

Bord na Móna

**Enhanced Decommissioning Rehabilitation and
Restoration Scheme (EDRRS)**

**Quarterly Report – Bord Na Mona Q3FY22
(October 2021 to December 2021)**

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1. Summary

At the commencement of this quarter in September 2021, rehabilitation had commenced on sixteen bogs and by the end of the quarter rehabilitation was ongoing on seventeen bogs and completed on one bog.

As set out in the previous Quarterly Report, rehabilitation commenced on these bogs later than was originally planned and this will have an impact on the rehabilitation measures that can be completed in this Bord na Móna financial year (to end of March 2022- FY22

[REDACTED]

As stated in the previous report, it is envisaged that any shortfall in the FY22 (2021) rehabilitation target will be recovered and will not impact on the overall scheme.

The following table sets out the key metrics for this quarter and compares these with the EDRRS Financial Model.

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Table 1.1: Key metrics (FY22Q3 period - Sept to Dec 2021)

The total area to be rehabilitated in the FY22 (Year 1) bogs is 8,761 hectares. The area rehabilitated at the end of this quarter was 5,196 hectares which is 59% of the total area to be rehabilitated in the nineteen FY22 (Year 1) bogs. The Work Content completed at the end of the quarter was 69.5% of the Work Content for the nineteen FY22 (2021) bogs.

[REDACTED]

[REDACTED]

Decommissioning of rail line and bog clean-up is progressing in line with expectations.

Monitoring and Verification is progressing, in particular piezometer installation and monitoring and surface water monitoring. The carbon monitoring equipment has been tendered and ordered with installation to commence once equipment is delivered.

The risks to the scheme are set out in the Risk Register and reviewed with NPWS and DECC on a monthly basis. Key changes to the risk register and new risks are listed in the Risk section of this report.

2. Rehabilitation by Bog

The rehabilitation completed in this quarter is set out by bog in Table 2.1 below. The rehab completed is recorded by *Total Area Rehabilitated to Date* and also by *Work Content Completed to Date*.

As set out in the previous Quarterly Report, the *Total Area Rehabilitated* consists of areas where specific rehabilitation measures have been carried out such as drain blocking, berms and blocking of outfalls. It also includes areas where rehabilitation is either not possible or not required, i.e. areas designated as MLT1 (Marginal Lands Type 1) or AW1 (Additional Works 1) rehabilitation types. While these areas will benefit from the adjoining rehabilitation, there is no specific rehabilitation carried out within them. For clarity, a distinction has been made in Table 2.1 below between the *Total Area Rehabilitated*, which includes the MLT1 and AW1 areas and *Total Area Rehabilitated with Specific Measures* which excludes the MLT1 and AW1 areas.

The *Work Content Completed to Date* takes into account the difference in the intensity of the labour and equipment required for the various rehab measures and gives a more accurate view of the rehab progress. This *Work Content* is set out in more detail in section 2.2 below.

By the end of the quarter rehabilitation measures had either commenced or been completed on eighteen of the nineteen FY22 (2021) bogs with rehabilitation measures commenced on Boora Bog and Clonad Bog during this quarter. The one bog where rehabilitation measures had not yet commenced was Clooniff Bog and it is proposed that rehabilitation measures will commence on this bog in April/ May of 2022.

[REDACTED]

Bog Name	Area of Bog Hectares	Total Area to be rehabilitated Hectares	Total Area to be rehabilitated with specific Rehab Measures (excl. MLT1 and AW1 measures) Hectares	Area with no Specific Rehab measures (designated MLT1 or AW1) Hectares	Total Area Rehabilitated in Q3FY22 Hectares	Total Area rehabilitated with specific Rehab Measures in Q3FY22 (excl. MLT1 and AW1) Hectares	Total Area Rehabilitated to date Hectares	Total Area rehabilitated with specific Rehab Measures to date (excl. MLT1 and AW1) Hectares	Total Area Rehabilitated to Date % of FY22 Total	Work Content Completed to date % of FY22 Work Content
Belmont	320	274	245	29	104	93	134	120	48%	64%
Clooniff	531	477	437	40	0	0	0	0	0%	0%
Garryduff	972	868	805	64	364	338	447	414	51%	81%
Kellysgrove	203	132	105	27	0	0	132	105	100%	100%
Kilmacshane	1298	1207	1097	110	388	352	636	578	58%	75%
Boora Bog	1651	656	492	164	53	40	53	40	8%	22%
Derries	371	359	329	30	125	114	136	124	38%	56%
Oughter	358	294	262	32	82	73	163	145	55%	53%
Pollagh	304	264	246	18	82	76	142	133	54%	78%
Turraun	541	385	319	66	6	5	87	72	23%	24%
Castlegar	519	371	317	54	37	32	347	297	94%	81%
Cavemount	513	429	390	40	378	343	388	352	90%	85%
Clonad	446	370	337	33	223	203	223	203	60%	53%
Esker	566	515	477	38	271	251	443	410	86%	79%
Mount Lucas	1218	902	514	388	324	185	638	364	71%	81%
Ummeras	302	238	205	33	97	84	238	205	100%	92%
Derrycashel	384	358	358	0	331	331	354	354	99%	88%
Derrycolumb	461	410	369	41	139	126	405	365	99%	91%
Edera	282	250	220	30	110	96	229	201	92%	92%
Total	11440	8761	7525	1235	3113	2742	5196	4483	59.3%	69.3%

Table 2.1 Rehabilitation to End December 2021 (Q3FY22 refers to period October to December 2021)

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Rehab Measures	
Drain Blocks	

Table 2.2 Rehabilitation measures completed to date

2.1 Areas for Rehabilitation

As set out above, the *Total Area Rehabilitated* consists of areas where specific rehabilitation measures have been carried out and also includes areas where rehabilitation measures are either not possible or not required (designated MLT1 or AW1). There are a number of reasons as to why no rehabilitation measures are proposed for these MLT1 and AW1 areas and these include the following:

- Areas where there are no drains to block;
- Inactive turf-cutting areas where third party turbarry rights may exist;
- Narrow strips of lands around the boundaries of the bog that are densely vegetated;
- Area adjacent to drains/streams that need to be retained to provide drainage to third party lands;
- Areas that are vegetated where rehabilitation measures are not considered necessary or beneficial.

A column is included in Table 2.1 (*Total Area Rehabilitated with Specific Measures*) identifying the areas where specific rehabilitation measures have been carried out which excludes the MLT1 and AW1 areas. As set out in the previous Quarterly report, areas identified as *Constrained or Other Areas* in the Bog Rehabilitation Maps are excluded from this table and not reported on.

The total area to be rehabilitated in the FY22 (Year 1) bogs, including the MLT1 and AW1 areas, is **8,761 hectares**. This area may change slightly as the rehabilitation measures progress on the ground. This is due to the amendment or removal of rehabilitation measures as conditions or previously unidentified constraints are encountered as work progresses.

The total area rehabilitated at the end of the quarter (end December 2021) was **5,196 hectares**.

2.2 Work Content

As set out in the previous report, while the number of hectares rehabilitated can be considered when assessing the progress of the rehabilitation measures, the intensity of the work carried out varies depending on the rehabilitation method completed in these hectares. In order to take account of this, the *Work Content Completed to Date* column is included in the above table. This takes account of the variation in the intensity of work required for each methodology and it also takes account of additional measures such as berms or drains included in the individual cost estimates.

The percentage of work content completed is therefore a more accurate measure of the progress of the scheme than the hectares rehabilitated.

2.3 Sphagnum Inoculation and Fertiliser Application

Some of the rehabilitation measures include a provision for *Sphagnum* inoculation and fertiliser spreading and due to their seasonal nature, it is not possible to carry out these measures within the Bord na Móna financial year when the rehabilitation is being carried out. [REDACTED]

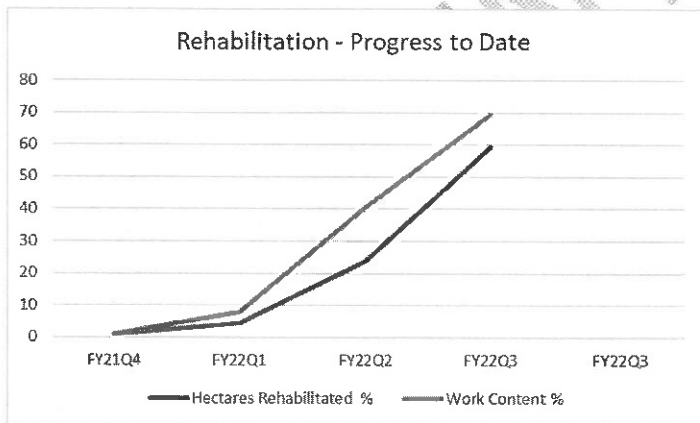
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2.4 Progress to Date

As set out above significant progress has been made during this quarter with 69.5% of the Work Content for this year (FY22) completed by the end of the quarter. At the start of this quarter 40.7% of this work content had been completed.



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Figure 2.1 Rehabilitation and Work Content to Date

The area rehabilitated at the end of the quarter was 5,196 hectares which is 59% of the total area to be rehabilitated in the nineteen FY22 (Year 1) bogs. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

As stated in the previous quarterly report, it is considered likely that it will not be possible to complete all of this year's planned rehabilitation in the winter months. This is due to expected limitations on rehabilitation during the winter months resulting from adverse weather conditions, bog ground conditions, higher ground water levels and winter ecological restrictions.

It is now projected that, at a minimum, 85% of this year's rehabilitation will be achieved by the end of the Bord na Mona financial year (end March 2022). This projection has increased from 80% since the last quarterly report was completed due to the relatively dry winter weather to date. The remaining rehab measures, projected to be a maximum of 15%, will be completed in the Spring/ Summer of 2022 in conjunction with the rehabilitation planned for Year 2.

As stated in the previous report, any reduction in the rehabilitation completed in this first year will be recovered over the lifetime of the scheme.

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3. Rehabilitation Costs by Bog

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year

calculation

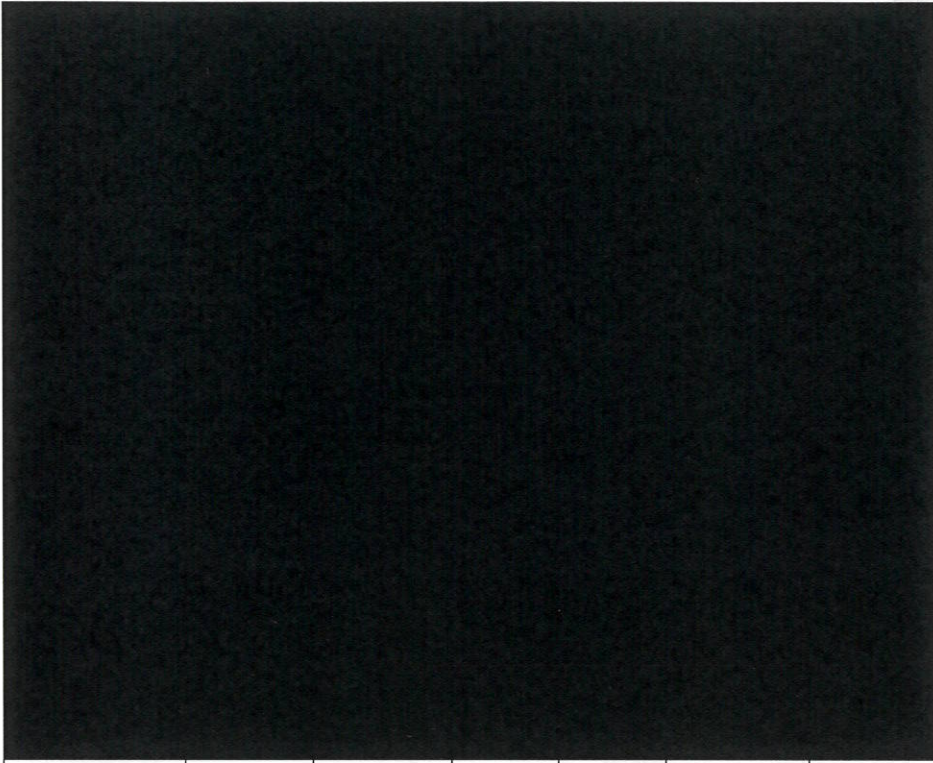
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Machine Maintenance			€ 809,368	€ 1,572,400		
Rehab verification Costs			€ 169,485	€ 450,361		
Machine Ownership			€ 195,465	€ 662,857		
Total	€ 13,250,405	€ 12,572,247	€ 3,124,028	€ 7,172,370	25%	57%
Delayed spend - Sphagnum Costs / Fertiliser costs		€ 416,901	€ -	€ -	0%	0%
Total Costs (excluding Delayed Spend)		€ 12,155,346	€ 3,124,028	€ 7,172,370	26%	59%

Table 3.1 Rehabilitation Costs by Bog

[Redacted] Costs

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4. Decommissioning by Area

The decommissioning completed in this quarter is set out by percentage in Table 4.1 below.

The percentage completed is calculated as a percentage of the quantity included in the original EDRRS Financial Model across all 82 bogs.

Activity Description	% of Overall Scheme Completed in Q3FY22 (Oct to Dec 2021)	% of Overall Scheme Completed to date
Pump Decomm	0	0
Septic Tank Decomm	0	0
Tea Centre Decomm	0	0
Bog Clean up	4.1%	24.1%
Fuel Decomm	0	0
Yard Decomm	0	0
Building Decomm	0	0
Rail Decomm	0.5%	6.3%
Bridge Decomm	0	0
Underpass Decomm	0	0
Level Crossing Decomm	0	0
Powerline Decomm	0	0
Fencing	0	0

Table 4.1 Decommissioning Completed to Date

Bog Clean Up and Rail Decommissioning commenced in 2020 and has continued through the winter and summer months. The focus for the last quarter has been on the implementation of the rehabilitation measures. Progress to date is progressing in line with expectations.

5. Monitoring and Verification

Table 5.1 below is a summary of the monitoring and verification carried out in Q3 FY22 (Oct to Dec 2021) and is intended to provide an overview of the monitoring and verification that is taking place each quarter. This table sets out the number (Nr) of samples taken and surveys carried out during the quarter and as part of the scheme to date.

Please note the Surface water samples refer to surface water quality monitoring where samples are taken and analysed for the following parameters - pH, suspended solids, total solids, ammonia, total phosphorous, chemical oxygen demand (COD), colour and dissolved organic carbon (DOC)

Detail on the data collected will be provided in a separate Monitoring and Verification report.

Monitoring Completed	Monitoring carried out in Q3FY22 (Oct to Dec 2021)	Total Monitoring carried out to date
Surface Water Samples - Total number of samples taken (includes all bogs)	553	2156
Piezometers – Number Installed	44	1146
Piezometers – Number of Manual readings (Phreatic wells)	139	832
Piezometers – Number of Logger readings (Phreatic wells)	61	367
Piezometers – Number of Manual Readings I (Deep wells)	77	314
Piezometer- Number of Logger readings (Deep wells)	14	64
Habitat Mapping – number of bogs	Fieldwork complete for 5 out of 20 FY23 bogs during this quarter	Fieldwork complete: 8 out of 19 FY22 bogs Fieldwork complete for 5 out of 20 FY23 bogs (GIS to be completed)
Bog Condition mapping – number of bogs	Bog condition mapping draft 1 complete for 11 additional bogs in FY23 during this quarter	19 out of 19 bogs (FY22) with bog condition maps drafted (to be updated when habitat mapping is completed). Bog condition mapping draft 1 complete for FY22 Bog condition mapping draft 1 complete for 11 additional bogs in FY23
Post Rehab Aerial photography/Lidar Survey - number of bogs	0	0
Vegetation Quadrants – number of bogs	No vegetation quadrats completed in this period	11 out of 11 sites completed
Breeding Bird Survey – number of bogs	No breeding bird surveys completed in this period (breeding bird surveys now out of season)	4 sites completed (breeding bird surveys now out of season)
Winter Birds Surveys – number of bogs	13 out of 14 sites monitored for winter birds in September, Oct, Nov and Dec. 7 out of 8 bogs surveyed /checked for Hen Harrier roost sites. Two sites not now considered likely HH roosts. Three sites with EDRRS rehab measures now complete that do not require further survey	13 out of 14 sites monitored for winter birds. With 4 months counting complete. 7 out of 8 bogs surveyed /checked for Hen Harrier roost sites. 15 Individual roost watches carried out so far. Two sites not now considered likely HH roosts. Three sites with EDRRS rehab measures now complete
Pollinator Surveys – number of bogs	No Pollinator surveys during this quarter	6 out of 9 sites with 2 visits complete during summer 2021
Flow Monitoring (with surface water sampling)	0	0
Flow Monitoring (continuous)	0	0
Carbon flux monitoring	Procurement process ongoing	Procurement process ongoing
Archaeological Impact Assessment Reports Completed	10	29

Table 5.1 Monitoring and Verification Overview

5.1 Carbon Monitoring

The aim of the carbon monitoring and verification program is to quantify the carbon reduction benefit of the EDRRS program. As sites are rewetted, a range of habitats are likely to emerge dependant on

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peat depth, hydrology, and soil-water chemistry. Each of these habitats are likely to have specific greenhouse gas emission profiles.

To estimate the carbon reduction benefits, emission factors must be developed for these emergent habitats and to achieve this, a monitoring program was developed that utilised Eddy Covariance flux towers, employed the closed chamber method and methods to quantify aquatic carbon losses. Two flux towers capable of monitoring CO₂ and CH₄ are scheduled to be deployed at a bare deep peat bog and a wetland bog. In conjunction with this a full suite of meteorological parameters will be measured. A tender process for these two flux towers has now been completed and the monitoring equipment is on order. Due to global supply chain delays, the towers are projected to be in place by March 2022.

A chamber measurement program was developed to measure fluxes at twelve habitats across six bogs. The chamber measurements are targeted at locations that have similar characteristics to the emergent habitats resulting from rewetting. This facilitates the development of habitat specific emission factors. Parameters measured under the chamber measurement program include CO₂ and CH₄, soil temperature, soil moisture, water table levels and photosynthetically active radiation (PAR). The chamber and gas flux sensors are anticipated to be delivered in late February 2022 with the chamber monitoring programme commencing in March 2022.

To develop emission factors related to aquatic losses e.g. dissolved organic carbon (DOC) and particulate organic carbon (POC), flumes will be installed at 4 locations which measure flow rates in real time. DOC sensors will be installed to measure DOC concentrations continuously and POC will be measured via the collection of spot samples and laboratory analysis. Flumes and DOC sensors are expected to be installed in April 2022.

5.2 Archaeological Monitoring

An Archaeological Impact Assessment (AIA) will be undertaken for all bogs to be rehabilitated under this scheme. The aim for known archaeology on these bogs is to accomplish preservation in situ and steps are taken to identify and avoid all known archaeology as defined by the AIA. All known archaeology identified in the Archaeological Impact Assessment is incorporated into the rehab design and by defining a buffer zone around these features, which will then be excluded from any ground works in these areas in the final plan. It is anticipated that any archaeology will benefit from the ultimate remit of the rehabilitation, in that water tables across the whole site, including the buffered archaeology zones, will be raised thereby preserving in-situ. There is also an identified procedure for managing reports of stray finds that may arise during rehabilitation works.

Table 5.1 above includes information on the number of Archaeological Impact Assessment surveys carried out during the quarter and to date.

Archaeological monitoring surveys were carried out by a Contractor appointed by the National Monuments Ireland on four bogs undergoing rehabilitation in 2021. It is proposed that further surveys may be carried out this year and these will be noted in this quarterly report. Bord na Móna will continue to assist and facilitate any such surveys.

6. Grant Claim

[Redacted]

[Redacted]

Description	€m	Q3FY22 Budget €m	Grant Claim to date €m
[Redacted]	[Redacted]	[Redacted]	[Redacted]

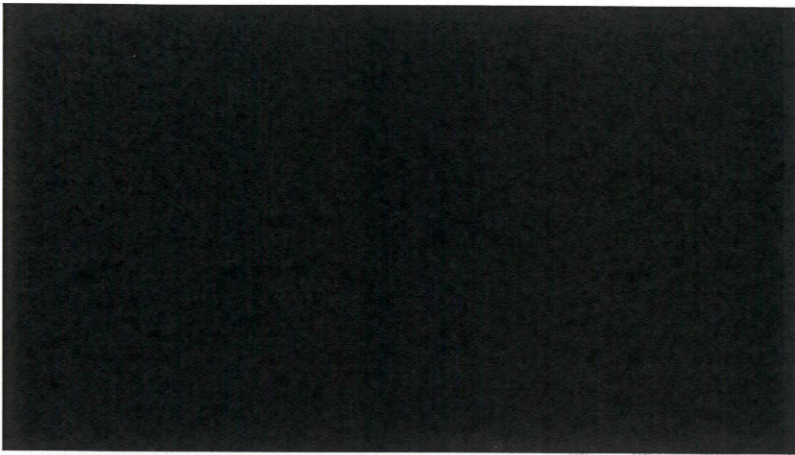
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Date

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7. Employment

The following is a summary of the employment for FY22Q3:

Employee Group	Employee Type	Max Number FY22Q3 (Oct to Dec 2021)
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
Total		221.5

Table 7.1 Grant Claim Update



The above table sets out the maximum number of people employed in this quarter on the design and implementation of the EDDRS scheme. It should be noted that the Peatland Engineering Services Management Team incorporates the Project Management, Finance, Health and Safety, HR,

Procurement, Environmental, Legal resources as well as the Operations management resources involved in the scheme.

8. Programme

[REDACTED]

[REDACTED]

The overall hectares of completed rehabilitation at the end of this quarter Q3FY22 (Oct to Dec 2021) is 5,196 hectares [REDACTED]

[REDACTED]

Notwithstanding the fact that some of this year's planned rehabilitation will extend into FY23 (April 2022 to Mar 2023), this will be recovered over the lifetime of the scheme and will not impact on the overall programme.

9. Risk Management

Bord na Móna have a risk register that is reviewed monthly. A process is in place to review the risk register with DECC and NPWS on a monthly basis and risk management meetings with BnM, NPWS and DECC during this quarter were held on the 05th October, 02nd November and 30th November 2021.

[REDACTED]

[REDACTED]

10. Remediation Works

No remediation works have been required to the rehabilitation measures to date.

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