 20 °C	15	333
SCP 010	Suspended Solids	mg/L	2	< 2
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.07
SCP 058/058B	Turbidity	NTU	0.20	0.23

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Customer Sample Ref:	Trib. Glashaboy (Brooklodge)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	Danny O Leary SSS Ltd
Our Reference:	92484 (23-28969)	Sample Matrix:	Surface Water
Date Sampled:	29/05/2023	Time Sampled:	11:20

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.10
SEP 007	* Temperature	°C		12.90
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9
SCP 052	Conductivity	µS/cm @ 20 °C	15	245
SCP 010	Suspended Solids	mg/L	2	2
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.01
SCP 058/058B	Turbidity	NTU	0.20	1.07

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Customer Sample Ref:	Trib. Glashaboy (Ballinaglanna)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	Danny O Leary SSS Ltd
Our Reference:	92485 (23-28969)	Sample Matrix:	Surface Water
Date Sampled:	29/05/2023	Time Sampled:	11:30

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.78
SEP 007	* Temperature	°C		12.90
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.7
SCP 052	Conductivity	µS/cm @ 20 °C	15	247
SCP 010	Suspended Solids	mg/L	2	4
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.01
SCP 058/058B	Turbidity	NTU	0.20	0.91

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Customer Sample Ref:	Trib. Glasgaboy (Meadowbrook)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	Danny O Leary SSS Ltd
Our Reference:	92486 (23-28969)	Sample Matrix:	Surface Water
Date Sampled:	29/05/2023	Time Sampled:	11:45

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.89
SEP 007	* Temperature	°C		13.00
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0
SCP 052	Conductivity	µS/cm @ 20 °C	15	237
SCP 010	Suspended Solids	mg/L	2	< 2
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.04
SCP 058/058B	Turbidity	NTU	0.20	0.53

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Customer Sample Ref:	Glasgabay River (Glanmire)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	Danny O Leary SSS Ltd
Our Reference:	92487 (23-28969)	Sample Matrix:	Surface Water
Date Sampled:	29/05/2023	Time Sampled:	12:00

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.11
SEP 007	* Temperature	°C		13.10
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9
SCP 052	Conductivity	µS/cm @ 20 °C	15	244
SCP 010	Suspended Solids	mg/L	2	3
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.04
SCP 058/058B	Turbidity	NTU	0.20	1.03

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Customer Sample Ref:	Glashaboy River (Dunkettle)	Customer Sample Code:	
Project:	Glashaboy River Drainage Scheme	Sampled By:	Danny O Leary SSS Ltd
Our Reference:	92488 (23-28969)	Sample Matrix:	Surface Water
Date Sampled:	29/05/2023	Time Sampled:	12:10

Method:	Parameter:	Units	LOQ	Result
<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.87
SEP 007	* Temperature	°C		13.00
	* Visual			Clear
<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.1
SCP 052	Conductivity	µS/cm @ 20 °C	15	479
SCP 010	Suspended Solids	mg/L	2	6
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02
SCP 027C	Orthophosphate	mg/L P	0.01	0.02
SCP 058/058B	Turbidity	NTU	0.20	1.46

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N.6 June 2023: Batch No. 23-30328

Certificate of Analysis

Customer:	Cork City Council	Site/Project:	Glashaboy River Drainage Scheme
Local Authority:	Cork City Council, City Hall, Anglesea Street, Cork	Date Received:	30/06/2023
Customer Contact:	Roslyn McCarthy	Condition of Sample(s):	Satisfactory
Customer PO		Date Analysed:	30/06/2023 - 14/07/2023
Quote No.		Issue Date:	17/07/2023
		BATCH NUMBER:	23-30328

Sadhbh O'Brien

Sadhbh O'Brien
Chemistry Team Lead

Index to symbols used:

*	Analysis is not INAB/UKAS accredited
**	Adapted from Standard Methods for the Examination of Water and Wastewater.
***	S.I. No. 122 of 2014 and S.I No. 99 of 2023 - European Union (Drinking Water) Regulations 2014, 2017 and 2023
(F)	Analysis carried out at our Farranfore Laboratory.
(D)	Analysis carried out at our Dunrinc Laboratory.
LOD	Parameter Limit of Quantification

Notes

Note A	The water should not be aggressive.
Note C	Acceptable to customers and no abnormal change.
Note D	In the case of surface water treatment, a parametric value not exceeding 1 NTU in the water ex treatment works must be strived for.
Note E	Irish water parametric limit for TVC is <100 cfu/mL.
Note F	Fluoridated supplies 0.8 mg/L; Natural supplies 1.5 mg/L.
Note 6	Subcontracted Parameter.

- ◆ The results relate only to the items tested.
- ◆ Opinions and interpretations expressed herein are outside the scope of INAB accreditation.
- ◆ The analysis report shall not be reproduced except in full without written approval of the laboratory.
- ◆ Sampling is outside the scope of the laboratory activities.

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Customer Sample Ref:	Sallybrook	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	96385 (23-30328) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/06/2023	Sample Matrix:	Surface Water
		Time Sampled:	:

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.12	
SEP 007	* Temperature	°C		11.40	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	301	
SCP 010	Suspended Solids	mg/L	2	< 4	
SCP 027A	Total Ammonia	mg/L N	0.02	0.03	
SCP 027C	Orthophosphate	mg/L P	0.01	0.05	
SCP 058/058B	Turbidity	NTU	0.20	0.23	Note C & D

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Customer Sample Ref:	River Glashaboy (Sally Brook Bridge)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	96386 (23-30328) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/06/2023	Sample Matrix:	Surface Water
		Time Sampled:	:

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.22	
SEP 007	* Temperature	°C		11.50	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	243	
SCP 010	Suspended Solids	mg/L	2	< 4	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.06	
SCP 058/058B	Turbidity	NTU	0.20	0.83	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Knocknahorgan)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	96387 (23-30328) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/06/2023	Sample Matrix:	Surface Water
		Time Sampled:	:

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.98	
SEP 007	* Temperature	°C		11.60	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	304	
SCP 010	Suspended Solids	mg/L	2	< 4	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.07	
SCP 058/058B	Turbidity	NTU	0.20	0.89	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Brooklodge)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	96388 (23-30328) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/06/2023	Sample Matrix:	Surface Water
		Time Sampled:	:

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.01	
SEP 007	* Temperature	°C		10.90	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	253	
SCP 010	Suspended Solids	mg/L	2	< 4	
SCP 027A	Total Ammonia	mg/L N	0.02	0.08	
SCP 027C	Orthophosphate	mg/L P	0.01	0.04	
SCP 058/058B	Turbidity	NTU	0.20	0.59	Note C & D

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Customer Sample Ref:	Trib. Glashaboy (Ballinaglanna)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	96389 (23-30328) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/06/2023	Sample Matrix:	Surface Water
		Time Sampled:	:

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.89	
SEP 007	* Temperature	°C		11.50	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	253	
SCP 010	Suspended Solids	mg/L	2	< 4	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.04	
SCP 058/058B	Turbidity	NTU	0.20	0.47	Note C & D

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Customer Sample Ref:	Trib. Glasgaboy (Meadowbrook)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	96390 (23-30328) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/06/2023	Sample Matrix:	Surface Water
		Time Sampled:	:

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.94	
SEP 007	* Temperature	°C		11.20	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	248	
SCP 010	Suspended Solids	mg/L	2	< 4	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.06	
SCP 058/058B	Turbidity	NTU	0.20	0.23	Note C & D

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Customer Sample Ref:	Glasgaboy River (Glanmire)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	96391 (23-30328) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/06/2023	Sample Matrix:	Surface Water
		Time Sampled:	:

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	10.11	
SEP 007	* Temperature	°C		11.80	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.8	
SCP 052	Conductivity	µS/cm @ 20 °C	15	259	
SCP 010	Suspended Solids	mg/L	2	4	
SCP 027A	Total Ammonia	mg/L N	0.02	< 0.02	
SCP 027C	Orthophosphate	mg/L P	0.01	0.02	
SCP 058/058B	Turbidity	NTU	0.20	0.26	Note C & D

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Customer Sample Ref:	Glashaboy River (Dunkettle)	Customer Sample Code:	
Entity Name:		Sample Condition:	Satisfactory
Site / Project:		Entity Code:	
Our Reference:	96392 (23-30328) -	Sampled By:	Danny O Leary SSS Ltd
Date Sampled:	30/06/2023	Sample Matrix:	Surface Water
		Time Sampled:	:

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Onsite Measurements:</u>				
	* Dissolved Oxygen	mg/L	0.10	9.95	
SEP 007	* Temperature	°C		11.70	
	* Visual			Clear	
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	7.9	
SCP 052	Conductivity	µS/cm @ 20 °C	15	13870	
SCP 010	Suspended Solids	mg/L	2	25	
SCP 027A	Total Ammonia	mg/L N	0.02	0.30	
SCP 027C	Orthophosphate	mg/L P	0.01	0.03	
SCP 058/058B	Turbidity	NTU	0.20	0.76	Note C & D

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