

Proposed Seven Hills Wind Farm, Co. Roscommon - EIAR EIAR Appendices - F - 2022.06.03- 190907



# **APPENDIX 9-2**

LAB REPORTS



EXCELLENCE THROUGH ACCREDITATION

ENVIRONMENTAL LABORATORY SERVICES Acorn Business Campus Mahon Industrial Park, Blackrock, Cork Ireland Tel: +353 21 453 6141 Fax: +353 21 453 6149 Web: www.elsltd.com email:info@elsltd.com



David Broderick	<b>Report Number</b>	196737 - 1
Hydro-Environmental Services	Sample Number	196737/001
22, Lower Main Street,	Date of Receipt	25/03/2021
Dungarvan,	Date Started	25/03/2021
058 44122	<b>Received or Collected</b>	Hand
Per Batch	Date of Report	19/04/2021
QN010649	Sample Type	Ground Waters
Brian Fallon Well	<b>Condition on receipt</b>	Satisfactory
	Hydro-Environmental Services 22, Lower Main Street, Dungarvan, 058 44122 Per Batch QN010649	Hydro-Environmental ServicesSample Number22, Lower Main Street,Date of ReceiptDungarvan,Date Started058 44122Received or CollectedPer BatchDate of ReportQN010649Sample Type

# CERTIFICATE OF ANALYSIS

TEST ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.
Gallery Plus-Suite A							
Ammonia as N		EW175	0.005		< 0.005	mg/l N	INAB
Ammonium as NH4 (calc)		EW175	0.006		< 0.006	mg/l NH4	INAB
Nitrate as N		EW175	0.15		1.8	mg/l N	INAB
Nitrite as N		EW175	0.005		< 0.005	mg/l N	INAB
Phosphate (Ortho/MRP) as P		EW175	0.005		0.007	mg/l P	INAB
Chloride mg/L		EW175	1.0		16	mg/L	INAB
Sulphate mg/L		EW175	1.0		5.5	mg/L	INAB
Metals-Dissolved							
Hardness-Dissolved		EW188	3.0		410	mg/L CaCO3	
Iron-Dissolved		EW188	20		<1.0	ug/L	YES
Manganese-Dissolved		EW188	1.0		<1.0	ug/L	YES
Aluminium-Dissolved		EW188	5.0		<2.0	ug/L	YES
Arsenic-Dissolved		EW188	0.2		0.7	ug/L	YES
Calcium-Dissolved		EW188	1.0		160	mg/L	
Magnesium-Dissolved		EW188	0.3		6.2	mg/L	YES
Subcontracted							
Potassium-Dissolved		EW188	0.2		3.0	mg/L	YES
Sodium-Dissolved		EW188	0.5		7.7	mg/L	YES
Fitralab							
pH		EW153	0.0		7.1	pH Units	INAB
Conductivity @20 DegC		EW153	25		744	uscm-1@20	INAB
Alkalinity Total (R2 pH4.5)		EW153	10		416	mg/L CaCO3	INAB

Signed :

Maire Bradley

19/04/2021

### Máire Bradley-Deputy Technical Manager

### NOTES

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EXCELLENCE THROUGH ACCREDITATION

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ENVIRONMENTAL LABORATORY SERVICES



Contact Name Address	David Broderick Hydro-Environmental Services 22, Lower Main Street, Dungarvan,	Report Number Sample Number Date of Receipt Date Started	<b>196737 - 1</b> 196737/002 25/03/2021 25/03/2021
Tel No	058 44122	<b>Received or Collected</b>	Hand
<b>Customer PO</b>	Per Batch	Date of Report	19/04/2021
Project No.	QN010649	Sample Type	Ground Waters
Customer Ref	Noel Fallon Well	Condition on receipt	Satisfactory

# CERTIFICATE OF ANALYSIS

TEST ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.
Gallery Plus-Suite A							
Ammonia as N		EW175	0.005		0.015	mg/l N	INAB
Ammonium as NH4 (calc)		EW175	0.006		0.020	mg/l NH4	INAB
Nitrate as N		EW175	0.15		1.7	mg/l N	INAB
Nitrite as N		EW175	0.005		< 0.005	mg/l N	INAB
Phosphate (Ortho/MRP) as P		EW175	0.005		0.008	mg/l P	INAB
Chloride mg/L		EW175	1.0		22	mg/L	INAB
Sulphate mg/L		EW175	1.0		5.0	mg/L	INAB
Metals-Dissolved							
Hardness-Dissolved		EW188	3.0		350	mg/L CaCO3	
Iron-Dissolved		EW188	20		7.6	ug/L	YES
Manganese-Dissolved		EW188	1.0		<1.0	ug/L	YES
Aluminium-Dissolved		EW188	5.0		<2.0	ug/L	YES
Arsenic-Dissolved		EW188	0.2		0.5	ug/L	YES
Calcium-Dissolved		EW188	1.0		130	mg/L	
Magnesium-Dissolved		EW188	0.3		3.9	mg/L	YES
Potassium-Dissolved		EW188	0.2		4.6	mg/L	YES
Sodium-Dissolved		EW188	0.5		10.5	mg/L	YES
Titralab							
pH		EW153	0.0		7.3	pH Units	INAB
Conductivity @20 DegC		EW153	25		670	uscm-1@20	INAB
Alkalinity Total (R2 pH4.5)		EW153	10		362	mg/L CaCO3	INAB

Signed :

Maire Bradley

19/04/2021

### Máire Bradley-Deputy Technical Manager

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EXCELLENCE THROUGH ACCREDITATION

# Contact NameDavid BroderickAddressHydro-Environmental Services<br/>22, Lower Main Street,<br/>Dungarvan,Tel No058 44122Customer POPer BatchProject No.QN010649Customer RefCommons Turlough

ENVIRONMENTAL LABORATORY SERVICES Acorn Business Campus Mahon Industrial Park, Blackrock, Cork Ireland Tel: +353 21 453 6141 Fax: +353 21 453 6149 Web: www.elsltd.com email:info@elsltd.com

**Report Number** 

Sample Number

**Date of Receipt** 

**Date of Report** 

**Sample Type** 

**Received or Collected** 

**Condition on receipt** 

**Date Started** 



**196737 - 1** 196737/003 25/03/2021 25/03/2021 Hand 19/04/2021 Ground Waters

Satisfactory

# CERTIFICATE OF ANALYSIS

TEST ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.
Gallery Plus-Suite A							
Ammonia as N		EW175	0.005		< 0.005	mg/l N	INAB
Ammonium as NH4 (calc)		EW175	0.006		< 0.006	mg/l NH4	INAB
Nitrate as N		EW175	0.15		0.16	mg/l N	INAB
Nitrite as N		EW175	0.005		< 0.005	mg/l N	INAB
Phosphate (Ortho/MRP) as P		EW175	0.005		0.007	mg/l P	INAB
Chloride mg/L		EW175	1.0		13	mg/L	INAB
Sulphate mg/L		EW175	1.0		1.2	mg/L	INAB
Metals-Dissolved							
Hardness-Dissolved		EW188	3.0		190	mg/L CaCO3	YES
Iron-Dissolved		EW188	20		6.41	ug/L	YES
Manganese-Dissolved		EW188	1.0		<1.0	ug/L	YES
Aluminium-Dissolved		EW188	5.0		8.7	ug/L	YES
Arsenic-Dissolved		EW188	0.2		0.5	ug/L	YES
Subcontracted							
Calcium-Dissolved		EW188	1.0		69	mg/L	YES
Magnesium-Dissolved		EW188	0.3		3.4	mg/L	YES
Potassium-Dissolved		EW188	0.2		2.1	mg/L	YES
Sodium-Dissolved		EW188	0.5		6.2	mg/L	YES
Titralab							
pH		EW153	0.0		8.5	pH Units	INAB
Conductivity @20 DegC		EW153	25		291	uscm-1@20	INAB
Alkalinity Total (R2 pH4.5)		EW153	10		148	mg/L CaCO3	INAB

Signed :

Maire Bradley

19/04/2021

### Máire Bradley-Deputy Technical Manager

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EXCELLENCE THROUGH ACCREDITATION

### **David Broderick Contact Name** Address Hydro-Environmental Services 22, Lower Main Street, Dungarvan, Tel No 058 44122 **Customer PO** Per Batch QN010649 **Project No. Customer Ref Thomas Street Turlough**

ENVIRONMENTAL LABORATORY SERVICES Acorn Business Campus Mahon Industrial Park, Blackrock, Cork Ireland Tel: +353 21 453 6141 Fax: +353 21 453 6149 Web: www.elsltd.com email: info@elsltd.com



Report Number	196737 - 1
Sample Number	196737/004
Date of Receipt	25/03/2021
Date Started	25/03/2021
Received or Collected	Hand
Received or Collected Date of Report	Hand 19/04/2021

# CERTIFICATE OF ANALYSIS

TEST ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.
Gallery Plus-Suite A							
Ammonia as N		EW175	0.005		< 0.005	mg/l N	INAB
Ammonium as NH4 (calc)		EW175	0.006		< 0.006	mg/l NH4	INAB
Nitrate as N		EW175	0.15		0.16	mg/l N	INAB
Nitrite as N		EW175	0.005		< 0.005	mg/l N	INAB
Phosphate (Ortho/MRP) as P		EW175	0.005		0.007	mg/l P	INAB
Chloride mg/L		EW175	1.0		15	mg/L	INAB
Sulphate mg/L		EW175	1.0		2.3	mg/L	INAB
Metals-Dissolved							
Hardness-Dissolved		EW188	3.0		190	mg/L CaCO3	YES
Iron-Dissolved		EW188	20		26	ug/L	YES
Manganese-Dissolved		EW188	1.0		<1.0	ug/L	YES
Aluminium-Dissolved		EW188	5.0		8.2	ug/L	YES
Arsenic-Dissolved		EW188	0.2		0.7	ug/L	YES
Subcontracted							
Calcium-Dissolved		EW188	1.0		69	mg/L	YES
Magnesium-Dissolved		EW188	0.3		3.5	mg/L	YES
Potassium-Dissolved		EW188	0.2		3.6	mg/L	YES
Sodium-Dissolved		EW188	0.5		6.9	mg/L	YES
Titralab							
pH		EW153	0.0		8.5	pH Units	INAB
Conductivity @20 DegC		EW153	25		375	uscm-1@20	INAB
Alkalinity Total (R2 pH4.5)		EW153	10		192	mg/L CaCO3	INAB

Signed :

Maire Bradley

19/04/2021

### Máire Bradley-Deputy Technical Manager

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ENVIRONMENTAL LABORATORY SERVICES



Contact Name Address	David Broderick Hydro-Environmental Services 22, Lower Main Street, Dungarvan,	Report Number Sample Number Date of Receipt Date Started	<b>196737 - 1</b> 196737/005 25/03/2021 25/03/2021
Tel No	058 44122	<b>Received or Collected</b>	Hand
<b>Customer PO</b>	Per Batch	Date of Report	19/04/2021
Project No.	QN010649	Sample Type	Ground Waters
Customer Ref	Ballyglass River	<b>Condition on receipt</b>	Satisfactory

# CERTIFICATE OF ANALYSIS

TEST ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.
Gallery Plus-Suite A							
Ammonia as N		EW175	0.005		0.006	mg/l N	INAB
Ammonium as NH4 (calc)		EW175	0.006		0.007	mg/l NH4	INAB
Nitrate as N		EW175	0.15		1.0	mg/l N	INAB
Nitrite as N		EW175	0.005		< 0.005	mg/l N	INAB
Phosphate (Ortho/MRP) as P		EW175	0.005		0.007	mg/l P	INAB
Chloride mg/L		EW175	1.0		17	mg/L	INAB
Sulphate mg/L		EW175	1.0		4.5	mg/L	INAB
Metals-Dissolved							
Hardness-Dissolved		EW188	3.0		310	mg/L CaCO3	YES
Iron-Dissolved		EW188	20		39	ug/L	YES
Manganese-Dissolved		EW188	1.0		1.2	ug/L	YES
Aluminium-Dissolved		EW188	5.0		89	ug/L	YES
Arsenic-Dissolved		EW188	0.2		0.6	ug/L	YES
Calcium-Dissolved		EW188	1.0		120	mg/L	
Magnesium-Dissolved		EW188	0.3		3.4	mg/L	YES
Subcontracted							
Potassium-Dissolved		EW188	0.2		2.4	mg/L	YES
Sodium-Dissolved		EW188	0.5		8.2	mg/L	YES
Titralab							
pH		EW153	0.0		8.1	pH Units	INAB
Conductivity @20 DegC		EW153	25		589	uscm-1@20	INAB
Alkalinity Total (R2 pH4.5)		EW153	10		325	mg/L CaCO3	INAB

Signed :

Maire Bradley

19/04/2021

### Máire Bradley-Deputy Technical Manager

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ENVIRONMENTAL



Contact Name Address	David Broderick Hydro-Environmental Services 22, Lower Main Street, Dungarvan,	Report Number Sample Number Date of Receipt Date Started	<b>196737 - 1</b> 196737/006 25/03/2021 25/03/2021
Tel No	058 44122	<b>Received or Collected</b>	Hand
<b>Customer PO</b>	Per Batch	Date of Report	19/04/2021
Project No.	QN010649	Sample Type	Ground Waters
Customer Ref	Kileglan River	Condition on receipt	Satisfactory

# CERTIFICATE OF ANALYSIS

TEST ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.
Gallery Plus-Suite A							
Ammonia as N		EW175	0.005		< 0.005	mg/l N	INAB
Ammonium as NH4 (calc)		EW175	0.006		< 0.006	mg/l NH4	INAB
Nitrate as N		EW175	0.15		2.1	mg/l N	INAB
Nitrite as N		EW175	0.005		< 0.005	mg/l N	INAB
Phosphate (Ortho/MRP) as P		EW175	0.005		0.008	mg/l P	INAB
Chloride mg/L		EW175	1.0		16	mg/L	INAB
Sulphate mg/L		EW175	1.0		7.7	mg/L	INAB
Metals-Dissolved							
Hardness-Dissolved		EW188	3.0		310	mg/L CaCO3	YES
Iron-Dissolved		EW188	20		29	ug/L	YES
Manganese-Dissolved		EW188	1.0		2.4	ug/L	YES
Aluminium-Dissolved		EW188	5.0		2.0	ug/L	YES
Arsenic-Dissolved		EW188	0.2		0.6	ug/L	YES
Calcium-Dissolved		EW188	1.0		120	mg/L	
Magnesium-Dissolved		EW188	0.3		11.2	mg/L	YES
Subcontracted							
Potassium-Dissolved		EW188	0.2		3.2	mg/L	YES
Sodium-Dissolved		EW188	0.5		8.1	mg/L	YES
Titralab							
pH		EW153	0.0		7.5	pH Units	INAB
Conductivity @20 DegC		EW153	25		643	uscm-1@20	INAB
Alkalinity Total (R2 pH4.5)		EW153	10		351	mg/L CaCO3	INAB

Signed :

Maire Bradley

19/04/2021

### Máire Bradley-Deputy Technical Manager

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ENVIRONMENTAL



Contact Name Address	David Broderick Hydro-Environmental Services 22, Lower Main Street, Dungarvan,	Report Number Sample Number Date of Receipt Date Started	<b>196737 - 1</b> 196737/007 25/03/2021 25/03/2021
Tel No	058 44122	<b>Received or Collected</b>	Hand
<b>Customer PO</b>	Per Batch	Date of Report	19/04/2021
Project No.	QN010649	Sample Type	Ground Waters
Customer Ref	MJ Daly Well	Condition on receipt	Satisfactory

# CERTIFICATE OF ANALYSIS

TEST ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.
Gallery Plus-Suite A							
Ammonia as N		EW175	0.005		0.008	mg/l N	INAB
Ammonium as NH4 (calc)		EW175	0.006		0.010	mg/l NH4	INAB
Nitrate as N		EW175	0.15		4.5	mg/l N	INAB
Nitrite as N		EW175	0.005		< 0.005	mg/l N	INAB
Phosphate (Ortho/MRP) as P		EW175	0.005		0.009	mg/l P	INAB
Chloride mg/L		EW175	1.0		13	mg/L	INAB
Sulphate mg/L		EW175	1.0		6.6	mg/L	INAB
Metals-Dissolved							
Hardness-Dissolved		EW188	3.0		310	mg/L CaCO3	YES
Iron-Dissolved		EW188	20		<1.0	ug/L	YES
Manganese-Dissolved		EW188	1.0		<1.0	ug/L	YES
Subcontracted							
Aluminium-Dissolved		EW188	5.0		2.4	ug/L	YES
Arsenic-Dissolved		EW188	0.2		0.5	ug/L	YES
Calcium-Dissolved		EW188	1.0		120	mg/L	
Magnesium-Dissolved		EW188	0.3		3.3	mg/L	YES
Potassium-Dissolved		EW188	0.2		5.8	mg/L	YES
Sodium-Dissolved		EW188	0.5		8.0	mg/L	YES
Titralab							
pH		EW153	0.0		7.6	pH Units	INAB
Conductivity @20 DegC		EW153	25		598	uscm-1@20	INAB
Alkalinity Total (R2 pH4.5)		EW153	10		315	mg/L CaCO3	INAB

Signed :

Maire Bradley

19/04/2021

### Máire Bradley-Deputy Technical Manager

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ENVIRONMENTAL



Contact Name Address	David Broderick Hydro-Environmental Services 22, Lower Main Street, Dungarvan,	Report Number Sample Number Date of Receipt Date Started	<b>196737 - 1</b> 196737/008 25/03/2021 25/03/2021
Tel No	058 44122	<b>Received or Collected</b>	Hand
<b>Customer PO</b>	Per Batch	Date of Report	19/04/2021
Project No.	QN010649	Sample Type	Ground Waters
Customer Ref	M Moore Well	<b>Condition on receipt</b>	Satisfactory

# CERTIFICATE OF ANALYSIS

TEST ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.
Gallery Plus-Suite A							
Ammonia as N		EW175	0.005		< 0.005	mg/l N	INAB
Ammonium as NH4 (calc)		EW175	0.006		< 0.006	mg/l NH4	INAB
Nitrate as N		EW175	0.15		2.1	mg/l N	INAB
Nitrite as N		EW175	0.005		< 0.005	mg/l N	INAB
Phosphate (Ortho/MRP) as P		EW175	0.005		0.006	mg/l P	INAB
Chloride mg/L		EW175	1.0		17	mg/L	INAB
Sulphate mg/L		EW175	1.0		4.8	mg/L	INAB
Metals-Dissolved							
Hardness-Dissolved		EW188	3.0		290	mg/L CaCO3	YES
Iron-Dissolved		EW188	20		3.38	ug/L	YES
Manganese-Dissolved		EW188	1.0		<1.0	ug/L	YES
Subcontracted							
Aluminium-Dissolved		EW188	5.0		<2.0	ug/L	YES
Arsenic-Dissolved		EW188	0.2		0.4	ug/L	YES
Calcium-Dissolved		EW188	1.0		110	mg/L	
Magnesium-Dissolved		EW188	0.3		4.0	mg/L	YES
Potassium-Dissolved		EW188	0.2		4.7	mg/L	YES
Sodium-Dissolved		EW188	0.5		7.6	mg/L	YES
Titralab							
pH		EW153	0.0		7.4	pH Units	INAB
Conductivity @20 DegC		EW153	25		561	uscm-1@20	INAB
Alkalinity Total (R2 pH4.5)		EW153	10		295	mg/L CaCO3	INAB

Signed :

Maire Bradley

19/04/2021

### Máire Bradley-Deputy Technical Manager

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