APPENDIX 7-3

WATER CHEMISTRY DATA

Element Materials Technology Laboratory Accreditation

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/3125

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/3125

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM37	Modified methods - TSS: USEPA 160.2 (1985), EN872:2005 and APHA SMEWW 2540D:1999 22nd Edition; VSS: USEPA 1684 (Jan 2001), USEPA 160.4 (1971) and SMEWW 2540E:1999 22nd Edition. Gravimetric determination of Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS). Sample is filtered through a 1.5um pore size glass fibre filter and the resulting residue is dried and weighed at 105°C for TSS and 550°C for VSS	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM58	APHA SMEWW 5210B:1999 22nd Edition. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as am	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			

Water Sampling Results
August 2019-February 2023

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Stephen Corrigan
EMT Job No: 19/13629

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9									
Sample ID	SW1	SW2	SW3									
Depth												
COC No / misc												
Containers	H P BOD	H P BOD	H P BOD									
Sample Date	21/08/2019	21/08/2019	21/08/2019									
Sample Type	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1									
Date of Receipt	23/08/2019	23/08/2019	23/08/2019									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Total Phosphorus	41	39	47								<5	ug/l	TM30/PM14
Chloride #	6.5	7.7	8.5								<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02								<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	0.04								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1								<1	mg/l	TM58/PM0
Total Suspended Solids #	<10	<10	<10								<10	mg/l	TM37/PM0

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind farm
Contact: Owen Cahill
EMT Job No: 19/14666

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9								LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3										
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD										
Sample Date	10/09/2019 10:00	10/09/2019 10:30	10/09/2019 11:00										
Sample Type	Surface Water	Surface Water	Surface Water										
Batch Number	1	1	1										
Date of Receipt	11/09/2019	11/09/2019	11/09/2019										
Total Phosphorus	44	36	25								<5	ug/l	TM30/PM14
Chloride #	7.8	7.8	6.4								<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	1.2	<0.2	<0.2								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02								<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
BOD (Settled) #	1	1	<1								<1	mg/l	TM58/PM0
Total Suspended Solids #	<10	<10	<10								<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 19/18001

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9									
Sample ID	SW1	SW2	SW3									
Depth												
COC No / misc												
Containers	H P BOD	H P BOD	H P BOD									
Sample Date	30/10/2019 10:00	30/10/2019 10:30	30/10/2019 11:00									
Sample Type	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1									
Date of Receipt	04/11/2019	04/11/2019	04/11/2019									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Total Phosphorus	34	45	47								<5	ug/l	TM30/PM14
Chloride #	6.6	7.7	8.4								<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02								<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	0.03	<0.03								<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1								<1	mg/l	TM58/PM0
Total Suspended Solids #	<10	<10	<10								<10	mg/l	TM37/PM0

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 19/18687

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9									
Sample ID	SW1	SW2	SW3									
Depth												
COC No / misc												
Containers	H P BOD	H P BOD	H P BOD									
Sample Date	12/11/2019 10:00	12/11/2019 10:30	12/11/2019 11:00									
Sample Type	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1									
Date of Receipt	15/11/2019	15/11/2019	15/11/2019									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Total Phosphorus	29	27	38								<5	ug/l	TM30/PM14
Chloride #	9.4	9.8	10.2								<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02								<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	1	1								<1	mg/l	TM58/PM0
Total Suspended Solids #	<10	<10	<10								<10	mg/l	TM37/PM0

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 19/20592

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9									
Sample ID	SW1	SW2	SW3									
Depth												
COC No / misc												
Containers	H P BOD	H P BOD	H P BOD									
Sample Date	12/12/2019 10:00	12/12/2019 10:30	12/12/2019 11:00									
Sample Type	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1									
Date of Receipt	16/12/2019	16/12/2019	16/12/2019									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Total Phosphorus	33	33	35								<5	ug/l	TM30/PM14
Chloride #	12.7	14.3	14.9								<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02								<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.08	0.04	<0.03								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.09	0.04	0.03								<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1								<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	51	60	64								<2	uS/cm	TM76/PM0
pH #	6.27	5.21	5.14								<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10								<10	mg/l	TM37/PM0

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/1062

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	22/01/2020 10:00	22/01/2020 10:30	22/01/2020 11:00	22/01/2020 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	24/01/2020	24/01/2020	24/01/2020	24/01/2020									
Total Phosphorus	34	39	34	29							<5	ug/l	TM30/PM14
Chloride #	14.1	15.2	15.6	13.9							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	0.4	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.05	<0.03	<0.03	0.05							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.05	<0.03	<0.03	0.05							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	60	64	67	64							<2	uS/cm	TM76/PM0
pH #	5.70	6.02	5.95	6.50							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/3124

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	26/02/2020 10:00	26/02/2020 10:30	26/02/2020 11:00	26/02/2020 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	28/02/2020	28/02/2020	28/02/2020	28/02/2020									
Total Phosphorus	32	38	36	47							<5	ug/l	TM30/PM14
Chloride #	17.5	19.4	19.7	17.3							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	66	72	79	63							<2	uS/cm	TM76/PM0
pH #	7.25	5.27	4.60	5.63							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/4765

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	24/03/2020 10:00	24/03/2020 10:30	24/03/2020 11:00	24/03/2020 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	27/03/2020	27/03/2020	27/03/2020	27/03/2020									
Total Phosphorus	35	30	35	42							<5	ug/l	TM30/PM14
Chloride #	16.1	17.7	18.2	16.1							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	0.2	0.3	1.5	5.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	0.05							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06	<0.06							<0.06	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	0.13	0.42							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	0.14	0.45							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	53	76	74	75							<2	uS/cm	TM76/PM0
pH #	6.72	6.26	6.65	6.88							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Stephen Corrigan
EMT Job No: 20/5529

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9								LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW4										
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD										
Sample Date	22/04/2020	22/04/2020	22/04/2020										
Sample Type	Surface Water	Surface Water	Surface Water										
Batch Number	1	1	1										
Date of Receipt	24/04/2020	24/04/2020	24/04/2020										
Total Phosphorus	26	28	33								<5	ug/l	TM30/PM14
Chloride #	15.7	16.9	13.6								<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	30.8								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	0.31								<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06								<0.06	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.04	<0.03	1.80								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.04	0.03	1.91								<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1								<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	60	71	167								<2	uS/cm	TM76/PM0
pH #	6.95	7.29	7.57								<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10								<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/6492

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	20/05/2020 10:00	20/05/2020 10:30	20/05/2020 11:00	20/05/2020 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	22/05/2020	22/05/2020	22/05/2020	22/05/2020									
Total Phosphorus	30	25	37	38							<5	ug/l	TM30/PM14
Chloride #	14.8	15.5	15.7	14.9							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	0.6	1.0							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	0.13							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.03	<0.03	<0.03	0.14							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	37	39	42	63							<2	uS/cm	TM76/PM0
pH #	5.66	6.06	6.29	6.55							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/8522

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	30/06/2020 10:00	30/06/2020 10:30	30/06/2020 11:00	30/06/2020 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	02/07/2020	02/07/2020	02/07/2020	02/07/2020									
Total Phosphorus	26	32	45	43							<5	ug/l	TM30/PM14
Chloride #	7.1	9.5	11.1	9.3							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	0.08	<0.06	<0.06	<0.06							<0.06	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	0.05	0.05	0.05							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.03	0.05	0.05	0.05							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	38	50	57	50							<2	uS/cm	TM76/PM0
pH #	5.69	5.30	5.11	6.03							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Stephen Corrigan
EMT Job No: 20/10507

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	06/08/2020	06/08/2020	06/08/2020	06/08/2020									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	06/08/2020	06/08/2020	06/08/2020	06/08/2020									
Total Phosphorus	41	28	57	43							<5	ug/l	TM30/PM14
Chloride #	6.3	4.7	7.7	6.8							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	0.03	0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	0.04	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	0.04	0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	1	1	2	1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	35	26	43	42							<2	uS/cm	TM76/PM0
pH #	5.54	5.83	5.39	6.34							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/11535

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	26/08/2020 10:00	26/08/2020 10:30	26/08/2020 11:00	26/08/2020 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	28/08/2020	28/08/2020	28/08/2020	28/08/2020									
Total Phosphorus	32	47	59	52							<5	ug/l	TM30/PM14
Chloride #	4.0	5.4	6.3	6.1							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	0.03	0.04							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	0.04	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	0.04	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	29	35	41	39							<2	uS/cm	TM76/PM0
pH #	6.08	5.48	5.33	6.36							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/13576

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	01/10/2020 11:30	01/10/2020 11:00	01/10/2020 10:30	01/10/2020 10:00									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	05/10/2020	05/10/2020	05/10/2020	05/10/2020									
Total Phosphorus	24	46	63	42							<5	ug/l	TM30/PM14
Chloride #	6.5	8.0	9.0	8.1							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	0.04	0.05	0.04							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	0.04	0.05	0.04							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	39	43	57	51							<2	uS/cm	TM76/PM0
pH #	6.60	5.98	6.20	6.53							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/15079

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12									
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	29/10/2020	29/10/2020	29/10/2020	29/10/2020									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	02/11/2020	02/11/2020	02/11/2020	02/11/2020									
Total Phosphorus	37	46	65	40							<5	ug/l	TM30/PM14
Chloride #	8.1	9.0	9.3	8.7							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	0.6	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	0.05	0.04							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.03	<0.03	0.05	0.04							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	48	53	51	48							<2	uS/cm	TM76/PM0
pH #	6.13	6.68	6.21	6.31							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/16914

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	30/11/2020 10:00	30/11/2020 10:30	30/11/2020 11:00	30/11/2020 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	02/12/2020	02/12/2020	02/12/2020	02/12/2020									
Total Phosphorus	27	42	29	50							<5	ug/l	TM30/PM14
Chloride #	5.2	6.4	6.7	6.7							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.06	0.04	0.06	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.06	0.04	0.06	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	28	34	44	37							<2	uS/cm	TM76/PM0
pH #	5.58	5.96	6.57	6.24							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	68	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 20/18234

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	16/12/2020 10:00	16/12/2020 10:30	16/12/2020 11:00	16/12/2020 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	22/12/2020	22/12/2020	22/12/2020	22/12/2020									
Total Phosphorus	13	18	29	14							<5	ug/l	TM30/PM14
Chloride #	6.6	8.0	8.4	7.2							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	0.12	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.05	0.04	0.04	0.04							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.05	0.04	0.04	0.04							<0.03	mg/l	TM38/PM0
BOD (Settled) #	1	1	1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	33	38	42	38							<2	uS/cm	TM76/PM0
pH #	5.96	5.91	5.93	6.25							<0.01	pH units	TM73/PM0
Total Suspended Solids	4	5	7	8							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meembog Wind Farm
Contact: Owen Cahill
EMT Job No: 21/29

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-2	3-4	5-6	7-8	9-10						LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4	SE3								
Depth													
COC No / misc													
Containers	H P	H P	H P	H P	H P								
Sample Date	27/12/2020 10:00	27/12/2020 10:30	27/12/2020 11:00	27/12/2020 11:30	27/12/2020 12:00								
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water								
Batch Number	1	1	1	1	1								
Date of Receipt	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021								
Total Phosphorus	7	16	25	10	39						<5	ug/l	TM30/PM14
Chloride #	9.5	10.6	11.0	11.0	10.9						<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02	<0.02						<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	0.03	<0.03	0.06						<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	<0.03	0.08						<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	0.03	0.08						<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1	<1						<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	42	46	53	50	48						<2	uS/cm	TM76/PM0
pH #	5.80	5.41	6.11	6.06	5.56						<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10	<10						<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 21/1283

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	28/01/2021 10:00	28/01/2021 10:30	28/01/2021 11:00	28/01/2021 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	01/02/2021	01/02/2021	01/02/2021	01/02/2021									
Total Phosphorus	6	18	26	18							<5	ug/l	TM30/PM14
Chloride #	5.5	6.4	6.8	6.3							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	29	33	36	58							<2	uS/cm	TM76/PM0
pH #	6.09	5.76	5.99	7.09							<0.01	pH units	TM73/PM0
Total Suspended Solids	3	4	8	8							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 21/4570

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	25/03/2021 10:00	25/03/2021 10:30	25/03/2021 11:00	25/03/2021 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	29/03/2021	29/03/2021	29/03/2021	29/03/2021									
Total Phosphorus	9	16	25	10							<5	ug/l	TM30/PM14
Chloride #	8.6	9.6	10.2	9.2							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	0.4	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	0.05	0.07							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	0.05	0.07							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	44	51	57	60							<2	uS/cm	TM76/PM0
pH #	7.01	6.87	7.37	7.73							<0.01	pH units	TM73/PM0
Total Suspended Solids	<1	3	6	7							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 21/6912

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	30/04/2021	30/04/2021	30/04/2021	30/04/2021									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	10/05/2021	10/05/2021	10/05/2021	10/05/2021									
Total Phosphorus	6	18	32	11							<5	ug/l	TM30/PM14
Chloride #	7.9	9.8	10.3	9.1							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	0.3	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	0.09	<0.03	0.09							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.03	0.10	0.03	0.10							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	46	64	66	71							<2	uS/cm	TM76/PM0
pH #	7.00	6.89	6.92	6.95							<0.01	pH units	TM73/PM0
Total Suspended Solids	4	4	8	3							<1	mg/l	TM37/PM0

Please include all sections of this report if it is reproduced
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Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 21/8222

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	28/05/2021 10:00	28/05/2021 10:30	28/05/2021 11:00	28/05/2021 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	01/06/2021	01/06/2021	01/06/2021	01/06/2021									
Total Phosphorus	6	14	17	14							<5	ug/l	TM30/PM14
Chloride #	6.8	8.0	8.7	8.0							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.04	0.05	<0.03	0.05							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.04	0.05	<0.03	0.05							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	38	45	54	62							<2	uS/cm	TM76/PM0
pH #	6.77	6.65	6.92	6.50							<0.01	pH units	TM73/PM0
Total Suspended Solids	2	11	4	1							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 21/10183

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	30/06/2021 10:00	30/06/2021 10:30	30/06/2021 11:00	30/06/2021 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	05/07/2021	05/07/2021	05/07/2021	05/07/2021									
Total Phosphorus	7	15	16	25							<5	ug/l	TM30/PM14
Chloride #	6.2	8.0	8.7	9.4							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.04	<0.03	0.07	0.04							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.04	<0.03	0.07	0.04							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	37	48	73	59							<2	uS/cm	TM76/PM0
pH #	7.91	7.31	7.19	7.12							<0.01	pH units	TM73/PM0
Total Suspended Solids	<1	7	7	7							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

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Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Killian McGovern
EMT Job No: 21/11620

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1 (LIGHT)	SW1 (DARK)	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	28/07/2021	28/07/2021	28/07/2021 11:00	28/07/2021 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	30/07/2021	30/07/2021	30/07/2021	30/07/2021									
Total Phosphorus	13	35	40	22							<5	ug/l	TM30/PM14
Chloride #	7.2	9.7	12.2	10.3							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	0.03	0.04	0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	0.04	<0.03	0.08							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	0.04	0.03	0.09							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	54	65	88	91							<2	uS/cm	TM76/PM0
pH #	7.44	6.98	7.21	7.33							<0.01	pH units	TM73/PM0
Total Suspended Solids	<1	<1	2	6							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind farm
Contact: Owen Cahill
EMT Job No: 21/15460

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	30/09/2021 10:00	30/09/2021 10:30	30/09/2021 11:00	30/09/2021 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	04/10/2021	04/10/2021	04/10/2021	04/10/2021									
Total Phosphorus	8	23	30	18							<5	ug/l	TM30/PM14
Chloride #	6.1	7.0	7.8	6.9							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	1.3	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	0.04	0.04	0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Dissolved Oxygen	9	9	9	9							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	32	40	48	47							<2	uS/cm	TM76/PM0
pH #	5.29	5.60	5.64	7.16							<0.01	pH units	TM73/PM0
Total Suspended Solids	3	6	5	3							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Killian McGovern
EMT Job No: 21/17078

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	20/10/2021 10:00	20/10/2021 10:30	20/10/2021 11:00	20/10/2021 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	29/10/2021	29/10/2021	29/10/2021	29/10/2021									
Total Phosphorus	7	20	22	12							<5	ug/l	TM30/PM14
Chloride #	4.3	5.2	5.8	5.1							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	0.04	0.04							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	0.03	0.04	0.04							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	30	36	42	69							<2	uS/cm	TM76/PM0
pH #	6.13	5.96	5.98	6.97							<0.01	pH units	TM73/PM0
Total Suspended Solids	3	<1	<1	<1							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 21/19285

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

EMT Sample No.	1-3	4-6	7-8	9-11							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H BOD	H P BOD									
Sample Date	30/11/2021 10:00	30/11/2021 10:00	30/11/2021 10:00	30/11/2021 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	06/12/2021	06/12/2021	06/12/2021	06/12/2021									
Total Phosphorus	7	13	24	15							<5	ug/l	TM30/PM14
Chloride #	12.5	11.9	11.8	11.5							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06	<0.06							<0.06	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	0.05							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	0.05							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	67	64	60	68							<2	uS/cm	TM76/PM0
pH #	7.53	6.56	6.26	6.53							<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	<10	<10	<10							<10	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Killian McGovern
EMT Job No: 22/3900

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth	N/A	N/A	N/A	N/A									
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	25/02/2022 10:00	25/02/2022 10:30	25/02/2022 11:00	25/02/2022 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	10/03/2022	10/03/2022	10/03/2022	10/03/2022									
Total Phosphorus	<5	<5	7	<5							<5	ug/l	TM30/PM14
Chloride #	38.5	38.5	41.8	37.7							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	150	147	159	145							<2	uS/cm	TM76/PM0
pH #	4.88	4.89	5.05	6.30							<0.01	pH units	TM73/PM0
Total Suspended Solids	3	5	3	2							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 22/5150

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW-1	SW-2	SW-3	SW-4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	23/03/2022	23/03/2022	23/03/2022	23/03/2022									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	30/03/2022	30/03/2022	30/03/2022	30/03/2022									
Total Phosphorus	<5	<5	5	7							<5	ug/l	TM30/PM14
Chloride #	30.0	33.1	33.1	25.4							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	0.06							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	0.06							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	130	128	131	124							<2	uS/cm	TM76/PM0
pH #	5.77	6.40	6.33	6.62							<0.01	pH units	TM73/PM0
Total Suspended Solids	3	<1	2	1							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Killian McGovern
EMT Job No: 22/5898

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth	N/A	N/A	N/A	N/A									
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	06/04/2022 10:00	06/04/2022 10:30	06/04/2022 11:00	06/04/2022 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	11/04/2022	11/04/2022	11/04/2022	11/04/2022									
Total Phosphorus	<5	7	9	5							<5	ug/l	TM30/PM14
Chloride #	23.8	28.7	30.4	23.6							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Dissolved Oxygen	10	10	10	10							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	103	117	124	99							<2	uS/cm	TM76/PM0
pH #	4.96	4.97	4.97	5.87							<0.01	pH units	TM73/PM0
Total Suspended Solids	8	7	5	5							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Killian McGovern
EMT Job No: 22/8388

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6											
Sample ID	SW3	SW4											
Depth	N/A	N/A											
COC No / misc													
Containers	H P BOD	H P BOD											
Sample Date	18/05/2022 11:00	18/05/2022 11:30											
Sample Type	Surface Water	Surface Water											
Batch Number	1	1											
Date of Receipt	23/05/2022	23/05/2022											
Total Phosphorus	9	<5									<5	ug/l	TM30/PM14
Chloride #	18.3	15.8									<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2									<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02									<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03									<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.03	0.06									<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	0.06									<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1									<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	77	77									<2	uS/cm	TM76/PM0
pH #	6.94	6.94									<0.01	pH units	TM73/PM0
Total Suspended Solids	<1	4									<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 22/9480

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	08/06/2022 10:00	08/06/2022 10:30	08/06/2022 11:00	08/06/2022 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	10/06/2022	10/06/2022	10/06/2022	10/06/2022									
Total Phosphorus	9	13	18	7							<5	ug/l	TM30/PM14
Chloride #	13.1	15.8	17.3	14.5							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.06	0.05	0.04	0.04							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.06	0.05	0.04	0.04							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Dissolved Oxygen	9	9	9	9							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	61	76	80	88							<2	uS/cm	TM76/PM0
pH #	5.83	6.09	6.59	6.75							<0.01	pH units	TM73/PM0
Total Suspended Solids	3	5	10	7							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Killian McGovern
EMT Job No: 22/12698

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	03/08/2022 10:00	03/08/2022 10:30	03/08/2022 11:00	03/08/2022 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	05/08/2022	05/08/2022	05/08/2022	05/08/2022									
Total Phosphorus	9	22	27	17							<5	ug/l	TM30/PM14
Chloride #	5.9	8.1	8.8	8.2							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	0.03	0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.05	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.05	<0.03	0.03	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	36	50	56	51							<2	uS/cm	TM76/PM0
pH #	5.86	5.55	5.56	5.81							<0.01	pH units	TM73/PM0
Total Suspended Solids	2	2	2	4							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 201174
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 22/14928

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	09/09/2022 10:00	09/09/2022 10:30	09/09/2022 11:00	09/09/2022 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	14/09/2022	14/09/2022	14/09/2022	14/09/2022									
Total Phosphorus	<5	15	18	11							<5	ug/l	TM30/PM14
Chloride #	7.7	9.6	10.9	10.6							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.05	<0.03	0.04	0.70							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.05	0.03	0.04	0.74							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	40	52	83	62							<2	uS/cm	TM76/PM0
pH #	6.12	6.24	7.24	7.13							<0.01	pH units	TM73/PM0
Total Suspended Solids	4	3	4	4							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 22/16939

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	13/10/2022 10:00	13/10/2022 10:30	13/10/2022 11:00	13/10/2022 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	17/10/2022	17/10/2022	17/10/2022	17/10/2022									
Total Phosphorus	<5	16	17	8							<5	ug/l	TM30/PM14
Chloride #	8.4	10.6	11.7	10.7							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.08	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.09	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	105	54	58	56							<2	uS/cm	TM76/PM0
pH #	5.72	5.65	6.05	6.50							<0.01	pH units	TM73/PM0
Total Suspended Solids	6	4	4	4							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 22/19933

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	30/11/2022 10:00	30/11/2022 10:30	30/11/2022 11:00	30/11/2022 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	03/12/2022	03/12/2022	03/12/2022	03/12/2022									
Total Phosphorus	<5	15	17	9							<5	ug/l	TM30/PM14
Chloride #	6.9	8.2	9.1	8.1							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.030	<0.030	<0.030	0.038							<0.030	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	0.04							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	36	45	52	59							<2	uS/cm	TM76/PM0
pH #	6.95	6.56	7.27	6.62							<0.01	pH units	TM73/PM0
Total Suspended Solids	1	<1	<1	3							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 190501
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 23/319

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	09/01/2023 10:00	09/01/2023 10:30	09/01/2023 11:00	09/01/2023 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	11/01/2023	11/01/2023	11/01/2023	11/01/2023									
Total Phosphorus	5	18	15	11							<5	ug/l	TM30/PM14
Chloride #	9.4	9.9	10.4	10.6							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	0.6	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	0.04	0.04	0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.030	<0.030	<0.030	<0.030							<0.030	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	121	55	53	51							<2	uS/cm	TM76/PM0
pH #	8.18	5.82	5.99	6.20							<0.01	pH units	TM73/PM0
Total Suspended Solids	3	5	5	<1							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 19051
Location: Meenbog Wind Farm
Contact: Owen Cahill
EMT Job No: 23/3125

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12							LOD/LOR	Units	Method No.
Sample ID	SW1	SW2	SW3	SW4									
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD	H P BOD									
Sample Date	23/02/2023 10:00	23/02/2023 10:30	23/02/2023 11:00	23/02/2023 11:30									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	28/02/2023	28/02/2023	28/02/2023	28/02/2023									
Total Phosphorus	<5	13	15	7							<5	ug/l	TM30/PM14
Chloride #	8.9	10.5	11.6	9.7							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.03	0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	<0.030	<0.030	<0.030	<0.030							<0.030	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	<0.03	<0.03	0.03	<0.03							<0.03	mg/l	TM38/PM0
BOD (Settled) #	1	1	1	<1							<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	44	51	56	64							<2	uS/cm	TM76/PM0
pH #	6.12	6.26	6.23	6.27							<0.01	pH units	TM73/PM0
Total Suspended Solids	<1	1	<1	<1							<1	mg/l	TM37/PM0

Please see attached notes for all abbreviations and acronyms