Article 6 (3) Appropriate Assessment Screening Report

Moher Bog Decommissioning and Rehabilitation Plan 2025

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1. INTRODUCTION

1.1 Background

MKO has been appointed to provide the information necessary to allow the undertaking of an Article 6(3) Screening for Appropriate Assessment for the proposed Decommissioning and Rehabilitation of Moher Bog (Peatland Climate Action Scheme (PCAS) extent), located in County Roscommon (ITM coordinates: 596845, 770227).

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where it cannot be excluded that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site then same shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives. The current project is not directly connected with, or necessary for, the management of any European Site consequently the project has been subject to the Appropriate Assessment Screening process.

This Appropriate Assessment Screening Report has been prepared in accordance with:

- European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021).
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018).
- Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010).
- Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin 7, Ireland OPR (2021).

1.2 Statement of Authority

A baseline ecological survey was undertaken on the 2nd of April 2025 by Rudraksh Gupta (BSc., MSc., ACIEEM) and Viorel Anitei (BSc., Env). This report has been prepared by Rachel Minogue. Rachel is an ecologist with MKO, with over two years professional consultancy experience. Rachel has the relevant qualifications in Environmental Science. This report has been reviewed by Sorcha Shanley (BA, MSc) who has over three years' experience in ecological consultancy.

1.2.1 Methodology

1.2.2 Appropriate Assessment Process

Screening - The purpose of the screening stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, either alone or in combination with other plans or projects, is likely to have significant effects on a European Site in view of the site's conservation objectives.

There is no necessity to establish such an effect; it is merely necessary for Bord na Móna, the Competent Authority in this case, to determine that there may be such an effect. The need to apply the precautionary principle in making any key decisions in relation to the tests of Appropriate Assessment (AA) has been confirmed by the case law of the Court of Justice of the European Union (CJEU). Plans or projects that have no appreciable effect on a European Site may be excluded. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether Appropriate Assessment of a project is required. Therefore, where significant effects are likely, uncertain or unknown at screening stage, an AA of the project will be required.

Appropriate Assessment - This stage of the process is a focused and detailed examination, analysis and evaluation by the Competent Authority of the implications of the plan or project, either alone or in combination with other plans and projects, on the integrity of a European Site in view of that site's conservation objectives. Case law has established that such an Appropriate Assessment, to be lawfully conducted must:

(i) identify, in the light of the best scientific knowledge in the field, all aspects of the proposed project which may, by itself or in-combination with other plans or projects, affect the conservation objectives of the European Site;

(ii) contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and

(iii) may only include a determination that the proposed project will not adversely affect the integrity of any relevant European Site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of potential adverse effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three (assessment of alternative) and, if necessary, stage four-Imperative Reasons of Overriding Public Interest (IROPI).

1.2.3 Ecological Survey Methodologies

The following sections describe the methodologies followed to establish the baseline ecological condition of Moher Bog and surrounding area.

1.2.3.1 Bord na Móna Habitat Surveys

Bord na Móna carried out a baseline ecological survey of all of its properties in 2009 – 2012 and developed habitat maps of the sites. Moher Bog was surveyed in August 2012, with habitat maps updated in 2017. Moher Bog was also surveyed in October 2024, in advance of the preparation of the Decommissioning and Rehabilitation Plan for Moher Bog, available in **Appendix 1** of this report. Habitat maps have been updated where required. Habitat mapping followed best practice guidance from Smith et al. (2011). General marginal habitats and other habitats that had not been modified significantly by industrial peat extraction were classified using Fossitt (2000). Plant nomenclature for vascular plants follows Stace (2019),

while mosses and liverworts nomenclature follow identification keys published by the British Bryological Society (2010). A more detailed Bord na Móna classification system was previously developed for classifying pioneer cutaway habitats as Fossitt categories were deemed not to be detailed enough for cutaway bog (much of cutaway bog could be classified as Cutover Bog - PB4). The Bord na Móna classification system is used for all areas of bogs previously subject to industrial peat harvesting/ disturbance at Moher Bog.

Refer to **Appendix III 'Ecological Survey Report'** prepared by Bord na Móna for Moher Bog available in **Appendix 1** of this Appropriate Assessment Screening Report (AASR) for further details.

1.2.3.2 MKO Multidisciplinary Walkover Survey

A baseline ecological survey was undertaken on the 2nd of April 2025 by Rudraksh Gupta and Viorel Anitei of MKO to confirm the ecological baseline as identified by Bord na Móna in preceding surveys. The ecological walkover survey was undertaken in line with NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009)[1]. Habitats were identified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000[2]). Due to the size of Moher Bog, during the walkover survey, a drone was used to assist in habitat classification in inaccessible marginal habitats.

The walkover survey was designed to detect the presence of, or suitable habitat for, a range of protected faunal species that may occur in the vicinity of Moher Bog.

During the multidisciplinary walkover survey, a search for Invasive Alien Species (IAS), with a focus on those listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011), was also conducted.

During the multidisciplinary walkover survey, an otter survey was conducted as per NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). This involved a search for all otter signs e.g., spraints, scat, prints, slides, trails, couches, and holts. In addition to the width of the rivers/watercourses, a 10 m riparian buffer (both banks) was considered to comprise part of the otter habitat (NPWS, 2009)[3] and CIEEM best practice competencies for species surveys (CIEEM, 2013)[4].

1.2.4 Desk Study

The desk study undertaken for this assessment included a thorough review of the available ecological data associated with the screened-in European Sites within the Likely Zone of Influence of the proposed Decommissioning and Rehabilitation at Moher Bog. Sources of data included the following:

- Review of NPWS Conservation Objectives supporting documents, site synopsis, standard data forms and supporting documents for European Designated Sites.
- Review of online web-mappers: National Parks and Wildlife Service (NPWS), Environmental Protection Agency (EPA).

[1] *NRA, 2009 Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. Dublin: National Roads Authority. Available at https://www.tii.ie/media/4nthqz3a/ecological-surveying-techniques-for-protected-flora-and-fauna-during-the-planning-of-national-road-schemes.pdf*
[2] *Julie, A Fossitt. (2000). A Guide to Habitats in Ireland. Dublin: The Heritage Council. Available at https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-%20Fossitt.pdf*
[3] *NPWS (2009) Threat Response Plan: Otter (2009-2011). National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government, Dublin. Available at https://www.npws.ie/sites/default/files/publications/pdf/2009_Otter_TRP.pdf*
[4] *CIEEM, 2013, Technical Guidance Series – Competencies for Species Survey: Otter, Online, Available at: https://cieem.net/wp-content/uploads/2019/02/CSS-EURASIAN-OTTER-April-2013.pdf*

2. DESCRIPTION OF THE PROJECT

2.1 Site Location

Moher Bog is located approximately 2.3km northwest of Ballyleague Town and approximately 2.8km northwest of Lanesborough Town in County Roscommon (ITM coordinates: 596845, 770227). Lough Ree Special Area of Conservation (SAC) is located approximately 680m southeast, and Lough Ree Special Protection Area (SPA) is located approximately 740m southeast of Moher Bog. The bog is surrounded by agricultural lands and other bogs managed by Bord na Móna, including Cloontuskert Bog, Erenagh Bog and Mountdillon Bog.

The site can be accessed via the N63 to the south, and via a network of unnamed local roads to the north, south, and west.

The location of Moher Bog is shown in **Figure 2-1**.

The site location is also shown on the **BNM-DR-26-02-01** map titled '**Site Location Map**' available in the GIS Map book in **Appendix 2** of this AASR.

2.2 Site Description

Moher Bog is part of the Mountdillon bog group (Lough Ree sub-group). Moher Bog has developed on the floodplains of the River Shannon. Moher Bog contains three large sub-sections. The remaining section of Moher Bog are dealt with in a separate rehabilitation plan, called 'Cloontuskert Bog Decommissioning and Rehabilitation Plan 2025' and associated screened out AASR. There has been no previous rehabilitation carried out at Moher Bog. The PCAS extent of Moher Bog includes two main parcels, covering an area of 265ha.

Moher Bog has been selected by Bord na Móna for rehabilitation through the PCAS. The rehabilitation measures proposed to achieve this include blocking the drainage network, turning off the existing pump, field reprofiling, creating wetland areas and managing outfalls to raise the water table, and reduce the rate at which water flows from the bog. Constraints encountered in Moher Bog, including bog condition, turf cutting, and neighbouring lands are considered independent from the proposed rehabilitation measures. Other constraint features such as large drains, pump sites, road infrastructure etc. are not present within the rehabilitation areas, and negative impacts on rehabilitation measures are considered negligible as a result.

Moher Bog is predominantly located within the Clooneigh_SC_010 (26E_3) sub-catchment, with the northwest corner located within the Shannon [Upper]_SC_070 (sub-catchment id: 26C_8).

The majority of Moher Bog is located within the Funshinagh groundwater body (IE_SH_G_091), with the northwest corner located within the Curraghroe groundwater body (IE_SH_G_075), both areas of low groundwater vulnerability, as per EPA Maps.

The Gortgallan Stream (EPA code: 26G47) flows through the northern boundary of Moher Bog, flowing in an easterly direction before merging with the River Shannon (Upper) (IE_SH_26S021600). The River Shannon (Upper) flows in a southerly direction into Lough Ree, which is designated as part of the Lough Ree SAC and Lough Ree SPA. The Moher Stream (EPA code: 26M53) flows outside of the east boundary of Moher Bog, in a southeasterly direction into Lough Ree. The Keelcurragh Streams (EPA code: 26K67) flows along the southern boundary of the bog, and the Kilnacloghy Stream (EPA code:26K73) flows to the east boundary of Moher Bog, merging with the Keelcurragh Stream to the east. The Keelcurragh Stream flows in a southeasterly direction into Lough Ree.

Moher Bog was in industrial peat production from 1985 to 2021, supplying fuel peat to the Lough Ree Power Station in Lanesborough, Co. Longford. As a result, the majority of Moher Bog comprises cutover bare peat. The northern parcel of Moher Bog has relatively deep peat deposits (3-5m), while the southern parcel of Moher bog has varying peat depths (1.5-4m). Shallow peat depths (<1.5m) occur along the eastern and north-western boundary of the southern parcel of Moher Bog. A remaining peat stockpile is present to the southern section of the bog, and a former industrial railway is present within the bog, both of which will be decommissioned as part of the rehabilitation measures. Habitats recorded around the margins of the bog include scrub, birch woodland, remnant raised bog, agricultural grassland and conifer plantation.

Quaternary Sediment maps show that Moher Bog is underlain by peat, surrounded by inorganic deposits, predominantly till derived from Lower Palaeozoic sandstones and limestones, and shales to the southern parcel of the bog. The bog is underlain by a mix of gravel and marl. GSI bedrock geology indicates Moher Bog is underlain primarily by undifferentiated Visean limestone, with a small area to the northern parcel underlain by argillaceous Visean limestone.

Map Legend

Moher Bog Boundary

Drawing Title

Site Location

Project Title

Moher Bog

Drawn By	Checked By
RM	RW
Project No.	**Drawing No.**
250318	2.1
Scale	**Date**
1:138,048	01/04/2025

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2.3 Characteristics of the Peatland Climate Action Scheme (PCAS)

2.3.1 Overview

Bord na Móna has operated under an Integrated Pollution Control (IPC) Licence issued and administered by the EPA for the extraction of peat within the Mountdillon Bog group (Ref. P0504-01), of which Moher Bog, Co. Roscommon is a part. As part of Condition 10.2 of this licence, a rehabilitation plan must be prepared to ensure the permanent rehabilitation of the cutaway bog lands within the licensed area. The licence conditions required by Bord na Móna agree with the EPA measures that will provide for rehabilitation, i.e., stabilisation of Moher Bog upon cessation of peat production, and complements the licence requirements to decommission the site. This regulatory requirement is the main driver of the development of the Decommissioning and Rehabilitation Plan for Moher Bog, available in **Appendix 1** of this report.

It is proposed by government that Bord na Móna carry out PCAS on peatlands previously used for energy production. The enhanced decommissioning, rehabilitation, and restoration of the peatlands funded by the PCAS will deliver benefits across climate action (GHG mitigation, and acceleration towards carbon sequestration), enrich the state's natural capital, increase eco-system services and biodiversity, improve water quality, and storage attenuation and improve amenity opportunities for peatlands. The additional costs of the proposed PCAS rehabilitation will be supported by government through the Climate Action Fund and Ireland's National Recovery and Resilience Plan. Bord na Móna have identified a footprint of 33,000 ha (a subset of the Bord na Móna estate that has been used for energy production) as peatlands suitable for enhanced rehabilitation – including Moher Bog. This proposed scheme will significantly go beyond what is required to meet rehabilitation obligations under existing EPA IPC Licence conditions.

Decommissioning is a requirement of the applicable IPC issued by the EPA, which seeks to address condition 10.1 of licence Ref. P0504-01, which requires the following:

10.1 Following termination of use or involvement of all or part of the site in the licensed activity, the licensee shall:

10.1.1 Decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

Decommissioning must take place at each bog prior to or concurrent with rehabilitation – the scale of decommissioning per bog varies dependent on the items/ infrastructure previously in place to facilitate prior peat extraction.

Enhanced decommissioning as part of the PCAS will enhance the future after use of the bog for amenity value, security against access for illegal and unsocial activities and general State and community benefit.

Rehabilitation seeks to address the requirements of Condition 10.2 of IPC Licence Ref. P0504-01 and is based on a reference document prepared by Bord na Móna per Bog for which the IPC licence is applicable. See the following extract from IPC Licence Ref. P0504-01:

"*The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area.*"

Enhanced rehabilitation interventions supported by the above referenced Scheme will ensure that environmental stabilisation is achieved (meaning IPC obligations are met), and importantly, significant

additional benefits, particularly relating to climate action and other ecosystem services, will also be delivered.

Refer to **Appendix VI** in the Moher Bog Decommissioning and Rehabilitation Plan 2025 available in **Appendix 1** of this AASR for full details on the relevant Policy and Regulatory Frameworks.

2.3.2 Decommissioning and Rehabilitation stage

Bord na Móna have defined the key rehabilitation outcome at Moher Bog as environmental stabilisation, re-wetting, and setting the bog on a trajectory towards development of naturally functioning peatland and wetland habitats. Rehabilitation is generally defined by Bord na Móna as:

- Stabilisation of bare peat areas via targeted active management (e.g., drain-blocking/ re-wetting) slowing movement of water across the site and encouraging natural colonisation.
- Mitigation of key emissions (e.g., potential run-off of suspended solids).

A total of 265.22ha of Moher Bog will be subject to rehabilitation measures, as described in **Table 2-1** below. These are bespoke interventions designed to stabilise the existing baseline and meet compliance with the requirements of the existing EPA, IPC Licence and the proposed PCAS. Prescriptive measures are unique to the existing baseline habitats and comprise 3 no. broad categories, 1) those associated with dry cutaway, 2) measures associated with deep peat cutover bog and 3) those associated with wetland cutaway. The aim of rehabilitation is as much as possible to place existing peatlands on a trajectory towards a naturally functioning peatland and/ or wetland ecosystem.

The proposed Moher Bog Rehabilitation Plan will be undertaken using standard best practices in peatland restoration. These are based on published information in the Irish context, methodologies developed through rehabilitation trials, best practices employed elsewhere in Europe on peatland rehabilitation and restoration, and also the experience of 40 years of research on the after-use development and rehabilitation of the Bord na Móna cutaway bogs (Clarke and Rieley, 2010), including examples such as the Bord na Móna Raised Bog Restoration Project (Bord na Móna, 2014).

In terms of rehabilitation, the ecological and site information collected during Bord na Móna ecological baseline surveys, additional site visits, stakeholder input, and monitoring and desktop analysis forms the basis for the planning of peatland rehabilitation at Moher Bog, along with:

- Experience of 40 years of research on the after-use development and rehabilitation of the Bord na Móna cutaway bogs (Clarke, 2010; Bord na Móna, 2016).
- Significant international engagement with other countries in relation to best-practise principles for peatland rehabilitation and after-use through the International Peatland Society and the Society for Ecological Restoration (Joosten & Clarke 2002; Clarke & Rieley 2010; Gann et al. 2019).
- Consultation and engagement with internal and external stakeholders.
- GIS mapping.
- Bord na Móna drainage surveys.
- Bog topography and LiDAR data.
- Hydrological modelling.
- The development of a Methodology Paper outlining the Scheme (PCAS[5]). This rehabilitation includes enhanced measures defined in the Methodology Paper which are designed to exceed the standard stabilisation requirements as defined by the IPC Licence and to enhance the ecosystem services of Moher Bog optimising climate action benefits.

[5] *Bord na Móna (2022) Methodology Paper for the Enhanced Decommissioning, Rehabilitation and Restoration on Bord na Móna Peatlands. Available at* https://www.bnmpcas.ie/wpcontent/uploads/sites/18/2022/11/Methodology%20Report%20v19%20For%20issue.pdf

2.3.2.1 Decommissioning Measures

The proposed **Decommissioning Measures** for Moher Bog include the following, detailed further in **Appendix VII** titled 'Decommissioning' available in the Moher Bog Decommissioning and Rehabilitation Plan 2025 in **Appendix 1** of this report:

- Clean up of remaining or unconsolidated waste or materials located in Bogs, Yards, Buildings and Office.
- Cleaning silt ponds.
- Peat stockpile management.
- Decommissioning or removal of buildings and compounds.
- Decommissioning fuel tanks and associated facilities, where relevant.
- Decommissioning and removal of bog pump sites, where relevant.
- Decommissioning and removal of septic tanks, where relevant.

Enhanced Decommissioning Measures are proposed for Moher Bog, which are not a requirement of condition 10 of the licence, and as such the removal of the remaining infrastructure is considered enhancement measures:

- Removal of Railway Lines.
- Decommissioning bridges and underpasses, where applicable.
- Recommissioning railway level crossing, where applicable.
- Restricting access to bog.
- Removal of high voltage power lines, where applicable.

2.3.2.2 Enhanced Rehabilitation Measures

The proposed **Enhanced Rehabilitation Measures** for Moher Bog include the following, further detailed in **Table 2-1** below:

- Re-assessment of the pumping regime and removing pumps, if it has no significant external impact. Initial hydrological modelling indicates that a part of the site will remain as wetland and develop a mosaic of wetland habitats with some permanent deeper water. Hydrological management will look to optimise summer water levels to maximise the development of wetland vegetation (by looking to set water depths at <0.5m, where possible. It is inevitable that some sections will naturally have deeper water due to the topography at this site). Water-levels will be adjusted at outfalls and by adjusting piped drainage. More sustainable permanent gravity drainage solutions will be examined. Some targeted bunding may be required. It is expected that a natural seasonal regime of water fluctuation will develop, with water-levels fluctuating in association with levels in the nearby River Shannon. Pumps are expected to be decommissioned and removed at Moher Bog.
- Intensive drain blocking around the existing wetlands or standing water to create/ promote the spread of wetland habitats.
- Rewetting some areas of the bog through regular field drain blocking to create three peat barriers every 100m along each field drain.
- Re-alignment of piped drainage and creating high level swales to manage water levels and water flows through the site.
- Blocking drains in targeted existing pioneering vegetation mosaics, to accelerate rewetting, and/ or manage water levels.
- The creation of berms across some sections of the bog to control/ retain water levels. This measure seeks to retain shallow (<10cm) water conditions across multiple fields.
- Targeted fertiliser applications to accelerate vegetation establishment on areas of bare peat on headlands and high fields, and within certain areas of dry cutaway. Areas where vegetation has established do not need fertiliser application.

- Deep peat measures including field re-profiling, on deeper peat; intensive drain blocking (max 7/100m) and modifying outfalls, and management of water levels with overflow pipes and blocking of internal outfalls.
- Peat field re-profiling to reduce the camber of the fields and cell-bunding between high fields to manage/ optimise water levels for revegetation.
- Some small bog remnants around the margins of the bog will be targeted for drain-blocking.
- The existing silt ponds will be retained and maintained during the rehabilitation phase. During the monitoring and verification phase the silt ponds will be continually inspected and maintained, where appropriate. Where it is deemed that the silt ponds are not required, as the bog has been successfully stabilised and there is no silt-run off, the condition of the silt ponds will be reviewed. The silt ponds will either be de-watered (water levels lowered to a level where the silt pond will naturally develop as a small wetland feature), left in situ, or infilled (where discharges do not require silt control).
- Inoculation of *Sphagnum* will be considered in the future as part of the Peatlands and People LIFE Project.

The distribution of these measures is provisionally outlined in the **BNM-DR-26-02-05** map titled **'Enhanced Rehabilitation Measures'** available in the GIS Map book in **Appendix 2** of this AASR.

Table 2-1 Types and areas for Enhanced Rehabilitation Measures at Moher Bog.

Type	Rehab Code	Enhanced Rehabilitation Measure	Extent (ha)
Dry cutaway	DCT1	Blocking outfalls and managing water levels with overflow pipes.	18.35
	DCT2	Regular drain blocking (3/100m), modifying outfalls and managing water levels with overflow pipes, and targeted fertiliser treatment.	22.79
Wetland	WLT2	Turn off or reduce pumping to re-wet cutaway, modifying outfalls and managing water levels with overflow pipes and targeted modifying of outfalls within a site, and targeted fertiliser application.	7.86
	WLT4	More intensive drain blocking (max 7/100m), modifying outfalls and managing overflows, transplanting reeds and other rhizomes.	22.04
Deep peat	DPT2	More intensive drain blocking (max 7/100m) and modifying outfalls and managing overflows.	76.12
	DPT3	More intensive drain blocking (max 7/100m), + filed reprofiling + modifying outfalls and managing overflows.	35.38
Marginal land	MLT1	No works required.	26.92
	MLT2	More intensive drain blocking (max 7/100m).	8.94
Additional work	AW2	Targeted drain blocking.	19.39
Silt ponds	Silt pond	Silt ponds.	0.72
Constraint	Constraint	Other Constraints (rights of way, turf cutting, amenity, archaeology).	26.71
Total			**265.22**

** Note that the types of rehabilitation and areas of rehabilitation may change in response to stakeholder consultation and refinement of the enhanced rehabilitation measures.*

2.3.3 Aftercare and Maintenance

This programme for monitoring, aftercare and maintenance has been designed to meet the Conditions of the IPC Licence. This is defined as:

- There will be initial quarterly monitoring assessments of the site to determine the general status of the site, the condition of the silt ponds, assess the condition of the rehabilitation work, monitoring of any potential impacts on neighbour's land, general land security, boundary management, dumping and littering.
- The number of these site visits will reduce after two years to bi-annual visits and then after 5 years to annual visits.
- These monitoring visits will also consider any requirements for further practical rehabilitation measures.
- The baseline condition of the site will be established post-rehabilitation implementation by using an aerial survey to take an up-to-date aerial photo when rehabilitation is completed. This will be used to verify completion of rehabilitation measures. The extent of bare peat will be assessed using this baseline data, and habitat maps will be updated, if needed. It is proposed that sites can be monitored against this baseline in the future.
- Water quality monitoring at the bog will be established. The main objective of this water quality monitoring will be to establish a baseline and then monitor the impact of peatland rehabilitation on water quality from the bog.
- In order to assist in monitoring surface water quality from this bog, it is planned to increase the existing licence monitoring requirements to sampling for the same parameters to every month during the scheduled activities and for a period up to two years post rehabilitation, depending on the period required to confirm that the main two parameters, suspended solids and ammonia are remaining compliant with the licence emission and trigger limit values and there is an improving trajectory in these two parameters i.e. reduction in concentration.
- Enhanced water quality monitoring will aim to include up to 70% of a bog's drainage catchments.
- Monitoring results will be maintained, trended, and reported on each year as part of the requirement to report on Condition 10.1 of the IPC Licence on Bog Rehabilitation in the Annual Environmental Report, which will be available in April each year at www.epa.ie.
- The parameters to be included (as per condition 6.2 of the IPC Licence) include monthly monitoring for pH, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour, and Chemical Oxygen Demand (COD) and Dissolved Organic Carbon (DOC).
- This monthly sampling regime on a selected number of silt ponds will be carried out over a two-year cycle.
- The original (licence) requirement was for a quarterly sampling regime, but this has been increased to a monthly regime to appropriately track the changing water chemistry that will occur as part of this enhanced rehabilitation. In addition, DOC will be included as a parameter to try and identify any changes in carbon in the surface water.
- If, after two years, key criteria for successful rehabilitation are being achieved and key targets are being met, then the water quality monitoring will be reviewed, with consideration of potential ongoing research on site. The water quality data, the aerial surveys and the habitat mapping will be collated and will be submitted to the EPA as part of the final validation report.
- If, after two years, key criteria for successful rehabilitation have not been achieved and key targets have not been met, then the rehabilitation measures and status of the site will be evaluated and enhanced, where required. This evaluation may indicate no requirement for additional enhancement of rehabilitation measures but may demonstrate that more time is required before key criteria for rehabilitation has been achieved. Monitoring of water quality will then also continue for another period to be defined.
- Where other uses are proposed for the site that are compatible the provision of biodiversity and ecosystem services, these will be assessed by Bord na Móna in consultation with interested

parties. Other after-uses can be proposed for licensed areas and must go through the required assessment process and planning procedures.

Additional monitoring measures are also proposed to monitor ecosystem service benefits that have been derived by enhanced rehabilitation. These proposed monitoring measures will be funded by the proposed Climate Action Fund Scheme or additional other funding. Monitoring of climate action and other ecosystem service benefits will be designed to take account of the requirements of monitoring benefits of the overall Scheme and will be stratified; that is not all monitoring will be carried out in each site. These are defined as:

- Vegetation and habitat monitoring after rehabilitation is completed using a bog condition assessment This assessment will include assessment of on environmental and ecological indicators such as vegetation cover, vegetation communities, presence of key species, *Sphagnum* cover, bare peat cover and water levels. It is proposed that sites can be monitored against this baseline in the future.
- The condition of the bog can be assessed using the condition assessment and suitable Greenhouse Gas (GHG) emission factors can be assigned to different habitats. GHG emission factors have been determined for various peatland habitats in Ireland (Wilson et al., 2015) and are constantly being refined with more and more research. Bord na Móna is actively supporting research into GHG fluxes in different rehabilitated peatland habitats. This means that potential GHG emissions can be estimated from the site, as the site continues along its trajectory towards a naturally functioning peatland ecosystem.

2.3.4 Rehabilitation Plan Validation and Licence Surrender

IPC Licence condition 10.4. *'A final validation report to include a certificate of completion for the Rehabilitation Plan, for all or part of the site as necessary, shall be submitted to the agency within six months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the agency, to confirm that there is no continuing risk to the environment'.*

Reporting to the EPA will continue until the licence is surrendered. The bog will be included in the full licence surrender process as per the guidance to licensees on surrender, cessation, and closure of licensed sites EPA, 2012, when:

- The planned rehabilitation has been complete.
- The key criteria for successful rehabilitation have been achieved and key targets have been met.
- Water quality monitoring demonstrates that water quality of discharge is stabilising or improving.
- The site has been environmentally stabilised.

2.3.5 Timeframe

- Year 1 (2025): Short-term planning actions.
- Year 1-2 (2025-2026): Short-term practical actions.
- Year 2-3 (2026-2027): Long term practical actions. Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.
- >Year 3 (2028): Decommission silt-ponds, if necessary.
- In general, rehabilitation activities will be carried out between the months of April and October inclusive. The decommissioning stage may overlap rehabilitation activities.
- The duration of activities provided are approximate and may be slightly shorter or longer, depending on weather conditions and progress on rehabilitation prescriptions. Activities may cease for the winter months due to rainfall and poor ground conditions.
- In any case, the rehabilitation period will not be longer than 1 year.
- Normal working times will be daylight hours between 08.00 and 17.30hrs Monday to Friday.

Refer to **Table 7-1** in the Moher Bog Decommissioning and Rehabilitation Plan 2025 available in **Appendix 1** of this AASR for full details on success criteria, targets, measuring success criteria and expected time frame.

2.4 Description of the Baseline Ecological Environment

2.4.1 Habitats

The most dominant habitat recorded on Moher Bog was **Cutover Bog (PB4),** dominated by bare peat (**Plate 2-1).** Sections of cutover bog to the west, north and east have been recolonised by pioneer species including goat willow *(Salix caprea),* ling heather *(Calluna vulgaris),* cross leaved heath *(Erica tetralix),* downy birch saplings *(Betula pubescens),* common dandelion (*Taraxacum officinale*), knapweed (*Centaurea nigra*), bramble *(Rubus fruticosus* agg*).* Species recorded also included rosebay willowherb (*Chamaenerion angustifolium*), jointed rush (*Juncus articulatus*), bush vetch (*Vicia sepium),* crested dog's tail (*Cynosurus cristatus*), St. John's wort (*Hypericum perforatum*), gorse (*Ulex europaeus*), hard rush (*Juncus inflexus*), bulbous rush (*Juncus bulbosus*), brown sedge (*Carex panicea*), ribwort plantain (*Plantago lanceolata*), creeping buttercup *(Ranunculus repens),* creeping bent (*Agrostis stolonifera*), annual daisy (*Bellis perennis*) and bryophyte species; *Bryum pseudotriquetrum, Calliergonella cuspidate, Fissiden* sp*, Polytrichum strictum and Campylopus introflexus.* (**Plate 2-2**).

The western, southeastern and northeastern margins of Moher Bog were dominated by emerging **Birch Woodland (WN7) (Plate 2-3),** dominated by silver birch (*Betula pendula*), downy birch and goat willow. The field and ground layer comprised bramble, gorse, bracken (*Pteridium aquilinum*), ivy (*Hedera hibernica*), creeping bent, broad buckler fern *(Dryopteris dilatata),* sycamore (*Acer pseudoplatanus*) and holly (*Ilex aquifolium*) saplings, honeysuckle (*Lonicera periclymenum*) and purple moor grass (*Molinia caerulea*). A single isolated stand of cherry laurel (*Prunus laurocerasus*), an invasive species was recorded within the eastern section. Bryophyte species recorded on the tree bark and ground layers included *Cryphaea hereomalla, Neckera complanta, Ulota bruchii, Plenogemma phyllantha, Orthotrichum pulchellum, Kindbergia praelonga, Hypnum cupressiforme, Radula complanata, Eurynchium striatum, Thuidium tamariscinum, Pseudoscleropodium purum, Campylopus introflexus, Hypnum jutlandicum, Plagiothecium undulatum and Dicranum scoparium.*

Linear **Drainage Ditches (FW4),** both dry and with standing water with an imperceptible flow, were recorded throughout the areas of Cutover Bog (PB4) (**Plate 2-4- *Drone Imagery*).** The plant species recorded along the drain banks included goat willow saplings, dandelion, hares' tail cottongrass (*Eriophorum vaginatum*), soft rush (*Juncus effusus*), common cottongrass (*Eriophorum angustifolium)* and broad buckler fern. Additional drainage ditches were recorded along the bog margins to the east. The substrate comprised silt and no flowing water was recorded within the drains.

Several **Other artificial lakes and ponds (FL8)** were recorded along the eastern and southwestern margins of the bog. The banks were occupied by species such as goat willow, gorse, Colt's-foot (*Tussilago farfara*), Yorkshire fog (*Holcus lanatus*), creeping bent, soft shield fern (*Polystichum setiferum*), foxglove (*Digitalis purpurea*), bramble, herb Robert (*Geranium robertianum*), ivy, cow parsley (*Anthriscus sylvestris*), dandelion and creeping buttercup (**Plate 2-5**).

A small area of **Tall-herb swamps (FS2)** was recorded to the west of the inter-parcel section of the bog, fragmented by machinery tracks. Recorded species included common reed (*Phragmites australis*), marsh cinquefoil (*Comarum palustre*), devil's bit scabious (*Succisa pratensis*), red fescue (*Festuca rubra*), pointed spear moss (*Calliergonella cuspidata*), with gorse and willow saplings along the margins (**Plate 2-6**).

An area of remnant **Raised bog (PB1)** in poor condition was recorded to the north-western section of the Moher Bog (**Plate 2-7**). This area was dominated by ling heather (*Calluna vulgaris*) and also comprised species such as cross leaved heather, hares' tail cottongrass, purple moor grass, soft rush and *Cladonia portentosa.* Bryophyte species recorded include *Sphagnum papillosum, Sphagnum rubellum, Sphagnum*

subnitens, Aulacomnium palustre, Hypnum jutlandicum, Sphagnum capillifolium, Odontoschisma sphagni, Mylia anomala, Sphagnum cuspidatum, Sphagnum tenellum andPolytrichum strictum.

Dry meadows and grassy verges (GS2) were recorded to the north section, along the public road that separates the two bog parcels, and along the decommissioned industrial railway line **(Plate 2-8).** The plant species records for these sections include bramble, cocksfoot (*Dactylis glomerata*), creeping bent, goat willow, ribwort plantain, dandelion, greater plantain (*Plantago major*), Yorkshire fog, red clover (*Trifolium pratense)*, common hogweed (*Heracleum sphondylium*), field horsetail (*Equisetum arvense*), nettle (*Urtica dioica*), bracken, common vetch (*Vicia sativa*), marsh cinquefoil, and the bryophyte *Calliergonella cuspidata.*

The northern margin of the site also comprised an area of **Wet Grassland (GS4) (Plate 2-9).** This area was dominated by soft rush and Yorkshire fog, also including species like common sorrel (*Rumex acetosa*), nettle, common buttercup (*Ranunculus acris*), creeping buttercup (*Ranunculus repens*), toad rush (*Juncus bufonius*), common ragwort (*Jacobaea vulgaris*), marsh ragwort (*Jacobaea aquatica*), marsh thistle (*Cirsium palustre*), white clover (*Trifolium repens*), dandelion and annual daisy. Bryophyte species recorded were *Brachytecium rutabulum* and *Calliergonella cuspidata*.

The northern section also comprised **Hedgerows (WL1)** along the access road **(Plate 2-10).** These were dominated by grey willow (*Salix cinerea*) and goat willow, with occasional blackthorn (*Prunus spinosa*), holly (*Ilex aquifolium*), gorse, hawthorn (*Crataegus monogyna*), while the field and ground layer included bramble, ivy, male fern (*Dryopteris filix-mas*) creeping bent and the bryophytes *Thuidium tamariscinum* and *Calliergonella cuspidata.*

The Kilnacloghy River, classified as **Depositing/lowland river (FW2) (Plate 2-11),** that has the source adjacent to the southeastern boundary of the Moher Bog had no flow and silty substrate. The channel was dominated by dense reed canary-grass (*Phalaris arundinaceae*) and common duckweed (*Lemna minor*), with water mint (*Mentha aquatica*) and algae also present. The riverbank plant species included Yorkshire fog, bramble, bracken, gorse, creeping bent, creeping buttercup, meadowsweet (*Filipendula ulmaria*), and hard fern (*Blechnum spicant*). The Gortgallan River, also classified as **Depositing/lowland river (FW2) (Plate 2-12),** was culverted under the Bord Na Mona property and had very low flow velocity and silty substrate. The riverbanks were dominated by dense bramble, and the recorded species also included ivy, gorse, goat willow, holly saplings, soft shield fern, creeping bent and creeping buttercup.

A strip of **Conifer plantation (WD4)** dominated by Sitka spruce (*Picea sitchensis*) was recorded via drone imagery along the northern side of the public road L6099 that separates the two bog parcels of Moher Bog (**Plate 2-13**, northern section). This conifer plantation is separated from the cutover peat by **Birch Woodland (WN7).**

A mosaic of **Cutover Bog (PB4),** and **Dry meadows and grassy verges (GS2)** was recorded within the south-western section, which also included some of the **Drainage Ditches (FW4)** and **Other artificial lakes and ponds (FL8)** described above.

The habitats recorded within Moher Bog classified as per the Bord na Móna classification system are further detailed on the **BNM-DR-26-02-17:** map titled '**Current Habitat Map'** available in the GIS Map book in **Appendix 2** of this AASR.

Plate 2-1 ***Cutover Bog (PB4)*** *dominated by bare peat recorded throughout Moher Bog.*

Plate 2-2 Recolonising ***Cutover Bog (PB4)*** *to the northern parcel of Moher Bog.*

*Plate 2-3 Emerging **Birch Woodland (WN7)** to the southeastern parcel of Moher Bog.*

*Plate 2-4 **Drainage Ditch (FW4)** recorded throughout Moher Bog on areas of **Cutover Bog (PB4).** (Drone imagery).*

Plate 2-5 ***Other artificial lakes and ponds (FL8),*** *silt ponds to the eastern parcel of Moher Bog.*

Plate 2-6 ***Tall-herb swamps (FS2)*** *to the western parcel of Moher Bog.*

*Plate 2-7 An area of remnant **Raised bog (PB1)** to the northwestern parcel Moher Bog.*

*Plate 2-8 **Dry meadows and grassy verges (GS2)** to the northern parcel of the Moher Bog.*

Plate 2-9 ***Wet grassland (GS4)*** *recorded to the northern parcel of Moher Bog, adjacent to the access road and industrial railway.*

Plate 2-10 ***Hedgerows (WL1)*** *to the northern parcel of Moher Bog.*

*Plate 2-11 The Kilnacloghy River, classified as a **Depositing/lowland river (FW2)**.*

Plate 2-12 The Gortgallan River to the northern margin of the Moher Bog.

Plate 2-13 ***Conifer plantation (WD4)*** *north of the public road, partially located within the site boundary and surrounded by* ***Birch Woodland (WN7)****.*

2.4.2 Fauna

No SCI species associated with any nearby SPA were recorded by MKO in April 2025. Following the dedicated otter survey, no signs of otters were recorded on the bog by MKO in April 2025. Otters are a QI species of the nearby Lough Ree SAC.

2.4.3 Drainage and Connection to European Sites

Moher Bog has a combination of a pumped and gravity drainage regime, with a single pump located on the southern lobe which will be decommissioned as part of the PCAS works. There are 6 main sub-catchments which drain water from Moher Bog. Sub-catchments 1 and 2 discharge to the north of the Gortgallen Stream, which flows east towards the River Shannon. The majority of the bog discharge from sub-catchment 3, south to an external drain which flows to the Keelcurragh stream which flows east before discharging to Lough Ree. Sub-catchment 4 discharge south to the Kilnacloghy stream which flows south to meet the Keelcurragh Stream. Sub-catchment 5 and 6 both discharge to the west via adjacent drains to the Keelcurragh Stream. Sub-catchment 6 is assisted by a pump that will be decommissioned as part of the PCAS works. There are no inflow points on Moher Bog. The levels of each discharge point are below the level of ideal water depths in respective sub catchments, and as such there is capacity in all sub catchments to regulate ideal water depths within the bog. Existing silt ponds will be retained and managed by Bord na Móna to ensure continued silt control within Moher Bog.

Moher Bog is predominantly located within the Upper Shannon catchment (catchment id: 26E), with the northwest corner of the bog located within the Upper Shannon catchment (catchment id:26C). Moher Bog is predominantly located within the Clooneigh_SC_010 (26E_3), with the northwest corner located within the Shannon [Upper]_SC_070 (sub catchment id: 26C_8). The majority of Moher Bog is located within the Funshinagh groundwater body (IE_SH_G_091), with the northwest parcel located within the Curraghroe groundwater body (IE_SH_G_075) in an area of low groundwater vulnerability, as per EPA Maps. The Gortgallan Stream (EPA code: 26G47) flows through the northern boundary of Moher Bog, flowing in an easterly direction before merging with the River Shannon (Upper) (IE_SH_26S021600). The River Shannon (Upper) flows in a southerly direction into Lough Ree, which is designated as part of the Lough Ree SAC and Lough Ree SPA. The Moher Stream (EPA code: 26M53) flows outside of the east boundary of Moher Bog, flows in a southeasterly direction into Lough Ree. The Keelcurragh Streams (EPA code: 26K67) flows along the southern boundary of the bog, and the Kilnacloghy Stream (EPA code: 26K73) flows to the east boundary of Moher Bog, merging with the Keelcurragh Stream to the east. The Keelcurragh Stream flows in a southeasterly direction into Lough Ree.

The River Shannon (Upper) continues to flow in a southerly direction through Lough Ree, merging with the River Shannon Callows SAC and Middle Shannon Callows SPA after approx 30km. The River Shannon (Upper) intersects with the River Shannon (Lower) (IE_SH_25S012000) which continues to flow in a south-westerly direction before discharging into Lough Derg, which is designated as part of Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA, after approximately 83km. Further, the River Shannon (Lower) flows in south-westerly direction discharging into the Shannon Estuary, which is designated as part of the Lower River Shannon SAC, after approximately 120km, and the River Shannon and River Fergus Estuaries SPA after approx 143km.

2.4.4 Expected Outcomes of Proposed Rehabilitation for Current Habitats

It is not expected that the cutover bog in the former production area has the potential to develop active raised bog (ARB) analogous to the priority EU Habitats Directive Annex I habitat within the foreseeable future (c. 50 years). Part of the bog contains residual deep peat and has potential to develop Sphagnum-rich habitats in this timeframe. Nevertheless, re-wetting across the entire bog, as part of the Scheme, will

improve habitat conditions of the whole bog. Other peatland habitats will develop in a wider mosaic that reflects underlying conditions.

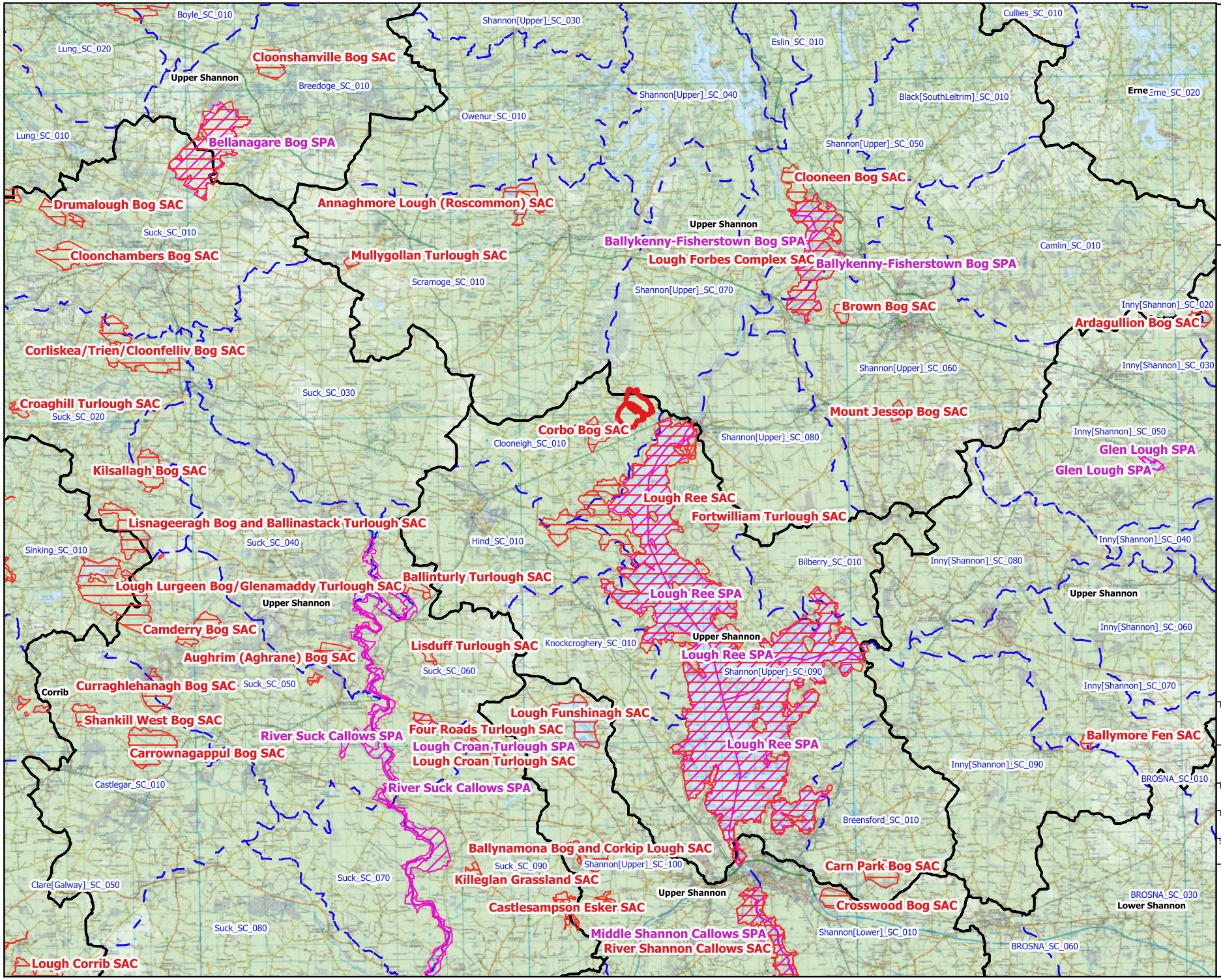
Moher Bog has one existing pump and a partially pumped drainage regime. Removing this pump will have a significant impact on hydrological management and wetland development across the site. Wetland and typical pioneer habitats have already developed across the south-eastern part of Moher Bog.

3. IDENTIFICATION OF RELEVANT EUROPEAN SITES

3.1 Identification of the European Sites within the Likely Zone of Influence

The following methodology was used to establish any European Sites upon which there is a potential for a likely significant effect to occur either individually or in combination with other plans and projects as a result of the proposed Decommissioning and Rehabilitation at Moher Bog:

- Initially the most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie).
- All European Sites that could potentially be affected were identified using a source-pathway - receptor model. To provide context for the assessment, European Sites in the vicinity of the Decommissioning and Rehabilitation at Moher Bog are shown on **Figure 3-1.** Information on these sites according to the site-specific conservation objectives is provided in **Table 3-1.** Sites further away from the proposed Decommissioning and Rehabilitation at Moher Bog were also considered. In this case, connectivity with European Sites further downstream in the catchment were identified. These include the River Shannon Callows SAC and Middle Shannon Callows SPA (approximately 30km downstream), Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA (approximately 83km downstream), the Lower River Shannon SAC (approximately 120km downstream), and the River Shannon and River Fergus Estuaries SPA (approximately 143km downstream). However, given the nature, scale and location of the proposed Decommissioning and Rehabilitation site and the attenuating properties of the intervening waterbodies, no potential pathway for significant effects was identified.
- Catchment mapping was used to establish or discount potential hydrological connectivity between the site of the proposed Decommissioning and Rehabilitation at Moher Bog and any European Sites. The hydrological catchments are also shown in **Figure 3-1.**
- In relation to Special Protection Areas, in the absence of any specific European or Irish guidance in relation to such sites, the Scottish Natural Heritage (SNH) Guidance, '*Assessing Connectivity with Special Protection Areas* (SPA)' (2016) was consulted. This document provides guidance in relation to the identification of connectivity between proposed Decommissioning and Rehabilitation at Moher Bog and Special Protection Areas. The guidance takes into consideration the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.
- **Table 3-1** provides details of all relevant European Sites as identified in the preceding steps and assesses the potential for Likely Significant Effects (LSE) on each.
- The assessment considers any likely direct or indirect impacts of the proposed Decommissioning and Rehabilitation at Moher Bog both alone and in combination with other plans and projects, on European Sites by virtue of criteria including the following: size and scale, land-take, distance from the European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning were considered in this assessment.
- The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- Where potential pathways for Likely Significant Effect are identified, the site is included within the Likely Zone of Influence and considered in this screening assessment.



Map Legend

- Moher Bog Boundary
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- EPA Hydrological Catchments
- EPA Hydrological Subcatchments

Drawing Title	European Designated Sites Within the Likely Zone of Influence
Project Title	Moher Bog
Drawn By: RM	Checked By: RW
Project No.: 250318	Drawing No.: 3.1
Scale: 1:299,894	Date: 01/04/2025

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Table 3-1 Identification of Designated sites within the Likely Zone of Influence

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
Special Areas of Conservation (SAC)				
Lough Ree SAC [000440] **Distance: 680m** **Surface Water Distance: 1.9km**	› [1355] Otter (*Lutra lutra*) › [3150] Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation › [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites) › [7120] Degraded raised bogs still capable of natural regeneration › [7230] Alkaline fens › [8240] Limestone pavements › [91A0] Old sessile oak woods with *Ilex* and	Detailed conservation objectives for this site, (Version 1, August 2016), were reviewed as part of the assessment and are available at www.npws.ie[6]	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Moher Bog and Lough Ree SAC are hydrologically connected as described fully in **Section 2.4.3** above. Moher Bog discharges via silt ponds, external drains and associated streams (Gortgallen, Keelcurragh and Kilnacloghy) to the River Shannon and Lough Ree. The Gortgallan Stream flows through the northern boundary of Moher Bog in an easterly direction before merging with the River Shannon (Upper) which flows in a southerly direction into Lough Ree. The Moher Stream flows outside of the east boundary of Moher Bog in a southeasterly direction into Lough Ree. The Keelcurragh Streams flows along the southern boundary of the bog, and the Kilnacloghy Stream flows to the east boundary of Moher Bog in a southeasterly direction into Lough Ree, which is designated as part of Lough Ree SAC, after approx 1.9km. As such, following the precautionary principle, a potential pathway for effect on the following aquatic QI habitats/species was identified: › [1355] Otter (*Lutra lutra*)	**No**

[6] *NPWS (2016) Conservation Objectives: Lough Ree SAC 000440. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000440.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
	Blechnum in the British Isles › [91D0] Bog woodland		› [3150] Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation › [7230] Alkaline fens However, the objective of the Decommissioning and Rehabilitation is to stabilise the bog. These proposed Decommissioning and Rehabilitation measures are specifically designed to reduce and slow the drainage of the bog and to minimise the run-off of waters from it. The proposed Decommissioning and Rehabilitation will not result in any loss of habitats and will not be occurring over the entire bog at any one time, leaving much of the bog completely undisturbed. Further, due to the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, there is no potential for indirect effects in the form of deterioration of water quality on Lough Ree SAC. There is no potential for the proposed Decommissioning and Rehabilitation to result in significant effects on downstream watercourses and ecological receptors as the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways from the bog. As such, in the absence of any mitigation, there is no potential for any significant effect on these QI receptors as a result of water pollution or change to the hydrological regime within the SAC. The potential for disturbance to otters occurring outside the SAC was also assessed. Signs of otter were recorded at Moher Bog during the 2024 Bord na Móna surveys undertaken at the site. No signs of otter were recorded by MKO ecologists in April 2025. However, otter may potentially utilise internal and adjoining drainage network, watercourses and wetlands within the Moher Bog site. Therefore, there is a potential source-pathway-receptor link between the proposed rehabilitation works	

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
			and this QI species. The Decommissioning and Rehabilitation are short term, will not result in any loss of otter habitat, and will not be occurring over the entire bog at any one time, leaving much of the bog and potential otter habitat completely undisturbed. Hence there is no potential for the Decommissioning and Rehabilitation, in the absence of any mitigation, to result in significant ex situ disturbance to this aquatic QI Species. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	
Corbo Bog SAC [002349] **Distance: 760m**	› [7110] Active raised bogs › [7120] Degraded raised bogs still capable of natural regeneration › [7150] Depressions on peat substrates of the *Rhynchosporion*	Detailed conservation objectives for this site, (Version 1, November 2015), were reviewed as part of the assessment and are available at www.npws.ie[7]	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Moher Bog and Corbo Bog SAC are located within the same sub catchment. However, the majority of Corbo Bog SAC is located within a separate river sub basin than Moher Bog. There is no hydrological link between this SAC and Moher Bog as flows from both sites are in an easterly direction towards Lough Ree. Therefore, due to the absence of a direct downstream or upstream hydrological connection, the nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, and the buffering distance of approximately 760m from the proposed Decommissioning and Rehabilitation at Moher Bog to this SAC;	**No**

[7] *NPWS (2015) Conservation Objectives: Corbo Bog SAC 002349. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002349.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
			no complete source pathway was identified. As such, there is no potential for indirect effects to occur. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	
Fortwilliam Turlough SAC [000448] **Distance: 7km**	› [3180] Turloughs	Detailed conservation objectives for this site, (Version 1, February 2018), were reviewed as part of the assessment and are available at www.npws.ie[8]	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Due to the groundwater influenced nature of the QI habitat for which this SAC is designated, the absence of a hydrological connection, and the buffering distance of approximately 7km from the proposed Decommissioning and Rehabilitation at Moher Bog to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	**No**
Lough Forbes Complex SAC [001818]	› [3150] Natural eutrophic lakes with *Magnopotamion* or	Detailed conservation objectives for this site, (Version 1, May 2016), were reviewed as part of	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site.	**No**

[8] *NPWS (2018) Conservation Objectives: Fortwilliam Turlough SAC 000448. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000448.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
Distance: 10km	*Hydrocharition* - type vegetation › [7110] Active raised bogs › [7120] Degraded raised bogs still capable of natural regeneration › [7150] Depressions on peat substrates of the *Rhynchosporion* › [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae*)	the assessment and are available at www.npws.ie[9]	Moher Bog and Lough Forbes Complex SAC are located within separate sub catchments. As such, due to the absence of a hydrological connection, and the buffering distance of approximately 10km from the proposed Decommissioning and Rehabilitation at Moher Bog to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	
Annaghmore Lough (Roscommon) SAC [001626] **Distance: 11.9km**	› [1013] Geyer's Whorl Snail (*Vertigo geyeri*) › [7230] Alkaline fens	Detailed conservation objectives for this site, (Version 1, January 2019), were reviewed as part of the assessment and are available at www.npws.ie[10]	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Moher Bog and Annaghmore Lough (Roscommon) SAC are located within separate sub catchments. As such, due to the absence of a hydrological connection, and the buffering distance of approximately 11.9km from the proposed	**No**

[9] *NPWS (2016) Conservation Objectives: Lough Forbes Complex SAC 001818. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001818.pdf*
[10] *NPWS (2019) Conservation Objectives: Annaghmore Lough (Roscommon) SAC 001626. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001626.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
			Decommissioning and Rehabilitation at Moher Bog to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	
Brown Bog SAC [002346] **Distance: 12.5km**	› [7110] Active raised bogs › [7120] Degraded raised bogs still capable of natural regeneration › [7150] Depressions on peat substrates of the Rhynchosporion	Detailed conservation objectives for this site, (Version 1, February 2016), were reviewed as part of the assessment and are available at www.npws.ie[11]	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Moher Bog and Brown Bog SAC are located within separate sub catchments. As such, due to the absence of a hydrological connection, and the buffering distance of approximately 12.5km from the proposed Decommissioning and Rehabilitation at Moher Bog to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	**No**
Ballinturly Turlough SAC [000588]	› [3180] Turloughs*	Detailed conservation objectives for this site, (Version 1, January 2018), were reviewed as part of	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site.	**No**

[11] *NPWS (2016) Conservation Objectives: Brown Bog SAC 002346. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002346.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
Distance: 14.3km		the assessment and are available at www.npws.ie[12]	Due to the groundwater influenced nature of the QI habitat for which this SAC is designated, the absence of a hydrological connection, and the buffering distance of approximately 14.3km from the proposed Decommissioning and Rehabilitation at Moher Bog to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	
Mount Jessop Bog SAC [002202] **Distance: 14.5km**	› [7120] Degraded raised bogs still capable of natural regeneration › [91D0] Bog woodland*	Detailed conservation objectives for this site, (Version 1, June 2023), were reviewed as part of the assessment and are available at www.npws.ie[13]	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Moher Bog and Mount Jessop Bog SAC are located within separate sub catchments. As such, due to the absence of a hydrological connection, and the buffering distance of approximately 14.5km from the proposed Decommissioning and Rehabilitation at Moher Bog to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur.	**No**

[12] *NPWS (2018) Conservation Objectives: Ballinturly Turlough SAC 000588. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000588.pdf*
[13] *NPWS (2023) Conservation Objectives: Mount Jessop Bog SAC 002202. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002202.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
			No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.	
Clooneen Bog SAC [002348] **Distance: 15km**	› [7110] Active raised bogs* › [7120] Degraded raised bogs still capable of natural regeneration › [7150] Depressions on peat substrates of the Rhynchosporion › [91D0] Bog woodland*	Detailed conservation objectives for this site, (Version 1, October 2024), were reviewed as part of the assessment and are available at www.npws.ie[14]	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Moher Bog and Clooneen Bog SAC are located within separate sub catchments. As such, due to the absence of a hydrological connection, and the buffering distance of approximately 15km from the proposed Decommissioning and Rehabilitation at Moher Bog to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	**No**
River Shannon Callows SAC [000216] **Distance: 28km**	› [1355] Otter (*Lutra lutra)* › [6410] Molinia meadows on calcareous, peaty, or	Detailed conservation objectives for this site, (Version 1, January 2022), were reviewed as part of	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site.	**No**

[14] *NPWS (2024) Conservation Objectives: Clooneen Bog SAC 002348. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002348.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
Surface Water Distance: 30km	clayey-silt-laden soils (*Molinion caeruleae*) › [6510] Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) › [7230] Alkaline fens › [8240] Limestone pavements* › [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (A*lno-Padion, Alnion incanae, Salicion albae*)*	the assessment and are available at www.npws.ie[15]	Moher Bog and the River Shannon Callows SAC are hydrologically connected as described fully in **Section 2.4.3** of this AASR. Moher Bog discharges via silt ponds, external drains and associated streams (Gortgallen, Keelcurragh and Kilnacloghy) to the River Shannon (Upper) and Lough Ree. The River Shannon (Upper) continues to flow in a southerly direction through Lough Ree, merging with the River Shannon Callows SAC after approx 30km. Although there is potential hydrological connectivity to the River Shannon Callows SAC, the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways within the bog, resulting in a slower release of water from the bog. Therefore, due to the extensive hydrological distance of approximately 30km, and the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, there is no potential for indirect effects in the form of deterioration of water quality on the River Shannon Callows SAC. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	
Lough Derg, North-east Shore SAC [002241]	› [5130] *Juniperus communis* formations on heaths or calcareous grasslands	Detailed conservation objectives for this site, (Version 1, April 2019), were reviewed as part of	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site.	**No**

[15] *NPWS (2022) Conservation Objectives: River Shannon Callows SAC 000216. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000216.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
Distance: 68km **Surface Water Distance: 83km**	› [7210] Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae** › [7230] Alkaline fens › [8240] Limestone pavements › [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxnius excelsior* (Alno-Padion, Alnion incanae, Salicion albae) › [91J0] *Taxus baccata* woods of the British Isles	the assessment and are available at www.npws.ie[16]	Lough Derg, North-east Shore SAC, and Moher Bog are hydrologically connected as described fully in **Section 2.4.3** of this AASR. Moher Bog discharges via silt ponds, external drains and associated streams (Gortgallen, Keelcurragh and Kilnacloghy) to the River Shannon (Upper) and Lough Ree. The River Shannon (Upper) continues to flow in a southerly direction through Lough Ree and the River Shannon Callows. The River Shannon (Upper) intersects with the River Shannon (Lower) which continues to flow in a south-westerly direction before discharging into Lough Derg, which is designated as part of Lough Derg, North-east Shore SAC after approx 83km. Although there is potential hydrological connectivity via Lough Derg, Northeast Shore SAC, the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways within the bog, resulting in a slower release of water from the bog. Therefore, due to the extensive hydrological distance of approximately 83km, and the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, there is no potential for indirect effects in the form of deterioration of water quality on the Lough Derg, Northeast shore SAC. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	

[16] *NPWS (2019) Conservation Objectives: Lough Derg, North-east Shore SAC 002241. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002241.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
Lower River Shannon SAC [002165] **Distance: 101km** **Surface Water Distance: 120km**	› [1029] Freshwater Pearl Mussel (*Margaritifera margaritifera)* › [1095] Sea Lamprey (*Petromyzon marinus*) › [1096] Brook Lamprey (*Lampetra planeri*) › [1099] River Lamprey (*Lampetra fluviatilis*) › [1106] Atlantic Salmon (*Salmo salar*) (only in fresh water) › [1110] Sandbanks which are slightly covered by sea water all the time. › [1130] Estuaries › [1140] Mudflats and sandflats not covered by seawater at low tide. › [1150] *Coastal lagoons › [1160] Large shallow inlets and bays › [1170] Reefs	Detailed conservation objectives for this site, (Version 1, August 2012), were reviewed as part of the assessment and are available at www.npws.ie[17]	There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. The Lower River Shannon SAC, and Moher Bog are hydrologically connected as described fully in **Section 2.4.3** of this AASR. Moher Bog discharges via silt ponds, external drains and associated streams (Gortgallen, Keelcurragh and Kilnacloghy) to the River Shannon (Upper) and Lough Ree. The River Shannon (Upper) continues to flow in a southerly direction through Lough Ree and the River Shannon Callows. The River Shannon (Upper) intersects with the River Shannon (Lower) which continues to flow in a south-westerly direction before discharging into Lough Derg and finally discharging into the Shannon Estuary, which is designated as part of the Lower River Shannon SAC after approx 120km. Although there is potential hydrological connectivity to the Lower River Shannon SAC, the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways within the bog, resulting in a slower release of water from the bog. Therefore, due to the extensive hydrological distance of approximately 120km, and the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, there is no potential for indirect effects in the form of deterioration of water quality on the Lower River Shannon SAC.	**No**

[17] *NPWS (2012) Conservation Objectives: Lower River Shannon SAC 002165. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002165.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
	› [1220] Perennial vegetation of stony banks › [1230] Vegetated Sea cliffs of the Atlantic and Baltic coasts › [1310] Salicornia and other annuals colonizing mud and sand. › [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) › [1349] Bottlenose Dolphin (*Tursiops truncates*) › [1355] Otter (*Lutra lutra*) › [1410] Mediterranean salt meadows (*Juncetalia maritimi*) › [3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation › [6410] Molinia meadows on calcareous, peaty, or		**No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
	clayey-silt-laden soils (*Molinion caeruleae*) › [91E0] *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)			
Special Protection Areas (SPA)				
Lough Ree SPA [004064] **Distance: 680m** **Surface Water Distance: 1.9km**	› [A004] Little Grebe (*Tachybaptus ruficollis*) › [A038] Whooper Swan (*Cygnus cygnus*) › [A050] Wigeon *(Anas Penelope*) › [A052] Teal (*Anas crecca*) › [A053] Mallard (*Anas platyrhynchos*) › [A056] Shoveler (*Anas clypeata*) › [A061] Tufted Duck (*Aythya fuligula*)	First Order Site- Specific Conservation Objectives for this site, (Version 1, October 2022), were reviewed as part of the assessment and are available at www.npws.ie[18] *The site has a generic conservation objective: 'To maintain or restore the favourable conservation condition of the bird species listed as Special*	There will be no direct effects on this SPA as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Moher Bog and Lough Ree SPA are hydrologically connected as described fully in **Section 2.4.3** above. Moher Bog discharges via silt ponds, external drains and associated streams (Gortgallen, Keelcurragh and Kilnacloghy) to the River Shannon and Lough Ree. The Gortgallan Stream flows through the northern boundary of Moher Bog in an easterly direction before merging with the River Shannon (Upper) which flows in a southerly direction into Lough Ree. The Moher Stream flows outside of the east boundary of Moher Bog in a southeasterly direction into Lough Ree. The Keelcurragh Streams flows along the southern boundary of the bog, and the Kilnacloghy Stream flows to the east boundary of Moher Bog in a southeasterly	**No**

[18] *NPWS (2022) Conservation objectives for Lough Ree SPA [004064]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage. This First Order Site-specific Conservation Objectives Version 1.0 document replaces the Generic Conservation Objectives Version 9.0 document. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004064.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
	› [A065] Common Scoter (*Melanitta nigra)* › [A067] Goldeneye (*Bucephala clangula*) › [A125] Coot (*Fulica atra*) › [A140] Golden Plover (*Pluvialis apricaria*) › [A14]2 Lapwing *(Vanellus Vanellus)* › [A193] Common Tern (*Sterna Hirundo*) › [A999] Wetlands and waterbirds	*Conservation Interests for this SPA'.* And '*To maintain or restore the favourable conservation condition of the wetland habitat at Lough Ree SPA as a resource for the regularly occurring migratory waterbirds that utilise it'.*	direction into Lough Ree, which is designated as part of Lough Ree SPA after approx 1.9km. As such, following the precautionary principle, a potential pathway for effect on the Special Conservation Interest (SCI) species and habitats of this SPA was identified in the form of deterioration of water and habitat quality. However, the objective of the Decommissioning and Rehabilitation is to stabilise the bog. These proposed Decommissioning and Rehabilitation measures are specifically designed to reduce and slow the drainage of the bog and to minimise the run-off of waters from it. Further, due to the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, there is no potential for indirect effects in the form of deterioration of water quality on Lough Ree SPA. There is no potential for the proposed Decommissioning and Rehabilitation to result in significant effects on downstream watercourses and ecological receptors as the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways from the bog. As such, in the absence of any mitigation, there is no potential for any significant effect on these SCI receptors as a result of water pollution or change to the hydrological regime within the SPA. The potential for disturbance to the SCI species, where they occur outside the SPA was also assessed. Taking a precautionary approach, the existing silt ponds and large drainage ditches present on Moher Bog have the potential to provide suitable ex situ supporting habitats for all the SCI species associated with this SPA.	

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
			No SCI Species associated with this SPA were recorded by Bord na Móna during the 2024 surveys or MKO in April 2025. Further, the Decommissioning and Rehabilitation will not result in any loss of habitat, are short term and will not be covering the entire bog at any one time, leaving much of the bog completely undisturbed and will increase the extent of suitable supporting habitat across the site via the creation of new wetland habitats. Hence, there is no potential for the Decommissioning and Rehabilitation in the absence of any mitigation, to result in significant disturbance to SCI species which may use wetland sites such as the PCAS extent. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	
Ballykenny-Fisherstown Bog SPA [004101] **Distance: 10km**	› [A395] Greenland White-fronted Goose (*Anser albifrons flavirostris*)	First Order Site- Specific Conservation Objectives for this site, (Version 1, October 2022), were reviewed as part of the assessment and are available at www.npws.ie[19]	There will be no direct effects on this SPA as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. The proposed Decommissioning and Rehabilitation at Moher Bog are located approx 10km from this SPA, and as such are located outside of the core foraging range of 5-8km for Greenland White-fronted Goose. No Greenland White-fronted	**No**

[19] *NPWS (2022) Conservation objectives for Ballykenny-Fisherstown Bog SPA [004101]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage. This First Order Site-specific Conservation Objectives Version 1.0 document replaces the Generic Conservation Objectives Version 9.0 document. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004101.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
		'*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA'.*	Geese were recorded on the bog by either Bord na Móna during the 2024 surveys or MKO in April 2025. However, taking a precautionary approach, the existing silt ponds and large drainage ditches on site have the potential to provide suitable ex situ supporting habitat this SCI Species. The Decommissioning and Rehabilitation will not result in any loss of habitat, are short term and will not be covering the entire bog at any one time, leaving much of the bog completely undisturbed and will increase the extent of suitable supporting habitat across the site via the creation of new wetland habitats. Hence, there is no potential for the Decommissioning and Rehabilitation in the absence of any mitigation, to result in significant disturbance to SCI species which may use wetland sites such as the PCAS extent. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
Middle Shannon Callows SPA [004096] **Distance: 28km** **Surface Water Distance: 30km**	› [A038] Whooper Swan (*Cygnus cygnus*) › [A050] Wigeon (*Anas Penelope)* › [A122] Corncrake *(Crex crex)* › [A140] Golden Plover (*Pluvialis apricaria)* › [A142] Lapwing (*Vanellus vanellus*) › [A156] Black-tailed Godwit (*Limosa limosa)* › [A179] Black-headed Gull (*Chroicocephalus ridibundus)* › [A999] Wetlands and Waterbirds	Detailed conservation objectives for this site, (Version 1, November 2022), were reviewed as part of the assessment and are available at www.npws.ie[20]	There will be no direct effects on this SPA as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. Moher Bog and the Middle Shannon Callows SPA are hydrologically connected as described fully in **Section 2.4.3** of this AASR. Moher Bog discharges via silt ponds, external drains and associated streams (Gortgallen, Keelcurragh and Kilnacloghy) to the River Shannon (Upper) and Lough Ree. The River Shannon (Upper) continues to flow in a southerly direction through Lough Ree, merging with the Middle Shannon Callows SPA after approx 30km. Although there is potential hydrological connectivity with the Middle Shannon Callows SPA, the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways within the bog, resulting in a slower release of water from the bog. Therefore, due to the extensive hydrological distance of approximately 30km, and the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, there is no potential for indirect effects in the form of deterioration of water or habitat quality in the Middle Shannon Callows SPA. Further, due to the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, the buffering distance of approx 30km, there is no potential for ex situ disturbance or displacement related impacts on the SCI species	**No**

[20] *NPWS (2022) Conservation Objectives: Middle Shannon Callows SPA 004096. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004096.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
			as a result of the proposed Decommissioning and Rehabilitation at Moher Bog on the Middle Shannon Callows SPA. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	
Lough Derg (Shannon) SPA [004058] **Distance: 68km**	› [A017] Cormorant (*Phalacrocorax carbo*) › [A061] Tufted Duck (*Aythya fuligula*)	Detailed conservation objectives for this site, (Version 1, August 2024), were reviewed as part of the assessment and are available at www.npws.ie.[21]	There will be no direct effects on this SPA as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site.	**No**

[21] *NPWS (2024) Conservation Objectives: Lough Derg (Shannon) SPA 004058. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004058.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
Surface Water Distance: 83km	› [A067] Goldeneye (*Bucephala clangula*) › [A193] Common Tern (*Sterna hirundo*) › [A999] Wetland and Waterbirds		Lough Derg (Shannon) SPA, and Moher Bog are hydrologically connected as described fully in **Section 2.4.3** of this AASR. Moher Bog discharges via silt ponds, external drains and associated streams (Gortgallen, Keelcurragh and Kilnacloghy) to the River Shannon (Upper) and Lough Ree. The River Shannon (Upper) continues to flow in a southerly direction through Lough Ree and the River Shannon Callows. The River Shannon (Upper) intersects with the River Shannon (Lower) which continues to flow in a south-westerly direction before discharging into Lough Derg, which is designated as part of Lough Derg (Shannon) SPA after approx 83km. Although there is potential hydrological connectivity with Lough Derg (Shannon) SPA, the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways within the bog, resulting in a slower release of water from the bog. Therefore, due to the extensive hydrological distance of 83km, and the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, there is no potential for indirect effects in the form of deterioration of water or habitat quality in the Lough Derg (Shannon) SPA. Further, due to the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, the buffering distance of approx 83km, there is no potential for ex situ disturbance or displacement related impacts on the SCI species as a result of the proposed Decommissioning and Rehabilitation at Moher Bog on the Lough Derg (Shannon) SPA. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
River Shannon and River Fergus Estuaries SPA [004077] **Distance: 101km** **Surface Water Distance: 143km**	› [A017] Cormorant (*Phalacrocorax carbo*) › [A038] Whooper Swan (*Cygnus cygnus*) › [A046] Light-bellied Brent Goose (*Branta bernicla hrota*) › [A048] Shelduck (*Tadorna tadorna*) › [A050] Wigeon (*Anas Penelope*) › [A052] Teal (*Anas crecca*) › [A054] Pintail (*Anas acuta*) › [A056] Shoveler Duck (*Anas clypeata*) › [A062] Scaup (*Aythya marila*) › [A137] Ringed Plover (*Charadrius hiaticula*) › [A140] Golden Plover (*Pluvialis apricaria*)	Detailed conservation objectives for this site, (Version 1, September 2012), were reviewed as part of the assessment and are available at www.npws.ie.[22]	There will be no direct effects on this SPA as the proposed Decommissioning and Rehabilitation footprint is located entirely outside the boundary of this Designated Site. River Shannon and River Fergus estuaries SPA and Moher Bog are hydrologically connected as described fully in **Section 2.4.3** of this AASR. Moher Bog discharges via silt ponds, external drains and associated streams (Gortgallen, Keelcurragh and Kilnacloghy) to the River Shannon (Upper) and Lough Ree. The River Shannon (Upper) continues to flow in a southerly direction through Lough Ree and the River Shannon Callows. The River Shannon (Upper) intersects with the River Shannon (Lower) which continues to flow in a south-westerly direction before discharging into Lough Derg and finally discharging into the Shannon Estuary, which is designated as part of the River Shannon and River Fergus Estuaries SPA after approx 143km. Although there is potential hydrological connectivity with River Shannon and River Fergus estuaries SPA, the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways within the bog, resulting in a slower release of water from the bog Therefore, due to the extensive hydrological distance of approximately 143km, and the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, there is no potential for indirect effects in the form of deterioration of water or habitat quality in the River Shannon and River Fergus estuaries SPA.	**No**

[22] *NPWS (2012) Conservation Objectives: River Shannon and River Fergus Estuaries SPA 004077. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. Available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004077.pdf*

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Influence Determination	Potential for Likely Significant Effects (LSEs)
	› [A141] Grey Plover (*Pluvialis squatarola*) › [A142] Lapwing (*Vanellus vanellus*) › A143 Knot (*Calidris canutus*) › [A149] Dunlin (*Calidris alpina*) › [A156] Black-tailed Godwit (*Limosa limosa*) › [A157] Bar-tailed Godwit (*Limosa lapponica*) › [A160] Curlew (*Numenius Arquata)* › [A162] Redshank (*Tringa tetanus*) › [A164] Greenshank (*Tringa nebularia)* › [A179] Black-headed Gull (*Chroicocephalus ridibundus*) › [A999] Wetlands and waterbirds		Further, due to the small nature and scale of the proposed Decommissioning and Rehabilitation at Moher Bog, the buffering distance of approximately 143km, there is no potential for ex situ disturbance or displacement related impacts on the SCI species as a result of the proposed Decommissioning and Rehabilitation at Moher Bog on the River Shannon and River Fergus estuaries SPA. **No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and therefore it is not considered further in this assessment.**	

3.2 Likely Cumulative Impact of the Proposed Decommissioning and Rehabilitation plan on European Sites, In-Combination with Other Plans and Projects

A search and review in relation to plans and projects that may have the potential to result in cumulative and/or in-combination impacts on European Sites was conducted. This assessment focuses on the potential for cumulative in-combination effects on the European Sites considered in **Table 3-1.** This included a review of online Planning Registers, development plans and other available information and served to identify past and future plans and projects, their activities, and their predicted environmental effects.

3.2.1 Plans

The following development plans been reviewed and taken into consideration as part of this assessment:

- Roscommon County Development Plan 2022-2028.
- Ireland's 4th National Biodiversity Action Plan 2023-2030.

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage.

Table 3-2. Review of relevant Policies and Objectives

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Development Compliance with Policy
Roscommon County Development Plan 2022-2028	**Natural Heritage Policy Objectives** It is a policy objective of Roscommon County Council to: **NH 10.1** Ensure the protection, conservation and enhancement of the biodiversity of the county. **NH 10.2** Support the implementation of the relevant recommendations contained in the National Biodiversity Action Plan and the All-Ireland Pollinator Plan. **NH 10.3** Implement the County Roscommon Heritage Plan and the Biodiversity Action Plan, or any subsequent plans, in partnership with all relevant stakeholders. **NH 10.4** Implement Article 6(3) and where necessary Article 6(4) of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European Sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s). All assessments must be in compliance with the European Communities (Birds and Natural Habitats) Regulations 2011. **NH 10.5** Ensure that no plans, programmes, etc. or projects are permitted that give rise to significant cumulative, direct, indirect or secondary impacts on European Sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects, (either individually or in combination with other plans, programmes, etc. or projects). **NH 10.6** Ensure that any plan or project that could have a significant adverse impact (either alone or in combination with other plans and projects) upon the conservation objectives of any Natura 2000 Site or would result in the deterioration of any habitat or any species reliant on that habitat will not be permitted.	The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified. There will be no impact on designated sites or biodiversity as a result of the proposed Decommissioning and Rehabilitation at Moher Bog.

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Development Compliance with Policy
	NH 10.7 Actively promote the conservation and protection of areas designated as an NHA (including proposed sites) and to only consider proposals for development within or affecting an NHA where it can be clearly demonstrated that the proposed development will not have a significant adverse effect on the NHA or pNHA. **NH 10.13** Protect and enhance the valuable peatland resource in County Roscommon whilst protecting the heritage and environmental value of these peatland areas. **NH 10.14** Work with relevant agencies such as the Bord na Mona, NPWS, Coillte and adjacent local authorities to prepare an after-use framework plan for the peatlands and related infrastructure, to provide for the future sustainable and environmentally sensitive use of large industrial peatlands sites when peat harvesting finishes. **NH 10.15** Manage, enhance, and protect the wetlands of the county having regard to the County Roscommon Wetland Survey (2017) and ensure that there is an appropriate level of assessment in relation to proposals which would involve draining, reclaiming or infilling of wetland habitats.	
Ireland's 4th National Biodiversity Action Plan 2024-2030	**Objective 1: Adopt a Whole-of Government, Whole of-Society Approach to Biodiversity.** Proposed actions include capacity and resource reviews across government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan.	The National Biodiversity Action Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified.

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Development Compliance with Policy
	Objective 2: Meet Urgent Conservation and Restoration Needs. Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across government. **Objective 3: Secure Nature's Contribution to People. Actions highlight the relationship between nature and people in Ireland.** These include recognising the tangible and intangible values of biodiversity, promoting nature's importance to our culture and heritage and recognising how biodiversity supports our society and our economy. **Objective 4: Enhance the Evidence Base for Action on Biodiversity.** This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts. **Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.** Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity	There will be no impact on designated sites or biodiversity as a result of the proposed Decommissioning and Rehabilitation at Moher Bog.

3.2.2 Other Projects

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the proposed Decommissioning and Rehabilitation. The material was gathered through a search of relevant online Planning Registers, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities, and their environmental impacts. All relevant projects were considered in relation to the potential for in-combination effects. All relevant data was reviewed (e.g., AASRs/ NISs, layouts, drawings etc.) for all relevant projects where available. These consisted mainly of small scale to medium scale domestic developments.

- Permission for works to uprate the existing Lanesboro - Sliabh Bawn 100kV overhead line (OHL). Within County Roscommon the proposed development is located in the following townlands: Ballyleague, Gortgallan, Ballyglass, Cloontuskert, Erenagh, Killavackan, Culleenanory, Curraghroe, Doonahaha, Terila (Dillon), Trila (Martin), Kilmacananneny, Bunnageddy, Corhawny, Tonycurneen and Tooreen. The proposed development will consist of works along the c.9.5km Lanesboro - Sliabh Bawn 100kV OHL between the existing Lanesboro 110kV substation in the townland of Lanesborough in Co Longford & the existing SliabhBawn 110kV substation in the townland of Tooreen, Co. Roscommon. Approximately 9.4 km of the existing OHL circuit is located within the functional area of Roscommon County Council with approximately 0.1 km in the functional area of Longford County Council (A separate planning application is being lodged with Longford County Council). A Natura impact Statement will be submitted to the Planning Authority with the application. (Planning Ref: 23342).
- Permission for 1. Construction of a Gas Insulated Switchgear (GIS) compound measuring approximately 92.8m by 90.5m. The proposed GIS compound will be raised to a ground level of 1.2m higher than the existing ground level at the site, and will comprise: (i) GIS building with an approximate gross floor space 1624.1m2 and height of 15m (in addition, 6 no. lightning protection rods, approximately 3m in height, are located on the parapet of the GIS building); (ii) An internal access track measuring approximately 245m in length and 5m in width, 15 no. car parking spaces; underground stormwater attenuation tank; underground foul wastewater pumping station and all associated site development and landscaping works; and (iii) The substation compound will be bounded by a palisade fence 2.6m in height and further enclosed by a property fence measuring 1.4m in height. 2. The proposed development will also consist of the redevelopment of the existing AIS 110 kV substation, comprising the following: (i) Decommissioning of the 110 kV AIS busbar and 110 kV primary plant within the existing 110 kV AIS substation; (ii)The modification of 8 no. existing 110 kV underground circuits which will be re-routed into the new 110 kV GIS substation; and, (iii) Construction of 3no. underground joint bays; 1 no. new gantry tower (approximate footprint of 30.2m2 and a height of 12.5m); 1 no. new Line Cable Interface Mast (approximate footprint of 123m2 and a height of 20.7m); removal of the existing 110 kV OHL tower and section of cable which extends to the proposed Line Cable Interface Mast and all associated and ancillary transmission infrastructure. 3. Construction of a Distribution System Operator (DSO) compound measuring approximately 30m2; 4. Construction of a landowner access road (hardcore surfacing) of approximately 91m in length and 6m in width; and, 5. All ancillary site development works to facilitate the proposed development including geotechnical and geo-environmental ground investigations, site preparation works, site clearance and levelling, site drainage and associated outfall headwall to facilitate discharge to the River Shannon, temporary construction compounds and landscaping. (Planning Ref: 2360056).
- Permission for the development will consist of the redevelopment of the existing Lanesboro 110kV AIS substation with a new 110 kV Gas Insulated Switchgear (GIS) substation. The 110 kV GIS substation redevelopment will comprise of the following elements: (i) A110 kV GIS substation contained within a building with a gross floor area of approximately 1,470m2 (54m x 15m) and a height of 15m. Associated development within the footprint of the GIS substation development will include: 6 no. lightning rods of approximately 3m in height located on the

parapet of the GIS Building: a Distribution System Operator (DSO) compound (approximately 30m2); an internal circulation road of approximately 245m in length and 5m in width, 12 no. car parking spaces; underground stormwater attenuation tank; underground foul wastewater pumping station and all associated site development and landscaping works. The substation will be bounded by a palisade fence 2.6m in height and bounded with a property fence 1.4m in height; (ii) The modification of 8 no. existing 110 kV underground circuits which will be re-routed into the new 110 kV GIS substation: Sliabh Bawn-Lanesboro underground circuit, Cloon-Lanesboro underground circuit, Athlone-Lanesboro underground circuit, Richmond 1-Lanesboro underground circuit, Richmond 2-Lanesboro underground circuit, Lough Ree Power T104-Lanesboro underground circuit, T141-Lanesboro underground circuit and Mullingar-Lanesboro underground circuit. Associated development includes the construction of 3 no. underground joint bays; 1 no. gantry tower (footpring of 30.2m2 and a height of 12.5m); 1 no. Line Cable Interface Mast (footprint of 123m2 and the height of 20.7m) and all associated and ancillary transmission infrastructure. (iii) The construction of a Landowner access road of approximately 91m in length and 6m in width. (Planning Ref: 19201).

- Permission for the replacement ("restringing") and uprating of the conductor on the existing Athlone-Lanesboro 110 kV overhead line circuit, measuring approximately 0.12km in length; -Provision of fibre communication connection on the uprated circuit; -Completion of foundation strengthening and bar member replacements to 1No. end mast within the existing Lanesboro 110 kV substation; and -All associated development, including providing an access track and temporary construction compounds, to facilitate the proposed development. A Natura Impact Statement (NIS) has been prepared to accompany this planning application. (Planning Ref: 2460287).
- Permission for the development at this site - the existing Cloon to Lanesboro 110 kV Overhead Line is approximately 65 kilometres long. Approximately 37km of the existing circuit is located within the functional area of Galway County Council with approximately 27km located in County Roscommon and approximately 120 metres located in County Longford. The refurbishment works within County Longford will be undertaken at structure EM365, located within the Lanesboro Substation in the townland of Aghamore (Rathcline By). The development will consist of the refurbishment of the Cloon - Lanesboro 110 kV Overhead Line which will primarily include: replacement of a large proportion of existing structures, the breaking out and reconstruction of the concrete foundation and shear blocks at the majority of end/angle mast structures, painting of mast structures, replacement of insulators, crossarms, stays and/or fittings on existing structures; and the fitting of bird flight diverters and stay guards. No additional structures are proposed along the existing circuit. Any replacement structures will be constructed at, or immediately adjacent to the existing structures they will replace and will be of a generally similar height and appearance. Associated site development works to gain access to the existing structures include clearance of vegetation, disassembly and reassembly of stone walls and gate posts and removal and reinstatement of existing fencing. The proposed development includes all other associated and ancillary site development works required for the refurbishment of the existing circuit, including the installation of temporary silt traps, silt fences, bog mats and clear span bridges. No additional structures and no alteration to the nature, extent, alignment, character or voltage of the existing electricity infrastructure is proposed. A Natura Impact Statement (NIS) forms part of this application. (Planning Ref: 18139).
- Permission for the development at the 13.1 Ha site known as 'Lough Ree Power (LRP) Station' located in Lanesborough (Lanesboro), in the townlands of Aghamore and Lanesborough, Eircode N37E180; in County Longford. The development will consist of the demolition of the existing LRP station (as approved under Longford County Council reg.ref 01/115 ' An Board Pleanala Ref. PL14.125540 and all subsequent permissions); and the development and operation of electricity grid services - namely a battery energy storage system (BESS) and a Synchronous Condenser (Sync Con). The proposed development comprises two distinct phases of activity - the initial demolition and site reinstatement (Phase 1); following by construction and operation of the new BESS and Sync Con (phase 2). Phase 1 comprises the demolition of existing site structures (with a total footprint of c. 11.195sq.m. and a total gross floor area of c. 20,000 sq.m) including the former LRP station (boiler house, turbine house, bag filter house and associated 80 m high stack); the intermediate peat storage building and associated fuel management system;

and ancillary buildings including, electrical building, tippler building and associated control room and office, the screening building, lorry uploading building, water treatment plant building, offices building, laboratory building, workshop and maintenance buildings, oil pumphouse, electrics rooms, railway/locomotive service building, cooling water pump house and sewage/foul water treatment facility. All buildings and structures (including storage tanks and vessels) will be demolished to ground level, with below ground voids filled. Existing hard standing surfac3es (e.g. building ground floor concrete slabs, tarmacadam surfaces, concrete footpaths and road kerbs) will remain in site; and the site will be reinstated and secured with boundary gates and fences, etc. Associated with the demolition activity there will be on-site crushing of material using mobile machinery for the purposed of disposal and/or material re-use. Phase 2 comprises the proposed development of the BESS, Sync Con; and all associated development (Planning Ref: 2275).

- Permission for works to uprate approximately 35.7km of the overall 35.82km of the existing Athlone to Lanesboro 110 kV overhead line (OHL) circuit located within the administrative boundary within County Roscommon. The proposed development will consist of: • Replacement ("restringing") and uprating of the conductor along the existing Athlone-Lanesboro 110 kV OHL circuit; • Provision of fibre communication connection on the uprated circuit; • Replacement of 155No. Intermediate Wooden Polesets (IMPs), with similar structures, including pole set stays at 32No. IMPs. The change in structures will result in standardised heights from 16m to 23m along the circuit, the majority of height increases will be between 0.1m and 2.0m (at 125 No. IMPs), with the remainder between 2.1m and 3.7m, and a 4.0m height increase at only one IMP. 3no. IMP replacements will not result in a height change; • Replacement of 25No. Intermediate Wooden Poles crossarms; • Replacement of 1No. steel angle mast, the replacement structure will result in a height increase of 0.5m; • Foundation strengthening of 9No. steel angle masts, and 1No. end mast; • Bar member replacements to 12No. steel angle masts and 1No. end mast; and, •All associated development including insulator/hardware replacement (suspension clamps and vibration dampers), replacement of signage, painting of angle masts, replacement/installation of anticlimbing guards, access tracks, vegetation clearance, temporary construction compounds and all other works necessary to facilitate the development. A Natura Impact Statement (NIS) has been prepared to accompany this planning application, the location of which begins at Athlone 110kV substation in the townland of Monksland, Knockrocghery Moher Gardentown Toberreeoge Toberdan Feamore Corraclogh Kilteevan Kellybrook Srah Corboley Curry Cloontogher Derrycarbry Carrigeens Cloonaddra Clonsellan Lisfelim Coolshaghtena.
- Permission for an underground electrical cable and transformer compound which will connect permitted solar farms within the townlands of Middleton, Ballycore, Treanboy, Newtown, Ballynakill, Bunacloy to the national grid via the proposed transformer compound at Lough Ree Power Station (within the townland of Aghamore). The Development will consist of the following components 1) and 2): 1) installation of 110kV:33kV Transformer (TRAFO) Compound on private lands at Lough Ree Power Station, within the townland of Aghamore, with associated equipment including; cable sealing end (CSE) surge arrestor (SA), earth disconnect (ED) current/voltage transformer (CT/VT) house transformer (HT) circuit breaker (CB) 1 x lightening mast (LM) at approx. 8m tall, associated underground cabling connection to the existing 110kV underground cable, diesel generator, security fence, removal of portacabins, use of and realignment of the existing access road and associated works, drainage provision, temporary construction compound and also predevelopment site investigation works. 2) installation of underground 33kV medium Voltage electrical cable with associated ducting primarily on private lands within the townlands of Kilnacarrow, Ballynakill, Cloonkeel, Derryaroge, Cloonbearla, Mount Davys, Cloonbony and Aghamore. 5.77km of the route is located on private lands with0.011km to be located on the L52652 local road and L-11623 local road. The cable installation will include the installation of 7 no. joint bays with associated communication chambers, ancillary development and also pre-development site investigation works. The underground cable is intended to connect the permitted Middleton House Solar Farm (Planning ref: 18/135) and "Middleton House Solar Farm" Bunacloy extension (Planning Ref: 21/225) to the national grid via the proposed transformer compound at Lough Ree Power Station within the townland of Aghamore. Temporary construction compounds to facilitate the installation of

the cable will be located along the underground grid connection route. Part of the proposed development site lies within the boundary of Lough Ree Power Station which is licenced by the Environmental Protection Agency under an Industrial Emissions (IE) Licence Ref. P0610-02). Permission is sought for a period of 10 years. (Planning Ref: 22275).

- Permission for the development proposes the following: The delivery of a network of walking and cycling trails on Bord Na Móna lands. This will include the repurposing of 5.2km on existing former rail bed, 3.1km along existing bog headlands / former high fields and 185m along pre-existing machine access routes. The construction of car and / or bicycle parking facilities at a number of gateway locations along the proposed route. This will include 1 no. type 02 gateway, 2 no. type 03 gateway, 1 no. type 04 gateway, 3 no. rest points. The provision of 1 no. proposed Type 03 Gateway (LD-03-03) is located at the previously permitted Knappogue Bog Amenity Trail as permitted under Longford County Council Part 8. No. 79. The provision of a Type 02 Gateway (LD-02-01) at Lanesborough which will consist of the development of a pavilion structure, ramp and stairs structure to access the car parking facility. The provision of a pavilion and totem feature at Gateways (LD-03-03 & LD03-06) and the provision of a Thematic Experience comprising a framed structure extending to 8.0 meters with a visitor periscope to view the surrounding landscape, along the northern section of the route within the Cloonmore townland. The provision a Type 04 Gateway (LD-04-04), with the provision of handrails at the existing bridge and the provision of a new fence line along the centre line of the bridge with key holder gated access for maintenance vehicles located in the townland Begnagh. Improvement works to 8 no. existing agricultural crossings. The provision of upgrade works at road crossings (LD-00-02 & LD-00-05). The erection of wayfinding and interpretive signage at Gateway locations and along the route. Fencing and screening will be erected where required for health and safety and biodiversity reasons. This will include 520 meters of screening along the permitted Knappoge Bog section. 1065 meters of screening along the Begnagh Bog section. The implementation of Nature Based Drainage proposals at the Gateway locations to cater for surface water drainage at car park locations. The demolition and removal of 2 No. existing level crossing gates and associated support structure at proposed road crossing locations at Gateways (LD-03-03 & LD-03-06). All other ancillary and associated site works. The application is accompanied by a NIS. Bord Na Móna lands within the townlands of Cloonbony , Kilnacarrow Ballynakill Begnagh Corragarrow, and Cloonmore County Longford. (Planning Ref: 2460132). There is no overlap between the proposed Decommissioning and Rehabilitation footprint at Moher Bog and this walking/ cycling network on Bord na Mona lands.
- Permission for PL18/6 for modifications to previously granted planning application reference number PL16/256 with regard to development of a distillery and visitor centre on site of the Old Post Office, Main Street, Lanesborough, Co. Longford consisting of: Increase overall site area to 0.3ha moving southern boundary 5.5m south. Increase overall gross internal floor area of development by 257m2. Proposed 3 storey visitor facility extension: Internal modifications including relocation of proposed staff facilities to third floor and Increase roof apex height by 0.465m. Proposed single storey with mezzanine distillery (connected to the visitor facility extension):- Internal modifications including additional 15m2 storage room on mezzanine level and External modifications including increase roof apex height by 1.8m, inclusion of 5 no. roof lights and 1 no. louvre on south gable. Outbuilding no #1 (connected to the distillery): Partial demolition of existing single storey outbuilding retaining existing stone wall along boundary and rebuild & extend originally proposed single storey building by 13m2 to accommodate relocated gin still and boiler room and inclusion of 2 no. roof lights. Originally proposed single storey building (connected to the gin still): Increase originally proposed area and extensively modify building footprint, internal layout, external massing, external elevations and additional storey to increase max height by 3.2m to accommodate additional: 29m2 equipment mezzanine within cask filling & bottling room, 31m2 bottling & packaging area on ground floor, 13m2 cask store on ground floor with external sliding entrance doors, 156m2 ambassador's suite over two storeys with lantern roof and 6 no. roof lights. Outbuilding number #2: Partial demolition of existing single storey outbuilding retaining existing wall along boundary. Proposed site development works: Associated modification of originally proposed site layout, site boundaries, landscaping, external lighting and site/building signage. Relocate originally proposed gas storage compound to underground semi mounded installation. (Planning Ref: 231).

- Permission to demolish and dispose of existing structures on site consisting of 21 no. mushroom houses and an office building and store rooms and permission to construct 26 no. houses (consisting of 10 no. semi-detached 3 bed houses, 16 no. terraced units made up of 10 no. 2 bed houses and 6 no. 3 bed houses) construct service road and connect water and sewage (the sewage will be connected to a pumping unit) to existing mains supply and ancillary site works at Ballyleague Td. , Lanesboro , Co. Roscommon. (Planning Ref: 22581).
- Permission for the development consisting of a ten year permission for a solar farm on a site of approximately 34.54 hectares consisting of the following; 184,500 m2 of solar photo-voltaic panels on ground mounted steel frames; Ring main unit (RMU) substation and associated hard standing; 12 no. inverter/transformer stations on 6 no. hardstandings; underground power and communication cables and ducts; boundary security fence; CCTV cameras; upgraded internal access tracks; new internal access tracks, internal bridge crossing and associated drainage infrastructure; and temporary construction compounds and all associated site services and works. The proposed development seeks to form an extension to the adjoining previously permitted "Middleton House" Solar Farm which was permitted under Longford County Council Reg. Ref 18135. Access to the proposed development is provided via the permitted "Middleton House" Solar Farm via the L-11261 local road. (Planning Ref: 21225).
- Permission of PL16/303 - demolish all existing pig/livestock houses and ancillary structures and to construct 3. No. pig houses and 2. No. ancillary manure storage tanks in accordance with animal welfare and nitrates regulations together with all ancillary structures (to include meal storage bins etc.) and all associated site works on/adjacent to existing pig farm. An Environmental Impact Statement (E.I.S) relating to this proposed development will be submitted with this planning application. This application relates to a development which is for the purposes of an activity requiring a Licence under Part IV of the Environmental Protection Agency (licensing) Regulations 1994 to 2013. (Planning Ref: 22160).
- Surrounding land uses which included agricultural grazing lands, commercial forestry, and turf cutting activities.
- Decommissioning and Rehabilitation works ongoing/ soon to be carried out at Blackwater East Bog (2025), Cloontuskert Bog (2025), Mountdillon Bog (2025), and Erenagh Bog (2025) as part of Bord Na Móna Peatland PCAS.
- Decommissioning and Rehabilitation works completed at the following Bord na Móna Bogs: Bloomhill Bog (2022/2023), Bunahinly-Kilgarvan Bog (2022), Lemanaghan Bog (2024), Blackwater Bog (2022), Belmont Bog (2021), Ballaghurt Glebe Bog (2023/ 2024), and Clooniff Bog (2022), as part of Bord Na Móna PCAS.

3.2.3 Conclusion of Cumulative Assessment

Following the detailed assessment provided in the preceding sections, it is concluded that, the proposed Decommissioning and Rehabilitation plan at Moher Bog will not result in any residual significant effects on any of the European Sites, their integrity or their conservation objectives when considered on its own. There is therefore no potential for the proposed Decommissioning and Rehabilitation plan at Moher Bog to contribute to any cumulative significant effects on any European Site when considered in combination with other plans and projects.

In the review of the projects undertaken, no connection that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the proposed Decommissioning and Rehabilitation plan.

Taking into consideration the reported residual impacts from other plans and projects in the area and the predicted impacts with the current proposal, no residual cumulative impacts have been identified with regard to any European Site.

4. ARTICLE 6(3) APPROPRIATE ASSESSMENT SCREENING STATEMENT AND CONCLUSIONS

The findings of this Screening Assessment are presented following the European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) as well as the Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010).

4.1 Data Collected to Carry Out Assessment

- Review of NPWS Site Synopses, Conservation Objectives for the European Sites.
- Review of 2019, 2013 and 2007 EU Habitats Directive (Article 17) Reports.
- Review of OS maps and aerial photographs of the site of the proposed Decommissioning and Rehabilitation plan.
- Review of other plans and projects within the area.
- Review of location and layout mapping for proposed rehabilitation.
- Review of the results from previous ecological surveys of Moher Bog.
- Review of description of proposed rehabilitation measures, including methodologies specific to the main categories of land types under consideration.
- A baseline ecological survey undertaken on the 2nd of April 2025 by Rudraksh Gupta and Viorel Anitei of MKO.

4.2 Concluding Statement

It is concluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European Sites, that the proposed Decommissioning and Rehabilitation at Moher Bog, individually or in combination with other plans and projects, will not have a significant effect on any European Site.

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APPENDIX 1

MOHER BOG- DECOMMISSIONING AND REHABILITATION PLAN 2025

Bord na Móna

Moher Bog

Cutaway Bog Decommissioning and Rehabilitation Plan 2025

This document seeks to address the requirements of Condition 10.2 of IPC Licence Ref. P0504-01:

> "*The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area.*"

This licence condition requires Bord na Móna agree with the EPA the measures that will provide for rehabilitation, i.e., stabilisation of Moher Bog upon cessation of peat production and compliments the licence requirement to decommission the site.

***Rehabilitation** generally comprises site stabilisation with natural colonisation with or without targeted management.*

Industrial peat production has now fully ceased at Moher Bog.

In addition, to preparing this document to comply with Condition 10 of IPC Licence Ref. P0504-01, due regard was also given to the Peatlands Climate Action Scheme (PCAS) announced by the Minster. This Scheme will see the Minister support, via the Climate Action Fund and Ireland's National Recovery and Resilience Plan*, Bord na Móna in developing a package of measures, 'the Scheme', for enhanced decommissioning, rehabilitation and restoration of cutaway peatlands referred to as, the Peatlands Climate Action Scheme'. However, only the additional costs associated with the additional and enhanced rehabilitation, i.e., measures which go beyond the existing standard mandatory decommissioning and rehabilitation requirements arising from Condition 10 will be eligible for support. The additional costs of the Scheme will be supported by Government, administered by the Department of Environment, Climate and Communications (DECC), while the National Parks and Wildlife Service (NPWS) will act as the Scheme regulator.*

While this document outlines the enhanced rehabilitation measures planned for Moher Bog, activities which goes beyond that required by Condition 10 in the Licence, rehabilitation necessary to comply with the 'standard' requirement of Condition 10 (in the absence of the Scheme) is also included, to estimate costs. The inclusion of the 'standard' rehabilitation together with the enhanced rehabilitation in this document allows the Scheme Regulator to distinguish and objectively determine the specific activities (and their associated costs) eligible for support under the Scheme.

Bord na Móna have defined the key rehabilitation outcome at Moher Bog as environmental stabilisation, re-wetting and setting the bog on a trajectory towards development of naturally functioning peatland and wetland habitats.

Any consideration of any other future after-uses for Moher Bog will be conducted in adherence to the relevant planning guidelines and consultation with relevant authorities and will be considered within the framework of this rehabilitation plan.

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Name(s):			
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Date:			

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NON-TECHNICAL SUMMARY

- Bord na Móna is planning to rehabilitate Moher Bog, located in Co. Roscommon.
- Industrial peat harvesting has now finished at Moher Bog.
- Bord na Móna are obliged to carry out peatland rehabilitation via an IPC Licence issued by the Environmental Protection Agency. In addition, the Government has agreed to support peatland rehabilitation via the establishment of the Peatland Climate Action Scheme (PCAS). This is funded via the Government and by Bord na Móna.
- The key objective of peatland rehabilitation is environmental stabilisation. This means developing habitats and vegetation back onto the bare peat (putting a "skin" back onto the peat), and minimising effects to downstream waterbodies. Moher was drained in the past to allow peat production. Better results for water quality improvements, climate action, the reduction of carbon emissions and biodiversity are achieved when the remaining peat is re-wetted. This means drain-blocking and other measures to raise water levels to the surface of the bog and to encourage the natural colonisation of vegetation.
- In general, soggy ground conditions are preferred. This means the remaining peat is wet and that plants that prefer wetter conditions, like Bog Cotton will thrive.
- Areas with deeper residual peat have the capacity to regrow *Sphagnum* moss again, where there are suitable hydrological conditions. *Sphagnum* is a key species for restoring naturally functioning raised bog conditions.
- Many Bord na Móna bogs cannot be restored back to raised bog in the short-term, as so much peat has been removed and the environmental conditions have been modified. However other peatland habitats with Heather, Bog Cotton, Rushes, Purple Moor-grass, Bog-mosses and scattered trees will develop, and in time a naturalised peatland can be restored.
- The development of a range of habitats in Moher Bog will support biodiversity including plants, insects, birds and mammals. This includes some species that are rare and protected in the wider landscape. It will increase the national area of native woodland. Many wetland habitats in the wider landscape have been reclaimed for agriculture and other uses, and peatland rehabilitation is an opportunity to create new peatland and wetland habitats.
- Moher Bog was in industrial peat production since the early 1980's, some sections of the bog still retain a significant depth of peat ("red" or "*sphagnum*" peat also). All of the peat harvested on the site was used as fuel peat in Lough Ree Power in Lanesborough, Co. Longford.
- An area of the site in the southeastern of the southern lobe has been cutaway for a number of years. This area has become re-vegetated with pioneer open habitats, wetlands, scrub and in a drier section Birch dominated woodland. Other marginal areas of cutaway have developed across the site; these areas appear to be young and are mainly comprised of pioneer open habitats.
- Measures proposed for Moher Bog include drain blocking and additional measures required to raise water levels to the surface of the peat (bunding for example). Some fertiliser will be spread on headlands and other areas (a small part of the overall area) to encourage vegetation growth.
- Bord na Móna plan to carry out this work in 2025.
- These rehabilitation measures will be planned by a team consisting of expert ecologists, hydrologists and engineers. It is a guiding principle of Bord na Móna rehabilitation planning that no actions or activities will be undertaken that would negatively impact on adjacent land. No boundary drains will be blocked. Water will still leave the bog via the existing outlets.

- A portion of Moher is already developing pioneer vegetation. It will take some time for vegetation and habitats to fully develop at the most recently peat harvested areas of Moher, and a wetland/peatland ecosystem to be restored. However, it is expected that most of these areas will be developing pioneer habitats after 5-10 years.
- This is a peatland rehabilitation plan. This plan does not consider future after-use or development. Bord na Móna continually reviews its land-bank to consider future commercial or industrial developments. Any other proposed development will be planned in adherence to relevant planning guidelines and will consider the rehabilitation and the condition of the bog.
- Peatland rehabilitation of this bog will bring a range of benefits to the local community via improvements to the local landscape and is also important for supporting national policies and strategies in relation to reduction of carbon emissions from these peatlands, supporting biodiversity and improvements to water quality.

1. INTRODUCTION

Bord na Móna operates under IPC Licence issued and administered by the EPA to extract peat within the Mount Dillon Bog Group (Ref. P0504-01) (see Appendix II for details of the bog areas within this Group). As part of Condition 10.2 of this license, a rehabilitation plan must be prepared for permanent rehabilitation of the boglands within the licensed area. Moher Bog is located in Co. Roscommon.

Cloontuskert Bog is a sub-site of Moher Bog (which contains three large sub- sections) and is dealt with a separate specific rehabilitation plan. The remaining sections of Moher bog, is dealt with in a specific rehabilitation plan, called Moher Bog.

This document seeks to address the requirements of Condition 10.2 of IPC Licence Ref. P0504-01:

> "*The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area.*"

It also seeks to outline measures to optimise climate action and other ecosystem services benefits, mainly through hydrological management.

This plan is a specific rehabilitation plan for the bog and outlines:

- Description of site management and status.
- Main issues and approaches to rehabilitation.
- Consultation to date with interested parties.
- Interaction with other policy and legislative frameworks (Appendix VI).
- The planned rehabilitation goals and outcomes.
- The scope of the rehabilitation plan.
- Criteria which define the successful rehabilitation and key targets to validate rehabilitation.
- Proposed rehabilitation actions.
- Proposed timeframe to implement these measures.
- Budget and Costings.
- Associated aftercare, maintenance, and monitoring.

Note: This plan should be read in conjunction with the accompanying Map book.

It is proposed by Government that Bord na Móna carry out a Peatlands Enhanced Decommissioning, Rehabilitation and Restoration Scheme on its peatlands. Note this proposal is also known colloquially as the 'Peatlands Climate Action Scheme' (PCAS, www.bnmpcas.ie) and also as the Enhanced Decommissioning, Restoration and Rehabilitation Scheme (EDRRS) The additional costs of the Scheme will be supported by Government through the Climate Action Fund, and Ireland's National Recovery and Resilience Plan administered by the Department of Environment, Climate and Communications (DECC), while the National Parks and Wildlife Service (NPWS) acts as the Scheme regulator. Bord na Móna have previously identified a footprint of 33,000 ha as peatlands suitable for this scheme. This Scheme will significantly go beyond what is required to meet rehabilitation and decommissioning obligations (Appendix VII & IX) under existing EPA IPC licence conditions. Improvements supported by the Scheme will ensure that environmental stabilisation is achieved (meaning IPC obligations are met), and importantly, significant additional benefits, particularly relating to climate action and other ecosystem services, will also be delivered. The Scheme commenced in 2021.

Only the costs associated with the additional, enhanced, and accelerated rehabilitation, i.e. those measures which go beyond the existing decommissioning and rehabilitation requirements arising from Condition 10, will be

eligible for support under the Scheme. Bord na Móna announced the complete cessation of industrial peat production across its estate in January 2021.

It is expected that the Scheme (PCAS) will have benefits accruing from biodiversity provision, water quality and storage attenuation as well as increased carbon storage, reduced carbon emissions and acceleration towards carbon sequestration. The Scheme will also facilitate monitoring of carbon fluxes (Greenhouse Gases and fluvial carbon) in selected areas (in addition to other established Research programmes), to monitor changes in where the interventions will accelerate the trajectory towards a naturally functioning peatland ecosystem.

It is envisaged that the Rehabilitation Scheme will support activities, interventions, or measures across the Bord na Móna cutaway peatlands, which accelerate the original timelines. Selected rehabilitation measures will take account of site environmental conditions, which can vary significantly. These measures potentially include:

- more intensive management of water levels through pump management, drain-blocking and cell bunding,
- re-profiling that will deliver suitable conditions for development of wetlands, fens and bog habitats,
- targeted fertiliser applications, and
- seeding of targeted vegetation.

These are collectively designed to optimise hydrological conditions (ideally and where possible water-levels =/- 10 cm at peat surface) for climate action benefits and to accelerate the trajectory of the site towards a naturally functioning ecosystem, and eventually a reduced carbon source/carbon sink again. In some areas of dry cutaway this trajectory will be significantly longer, and it is not feasible in the short-term to re-wet some areas. These areas will develop other habitats. The key to optimising climate action benefits is the restoration of suitable hydrological conditions and more intensive intervention means that the extent of suitable hydrological conditions can be optimised.

These measures are designed to encourage the development of peat-forming habitats, where possible. They are also designed to further slow the movement of water across the site (with the site acting similarly to a constructed wetland), slowing the release of water (improving local water attenuation) and water quality is also expected to improve as the site returns to a naturally functioning peatland ecosystem. It is anticipated that the combination of active enhanced rehabilitation measures and natural colonisation will quickly accelerate environmental stabilisation. Nevertheless, it will still take some time (30-50 years) for naturally functioning wetland and peatland ecosystems to fully re-establish.

The measures will also accelerate the development of new habitats for a range of species under pressure in the wider landscape and will have the potential to develop habitats (e.g. Annex I raised bog, wetlands that support wader water birds of conservation interest) that will contribute towards the delivery of national biodiversity objectives.

Moher Bog is proposed to be part of this Scheme (PCAS) and this rehabilitation plan outlines the approach to be taken.

1.1 Constraints and Limitations

This document covers the area of **Moher Bog** shown in Drawing number **BNM-DR-26-02-RP-01**[1].

[1] Cutaway Bog Decommissioning and Rehabilitation Plan – Moher Bog Map Book

The parts of Moher Bog (within the areas owned and under the control of Bord na Móna) that are currently used by domestic turf cutters to harvest peat are ecologically and hydrologically linked to the area owned by Bord na Móna where rehabilitation is planned. Nevertheless, Bord na Móna are aware of such issues which may constrain the proposed rehabilitation actions, and this rehabilitation plan considered potential impacts of turf cutting on the delivery of the stated objectives.

Rehabilitation in other areas of the bog may also be constrained due to other property issues or archaeological features. There are no known archaeological features present at Moher Bog which would constrain PCAS activities.

2. METHODOLOGY

This rehabilitation plan was developed with a combination of desktop and field surveys, consultations with internal and external stakeholders and cognisance of the Scheme (PCAS). The development of this rehabilitation plan considered recently published guidance issued by the EPA, '*Guidance on the Process of Preparing and Implementing a Bog Rehabilitation Plan' (EPA, 2020)*.

The ecological information and site information collected during the Bord na Móna ecological baseline survey, additional confirmatory site visits (covering the period 2011 to 2024 inclusive) and monitoring and desktop analysis forms the basis for the development of the rehabilitation plan for the bog, along with:

- Experience of 40 years of research on the after-use development and rehabilitation of the Bord na Móna cutaway bogs (Clarke, 2010; Bord na Móna, 2016);
- Significant international engagement during this period with other counties in relation to best practice regarding peatland rehabilitation and after-use through the International Peat Society and the Society for Ecological Restoration (Joosten & Clarke, 2002; Clarke & Rieley, 2010; Gann *et al*., 2019);
- Consultation and engagement with internal and external stakeholders;
- GIS Mapping;
- Bord na Móna drainage surveys;
- Bog topography and LIDAR data;
- Previous research studies on site;
- Hydrological modelling; and
- The development of a Methodology Paper outlining the Scheme (PCAS). This rehabilitation includes enhanced measures defined in the Methodology Paper which are designed to exceed the standard stabilisation requirements as defined by the IPC Licence and to enhance the ecosystem services of Moher Bog, in particular, optimising climate action benefits.

2.1 Desk Study

The desk study involved collecting all relevant environmental and ecological data for the study area. The development of the rehabilitation plan also takes account of research, experience and engagement with other peatland restoration and rehabilitation projects and peatland research including Irish, UK, European and International best practice guidance (full citations are in the References Section):

- Anderson *et al*. (2017). An overview of the progress and challenges of peatland restoration in Western Europe.

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- Thom (2019). Conserving Bogs – Management Handbook.
- Wheeler & Shaw (1995). Restoration of Damaged Peatlands – with Particular Reference to Lowland Raised Bogs Affected by Peat Extraction.
- Wittram *et al*. (2015). A Practitioners Guide to Sphagnum Reintroduction. Moors for the Future Partnership.

Additional on-line resources were also incorporated into the desk study, including:

- Mountdillon Integrated Pollution Control Licence;
- Mountdillon Annual Environmental Reports;
- Review of the National Biodiversity Data Centre (NBDC) webmapper;

- Inland Fisheries Ireland (IFI) Reports;
- Environmental Protection Agency database (www.epa.ie);
- EPA Guidance on Requests for Alterations to a Licensed Industrial or Waste Activity;
- Birdwatch Ireland online data (including I-WeBS and CBS datasets; www.birdwatchireland.ie);
- Geological Survey of Ireland - National Draft Bedrock Aquifer map;
- Geological Survey of Ireland - Groundwater Database (www.gsi.ie);
- Historic Environment Viewer at https://webgis.archaeology.ie/historicenvironment/
- National Parks & Wildlife Services Public Map Viewer (www.npws.ie);
- Water Framework Directive catchments.ie/maps/ Map Viewer (www.catchments.ie);
- OPW Indicative Flood Maps (www.floodmaps.ie);
- CFRAM Preliminary Flood Risk Assessment (PFRA) maps (www.cfram.ie);
- River Basin Management Plan for Ireland 2022-2027;
- Bord na Móna Annual Report 2021 – 2024;
- Spatial data in respect of Article 17 reporting, available online at https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17.

2.2 Consultation

A number of stakeholders have been identified during the course of Bord na Móna's rehabilitation and Biodiversity Action Plan activities and are contacted during the rehabilitation planning process for their views. See Section 4.

2.3 Field Surveys

Bord na Móna carried out a baseline ecological survey of all of its properties in 2009-2012 and developed habitat maps. As part of this exercise, Moher Bog was surveyed in Augst 2012. Habitat maps were updated in 2017. A survey also took place in October 2024, in advance of the preparation of this rehabilitation plan. Habitat maps have been updated, where required. This rehabilitation plan is informed by the original baseline survey as well as subsequent confirmatory site walk-over surveys and visits, and updates to baseline data.

Habitat mapping followed best practice guidance from Smith *et al.* (2011). Map outputs including all habitat maps and target notes were produced using GIS software application packages (ArcGIS). General marginal habitats and other habitats that had not been modified significantly by industrial peat extraction were classified using Fossitt *et al*. (2000). Plant nomenclature for vascular plants follows Stace (2019), while moss and liverwort nomenclature follow identification keys published by the British Bryological Society (2010). A more detailed Bord na Móna classification system was previously developed for classifying pioneer cutaway habitats as Fossitt categories were deemed not to be detailed enough for cutaway bog (much of cutaway bog could be classified as Cutover Bog - PB4). Much of the pioneer cutaway vegetation is still at an early stage of its development and cannot be assigned to Fossitt Level 3 categories yet.

A detailed ecological survey report for Moher Bog is contained in Appendix III.

3. SITE DESCRIPTION

Moher Bog is located approximately 2.6km to the west of Lanesborough in County Roscommon. The PCAS extent of the site is located within two main blocks. Cloontuskert and Erenagh Bog are located immediately to the northeast of the site. It is part of the Mountdillon group (Lough Ree sub-group) of bogs. Moher Bog is one of a cluster of bogs that has developed along the floodplains of the River Shannon. The total combined area of the rehabilitation footprint of the bog is 265ha.

Cloontuskert Bog (one sub-section) is a sub-site of Moher Bog (which contains three large sub-sections) and is dealt with a separate specific rehabilitation plan. The remaining two sub-sections of Moher bog are dealt with in this specific rehabilitation plan.

Adjacent habitats to the site included wet grassland, improved agricultural grassland, raised bog, scrub, Birch woodland and conifer plantation. There is also some cutover bog, some of which is being used for current turf cutting. The greater surrounding landscape is dominated by a mosaic of farmland, largely consisting of improved grassland, conifer plantation and other bogs, some owned and managed by Bord na Móna. A local road runs between the centre of the two bog blocks providing access. Areas of improved grassland are located either side of this road separating the bog blocks.

No EPA listed watercourses are located within the Moher Bog site boundary. The Keelcurragh (EPA Code: 26K67), Kilnacloghy (EPA Code: 26K73) and Moher 26 (EPA Code: 26M53) order 1 streams flow in a southerly direction outside the western and southern boundary of Moher Bog. These watercourses flow in a south easterly direction outside bog boundary, discharging directly into Lough Ree. The Gortgallan (EPA Code: 26G47) flows along the northeast boundary, eventually discharging to the River Shannon and Lough Ree. Lough Ree is located less than 1km to the southeast of the site. Moher Bog has a partially pump-based drainage system.

The majority of the site is dominated by bare peat, but it is developing pioneer vegetation in areas. Pioneer vegetation exists predominantly along the site margins, with some banks showing more central revegetation in both blocks. Moher Bog has a pumped drainage regime.

Bord na Móna propose to rehabilitate Moher Bog in 2025. See Drawing number **BNM-DR-26-02-RP-01: Site Location**, included in the accompanying Mapbook, which illustrates the location of Moher Bog in context to the surrounding area.

3.1 Status and Situation

3.1.1 Site history

Moher Bog was used to supply fuel peat in Lough Ree Power in Lanesborough, Co. Longford. Moher Bog was in industrial peat production from 1985 to 2021.

3.1.2 Current land-use

Industrial peat extraction has now completely ceased. The majority of the Moher Bog former production area is bare peat.

Moher Bog has a pumped and gravity drainage regime. Pumping is ongoing.

Moher Bog has some remaining peat stockpiles in the southern section. The peat stock on the bog will be subject to decommissioning as part of the rehabilitation measures. This process is described fully in Appendix XIV. In

summary, the remaining stockpiles will be reduced in height and reprofiled, with the material deposited into the adjoining pile field drains that will have been previously subject to drain blocking.

Sections of intact raised bog are present along the margins of the site; however, these areas are drying out and are for the most part subject to domestic turf cutting. Some areas have also been constrained from the rehabilitation plan due to landownership considerations that are being investigated.

A network of railway lines occurs in Moher. It is anticipated that the rail lines will be decommissioned shortly.

3.1.3. Socio-Economic conditions

Bord na Móna has historically been a vital employer for the rural communities in the Irish Midlands. Bord na Móna compiled a report on the role of peat extraction in the midlands historically in which they report that in 1986, by the end of Bord na Móna's Third Development Programme, a total of twenty-three work locations had been established around the country. The company had an average employment of approximately 4,688 in the mid 1980's, with a peak employment of 6,100 during the production season, which placed it among the country's largest commercial employers. The importance of such levels of employment were largely due to its regional concentration in the Midlands and the lack of alternative employment opportunities in these areas at the time.

According to the Energy Crop Socio-Economic Study undertaken by Fitzpatrick Associates in 2011, there were an estimated 1,443 jobs supported by the peat-to-power industry in Ireland at the time, some 81% of which were located in the catchment areas of the three peat-fired generating stations (Lough Ree, West Offaly, and Edenderry Power Stations). These constituted jobs in the plants and in peat extraction, jobs indirectly supported in upstream supply industries and jobs induced through the trickle-down effects of the wages and salaries of those supported directly or indirectly. These job numbers have now declined with the cessation of peat extraction.

In respect of Moher Bog, jobs included in the above study would have included those to facilitate extraction of peat at this site and associated processing and transfer to Lough Ree power station.

As the primary employer in many Midland counties, Bord na Móna played a central role in building communities through several initiatives, including development and construction of local housing complexes, education bursaries, support of local sporting clubs, the provision of community gain funds, charity programmes and the provision and building of amenity areas.

Employment numbers have now declined following the cessation of peat extraction at this bog. It is anticipated that the scheme (PCAS) will provide some employment for a team of workers at this site for a period of time (> 1 year).

There are approximately 1400 people working in Bord na Móna at present, with approximately 135 roles directly involved in PCAS.

3.2 Geology and Peat Depths

3.2.1 Sub-soil geology

Quaternary Sediment maps show Moher underlain by peat, yet surrounded by inorganic deposits, predominantly till derived from Lower Palaeozoic sandstones and till derived from limestones and shales to the south bog. The bog is under laid with a mix of gravel and marl.

GSI bedrock geology data indicates that Moher Bog is primarily underlain by undifferentiated Visean limestone, with a small area of the northern lobe underlain by Argillaceous limestone composed of dark limestone and shale, and chert.

The Visean limestone unit that underlies most of the bog is classified as a regionally important aquifer (Rkc) as it is subject to karstification (conduit). The small segment of bog underlain by the argillaceous limestone bedrock unit is classified as a locally important aquifers (Ll) as it is moderately productive only in local zones.

There are no mapped karst features in close proximity to the bog, with the nearest karst feature mapped by the GSI occurring c. 2.5km south of the bog (enclosed depression).

There are records of two wells used for agricultural and domestic use within 1km of the bog, both situated within 1km of the northwestern boundary of the bog. One of the boreholes extends to a depth of 33.5m with no information on the depth to bedrock and was classified as having a poor yield at 16.4m3/day. A more recent borehole, drilled in 1971, extends to 32.9m and indicated that bedrock was encountered at a depth of 24.4m suggesting the presence of relatively thick quaternary deposits.

Quaternary sediment maps show Moher as cutover peat, yet surrounded by inorganic deposits, including till derived from lower Palaeozoic sandstones and shales surrounding most of the bog and a small area of limestone till occurring to the south-east of the southern lobe.

Groundwater vulnerability for the site is generally classified as low, while vulnerability increases to moderate before being mapped as high vulnerability further from the margins. A small area approximately 400m west of the bog has been identified where bedrock or karst is mapped close to the surface, therefore its vulnerability is classed as extreme.

Subsoil permeability across the bog is mapped as being low by the GSI with an estimated recharge rate of 23-24mm/year across the bog.

3.2.2 *Peat type and depths*

Peat depths have been mapped across the bog using GPR and are provided in Drawing **BNM-DR-26-02-RP-04: Peat Depths**. The northern lobe of Moher has relatively deep peat deposits remaining (typically 3 – 5m across most of the bog) with no significant area where peat depth is less than 1.5m. In contrast the peat depths across the southern lobe of Moher are much more variable. Peat depths are typically between 1.5m – 4m across most of the bog, with the deepest peat found along the southern boundary of this lobe and in the centre of the lobe. However, there are shallow deposits (<1.5m) along the eastern and north-western boundary of the southern lobe.

3.3 Key Biodiversity Features of Interest

The majority of Moher Bog comprises a mosaic of bare peat along with developing cutaway pioneer habitats.

3.3.1 Current habitats

The most common vegetation communities/habitats[2] present in the former production areas at Moher include (Codes refer Bord na Móna classification of pioneer habitats of production bog. See Appendix III):

- Bare peat (0-70% cover) (BP);
- Pioneer open habitats dominated with Soft Rush (*Juncus effusus*) (pJeff) with less frequent Bog Cotton (*Eriophorum angustifolium*) (pEang)
- Wetlands with Bulrush (*Typha latifolia*) (pTyp) and Horsetail (*Equisetum sp.,*) poor fen (pEang) and open *Betula*-dominated community (oBir)
- Purple Moore Grass (*Molinia caerulea*) community (gMol) dominated grassland
- Pioneer open habitats and scrub with Soft Rush and Bog Cotton (pEang and pJeff) and Birch scrub (oBir)
- Woodland and Scrub dominated by Birch (oBir) and closed *Betula*-dominated community (cBir) with Willow, Bracken (*Pteridium aquilinum*) dense *Pteridum* (dPter) and Bramble (*Rubus fructicosus*)

The most common habitats found around the margins include (Codes refer to Heritage Council habitat classification, Fossitt (2000), See Appendix II):

- Raised bog (PB1)
- Cutover Bog (PB4)
- Scrub (WS1)
- Wet grassland (GS4)
- Birch woodland (WN7)
- Dense Bracken (HD1);
- Improved grassland (GA1) around the boundary extending into adjacent fields.

See Drawing number **BNM-DR-26-02-RP-17 titled Moher Bog: Current Habitat Map**, included in the accompanying Mapbook, which illustrates the habitats at Moher Bog. See also Table 1 for photographic plates of habitats (taken in 2024).

[2] Codes refer Bord na Móna classification of pioneer habitats of production bog

Photos of Habitats at Moher (2024)

Arial view of the northern block of Moher bog.

Arial view of the southern block of Moher bog.

Area of turbary/domestic turf cutting in the northeast of the southern block of Moher bog.

Bare peat present in Moher southern block (dominant habitat).

Photos of Habitats at Moher (2024)	
	
Pioneer open habitats dominated by Juncus effusus and Eriophorum angustifolium in the southern block of the Bog.	*Wetlands in the eastern side of the southern block.*
	
Wetlands along south-eastern side of site.	*Pioneer open habitats and scrub.*
	
Woodland in south-eastern area of Southern block.	

Table 1: Photos of Habitats at Moher Bog (October 2024).

3.3.2 Species of conservation interest

A number of species of conservation concern utilise the habitats available at Moher Bog. The following is a summary of the records of these species available within both Bord na Móna and Nation Biodiversity Data Centre (NBDC) records.

- Mammal species recorded as part of Bord na Móna surveys on or in close proximity to the bog include Otter (*Lutra lutra*), Badger (*Meles meles*), Fox (*Vulpes vulpes*), Pine Marten (*Martes martes*) and Hare (*Lepus europaeus*).
- Bird species of conservation interest recorded from the bog include the BOCCI[3] red listed Snipe (*Gallinago gallinago*). No bird species of conservation concern were returned from the NBDC desk study.

Peatland rehabilitation may result in positive quality effects on the relative abundance or proportion of species of conservation concern utilising bogs post rehabilitation. This may include Red or Amber listed species of breeding waders along with wintering species including Swans and other wildfowl[4].

3.3.3 Invasive species

There are no Bord na Móna records for high impact invasive species recorded from the bog.

A broad range of common garden escapes are occasionally present around the margins of Bord na Móna bogs, and although spatial overlap with the PCAS is expected to be limited, these are, where necessary, to be treated in line with best practice during PCAS activities.

3.4 Statutory Nature Conservation Designations

There are a number of European Sites in close proximity (i.e. within a 5km radius at minimum) to Moher Bog.

Lough Ree SAC (site code: 000440) is located approximately 0.74km to the southeast of the site and is designated for Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation [3150], Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) [6210], Active raised bogs [7110], Degraded raised bogs still capable of natural regeneration [7120], Alkaline fens [7230], Limestone pavements [8240], Bog woodland [91D0], Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* [91E0] and *Lutra lutra* (Otter) [1355].

Lough Ree SPA (site code: 004064) is located approximately 0.80km to the southeast of the site. This SPA is designated for Little Grebe (*Tachybaptus ruficollis*) [A004], Whooper Swan (*Cygnus cygnus*) [A038], Wigeon (*Anas penelope*) [A050], Teal (*Anas crecca*) [A052], Mallard (*Anas platyrhynchos*) [A053], Shoveler (*Anas clypeata*) [A056], Tufted Duck (*Aythya fuligula*) [A061], Common Scoter (*Melanitta nigra*) [A065], Goldeneye (*Bucephala clangula*) [A067], Coot (*Fulica atra*) [A125], Golden Plover (*Pluvialis apricaria*) [A140], Lapwing (*Vanellus vanellus*) [A142], Common Tern (*Sterna hirundo*) [A193] and Wetland and Waterbirds [A999].

[3] https://birdwatchireland.ie/app/uploads/2021/04/BOCCI4-leaflet-2-1.pdf

[4] https://www.bnmpcas.ie/wp-content/uploads/sites/18/2023/08/Annual-Monitoring-Report_Final-Rev-A_Redacted.pdf

A number of NHA's (Natural Heritage Areas) and pNHA's (Proposed Natural Heritage Areas) also occur within 5km of Moher Bog including:

- Corbo Bog pNHA (site code: 000602) 0.8km southwest
- Lisnanarriagh Bog NHA (site code: 002072) lies 1.7km southwest
- Derrycanan Bog NHA (site code: 000605) lies 4.6km northwest
- Lough Ree pNHA (site code: 001642) lies 0.8km southeast
- Lough Bannow pNHA (site code: 000608) lies 4.3km southeast

3.4.1 Other Nature Conservation Designations

The Ramsar Convention entered into force in Ireland on 15th March 1985. Ireland currently has 45 sites/wetlands designated as Wetlands of International Importance (Ramsar Sites). These cover a surface area of 66,994ha.

There are no Ramsar sites in close proximity to Moher Bog.

3.5 Hydrology and Hydrogeology

Moher forms part of the Upper Shannon Catchment as defined by the EPA under the Water Framework Directive (WFD). Most of the bog is situated within the Clooneigh_SC_010 sub-catchment; however, a small portion of the northern lobe falls within the Shannon[Upper]_SC_070 sub catchment. The bog is primarily situated within the KEELCURRAGH_010 WFD sub basin which flows to the southeast via the Moher, Kilnacloghy and Keelcurragh streams. The northwestern corner of the northern lobe is situated within the GORTGALLAN_010 WFD sub basin which flows to the River Shannon to the east via the Gortgallan stream.

The bog contains several drainage pathways and discharge locations, with most of the bog discharging to rivers, via silt ponds, which eventually flow into Lough Ree. Moher has a gravity-based (southern block) and pump based (northern block) drainage system. There is one pump that is operational, which will be decommissioned as part of the PCAS works.

Hydrological modelling (**BNM-DR-26-02-RP-09: Depression Analysis**) indicates that parts of the bog are in a natural basin with significant potential for re-wetting, with the assumption that all drains would be blocked. It is likely that a portion of the basins in target areas will re-wet with deeper water, creating a mosaic of wetland habitats, when drains are blocked.

Regional hydrological data suggest that Moher receives average precipitation of 966mm/yr (1981-2010), with an estimated annual effective rainfall rate of 579mm/yr based on GSI data. The GSI also estimate an annual average recharge rate of 23-24mm/year for Moher. In areas underlain by lacustrine clay, this is anticipated to be a reasonable estimate of recharge rate. However, in areas underlain by more permeable glacial material this is likely to be an underestimate, particularly where there are elevated mounds of glacial till combined with shallow peat deposits. A higher recharge rate is expected in areas where shallow peat underlain by glacial till, which would lead to increased losses of water to depth. In these areas an estimated recharge rate of 50-60mm/yr would be considered a reasonable estimate, with a higher recharge rate expected where peat is shallow (<1m).

Geological Survey of Ireland (GSI) bedrock geology data indicates that Moher Bog is primarily underlain by undifferentiated Visean limestone, with a small area of the northern lobe underlain by argillaceous limestone composed of dark limestone and shale, and chert. The Visean limestone unit that underlies most of the bog is classified as a regionally important aquifer (Rkc) as it is subject to karstification (conduit). The small segment of bog underlain by the argillaceous limestone bedrock unit is classified as a locally important aquifers (LI) as it is

moderately productive only in local zones. There are no mapped karst features in close proximity to the bog, with the nearest karst feature mapped by the GSI occurring c. 2.5km south of the bog (enclosed depression).

An aquifer is an underground body of water-bearing rock or unconsolidated materials (gravel or sand) from which groundwater can be extracted in useful amounts. GSIs Aquifer classes are divided into three main groups based on their resource potential, and further subdivided based on the type of openings through which groundwater flows. There are nine aquifer categories in total. Locally important aquifers are capable of supplying locally important abstractions (e.g. smaller public water supplies, group schemes), or good yields (100-400 m3/d). This data gives an indication of sub-surface deposits (bedrock and unconsolidated materials) in terms of their groundwater resource potential and dominant groundwater flow type.

Regionally important aquifers are those in which the network of fractures, fissures and joints, through which groundwater flows, is well connected and widely dispersed, resulting in a relatively even distribution of highly permeable zones. There is good aquifer storage and groundwater flow paths can be up to several kilometres in length. There is likely to be substantial groundwater discharge to surface waters ('baseflow') and large (>2,000 m3/d), dependable springs may be associated with these aquifers.

Groundwater vulnerability for the site is generally classified as low, while vulnerability increases to moderate before being mapped as high vulnerability further from the margins. A small area approximately 400m west of the bog has been identified where bedrock or karst is mapped close to the surface, therefore its vulnerability is classed as extreme. Subsoil permeability across the bog is mapped as being low by the GSI with an estimated recharge rate of 23-24mm/year across the bog.

Groundwater vulnerability maps are based on the type and thicknesses of subsoils (sands, gravels, glacial tills (or boulder clays), peat, lake and alluvial silts and clays), and the presence of karst features. Groundwater is most at risk where the subsoils are absent or thin and, in areas of karstic limestone, where surface streams sink underground at swallow holes. These data indicate there is generally low risk of any groundwater contamination occurring at this site. Groundwater Vulnerability is typically used to indicate the susceptibility to groundwater pollution.

3.6 Emissions to surface-water and watercourses

Moher Bog has 7 treated surface water outlets from a previously active peat extraction catchments, all which discharge to the Gortgallan River (IE_SH_26G470700 GORTGALLAN_010), the River Shannon Upper (IE_SH_26S021600 SHANNON (Upper)_100) and the Keelcurragh River (IE_SH_26K670950 KEELCURRAGH_010).

The Gortgallan River and the Keelcurragh River are both classed as Moderate water quality status with the downstream Shannon Upper at Poor Status (Ecological Status or Potential SW 2016-2021) – Water Framework Directive.

The locations of silt ponds, associated surface water emission points and those being monitored and sampled as part of the PCAS scheme are detailed on the attached water quality map (**BNM-DR-26-06-13: General Drainage Map**).

There is a robust monitoring program to track and verify any changes in baseline water quality conditions pre and post decommissioning and rehabilitation so that the success or otherwise can be tracked and verified for the National Parks & Wildlife Service, Environmental Protection Agency, and Local Authority Water Program, amongst a range of stakeholders.

Peat extraction is identified as a pressure in the third cycle of the river basin management plan (Water Action Plan for Ireland) in the lower reaches of the Shannon (Upper) 100.

The main emission limit value (ELV) associated with this bog is 35mg/l suspended solids, with trigger levels for ammonia of 1.42mg/l and COD 100mg/l.

From an analysis of any results over number of years of the IPC licence environmental monitoring of some of the discharges from this bog, these indicate that results were under the Emission Limit Value for Suspended Solids 96% of the period, same level of compliance for COD and under the trigger level for Ammonia.

Ammonia averaged 0.245mg/l and ranged from 0.017 to 1.44mg/l with Suspended Solids ranging from 2 to 32 mg/l and averaging 4.9mg/l.

Table 3.1 Decommissioning and Rehabilitation Programme Water Quality Monitoring.

Bog	SW	Monitoring	pH	SS mg/l	TS mg/l	Ammonia mg/l	TP mg/l	COD mg/l	Colour
Moher	SW-31	Q4 14	7.5	49	328	1.6	0.05	78	60
Moher	SW-32	Q1 15	7.1	5	239	0.12	0.05	86	224
Moher	SW-31	Q2 18	7.7	5	220	0.21	0.05	61	231
Moher	SW-32	Q2 18	No Flow	-	-	-	-	-	-
Moher	SW-31	Q4 20	6.9	2	224	0.576	0.05	81	315
Moher	SW-32	Q4 20	7.3	2	229	0.07	0.05	34	109
Moher	SW-31	Q2 23	7.1	2	231	0.192	0.08	103	427
Moher	SW-32	Q2 23	6.6	3	152	0.015	0.06	103	318

Rehabilitation of cutaway peatland is closely linked with control of emissions. One of the criteria for successful rehabilitation is stabilisation through re-vegetation, which will stabilise all substrates and in turn remove the need for further silt control measures. This site is already vegetated in some areas. Re-wetted peat also aids the primary objective of stabilizing peat, as when peat is re-wetted it is not vulnerable to wind erosion. Re-wetted peat and the development of wet peatland habitats can also act as sinks for silt and mobile peat, and increases additional retention time for solids, and the peatland vegetation can quickly stabilise this material within blocked drains on site (by acting like constructed wetlands).

Water quality of water discharges from restored peatlands normally improves as a result of bog restoration measures and the restoration of natural peatland processes (Bonn *et al*., 20017). Bog restoration is also expected to improve water attenuation of the site as the drains are blocked, slowing water movement and water release from the site. Restored peatlands help slow the release of water and aid the natural regulation of floods downstream (Minayeva *et al*., 2017). The National River Basin Management Plan (NRBMP) (DHLGH 2024) is the key national plan for Ireland to achieve the objectives of the Water Framework Directive (WFD). The NRBMP outlines how key actions such as the Bord na Móna peatland rehabilitation is expected to have a positive impact on water quality and help the NRBMP deliver its objectives in relation to the WFD.

Water will still discharge from designated emission points when rehabilitation at Moher has been completed. This discharge will have improved water quality and there will be increased wetland attenuation, meaning slower release of water. This is expected to have a positive impact on status of downstream water bodies. While water quality improvements assist in meeting water frameworks directive ambitions and targets, they can also improve drinking water sources in applicable catchments with drained peatlands and the potential for associated reduction in treatment requirements at drinking water treatment facilities.

Decommissioning and Rehabilitation Programme Water Quality Monitoring.

The licence obligation of quarterly sampling regime on a selected number of ponds to be sampled over a 3-year cycle would not be sufficient to be able to appropriately track the changing water chemistry that will occur as part of this enhanced rehabilitation programme, so this sampling regime will occur monthly.

To assist in monitoring surface water quality from this bog, it was agreed to increase the existing licence monitoring requirements of the IPC Licence, to sampling for the same parameters every month.

This new sampling programme commenced in November 2020 and is enabling a baseline to be established, with sampling to progress during the scheduled works, and for a period of up to 2 years post rehabilitation. Depending on the period required to confirm that the main two parameters, suspended solids, and ammonia as remaining compliant with the licence emission and trigger limit values and there is an improving trajectory in these two parameters i.e., reduction in concentration, the monitoring programme and intensity will be periodically reviewed and amended.

Success criteria:

- The key water quality success criteria associated with this enhanced rehabilitation are as follow:
- That there is a stabilizing/improving concentration of suspended solids and ammonia in discharges from Bord na Móna sites, associated with the measures undertaken to stabilize the peat surface by the blocking of the internal drainage system and the maximized rewetting of the peat surface.
- Receiving water bodies have been classified under the River Basin Management Plan and this classification includes waters that are At Risk from peatlands and peat extraction. The success criteria will be that any At Risk classification will see improvements in the associated pressures from this peatland or if remaining At Risk, that there is an improving trajectory in the pressure from this peatland.

As the monthly monitoring program at Moher Bog continues in 2025 and during the rehabilitation works planned for 2025 further trending will be produced to verify any ongoing trends.

3.7 Fugitive Emissions to air

None.

The bog is no longer in industrial peat production. Rehabilitation of the cutaway peatland will seek to re-wet the dry peat where possible and re-vegetate all areas (whether wet or dry). Collectively, ceasing industrial peat production, re-wetting and re-vegetating will minimise any risk of emission to air from dust.

3.8 Carbon emissions

Irish peatlands are a huge carbon store, containing more than 75% of the national soil organic carbon (Renou-Wilson *et al.* 2012). Peatland drainage and extraction transforms a natural peatland which acts as a modest carbon sink (taking in 0.1 to 1.1 t of carbon as CO2-C /ha/yr) into a cutaway ecosystem which is a large source of carbon dioxide (releasing 1.3 to 2.2 t of carbon as CO2-C /ha/yr) based on Tier 1 Emission factors (Evans *et al*. 2017). Renou-Wilson *et al.* (2018) reported losses of between 0.81 – 1.51 CO2-C /ha/yr from drained peatlands located in Ireland.

Re-wetting of dry peatlands will increase methane emissions (Gunther *et al*. 2020) as a consequence of the anoxic conditions within the peat body that provide a suitable environment for the microbial breakdown of plant litter and root exudates. Tanneberger *et al.* (2021) describes how peatland management has to choose between CO2

emissions from drained peatlands or increased methane (CH4) emissions from rewetted industrial peatlands. However, when radiative effects and atmospheric lifetimes of both GHG gases are considered and modelled, postponing rewetting increases the long-term warming effect of continued CO2 emissions (Gunther *et al*. 2020). This means the increase in methane due to rewetting of dry peatlands is still negated by the CO2 emissions reductions. Further, Wilson *et al.* (2022) confirmed the benefit of rapid rewetting to achieve strong carbon reductions and potentially altering the warming dynamics from warming to cooling depending upon the climate scenario.

It is expected that Moher Bog will become a reduced carbon source following rehabilitation. The potential of any cutaway site to develop as a carbon sink in the longer-term depends on the success of the rehabilitation measures, the extent of development of *Sphagnum*-rich or other peat-forming habitats, the balance of carbon fluxes from different cutaway habitats and future climatic conditions. Much of this bog is expected to develop as regenerating wet deep peat vegetation on deep peat areas, with smaller areas developing wetland habitats on shallow peat with open water, reed swamp and fen habitats with alkaline emission factors. Birch woodland is expected to develop on the drier mounds and along peripheral headlands.

3.9 Current ecological rating

(Following NRA (2009) Evaluation Criteria)

The majority of this site is deemed to be of **Local Importance (lower value)** due to the dominance of bare peat that was previously managed for industrial peat production. A number of semi-natural habitats have established on the site including poor fen, wetlands with reed beds and woodland deemed to be of **Local Importance (higher value)**.

4. CONSULTATION

4.1 Consultation to date

Consultation seeks to engage an audience of relevant stakeholders at both a national and local level. National stakeholders have been identified from varied bog restoration and rehabilitation efforts undertaken by Bord na Móna over the past 40 years, with particular emphasis on engagement with stakeholders during their Biodiversity Action Plan programme, since 2010. National Stakeholders includes relevant government departments and agencies, relevant semi-state bodies, NGOs and other environmentally-focused groups with a national remit.

There has been ongoing consultation about rehabilitation, biodiversity and other general issues over the years about Mountdillon bog group, including Moher Bog, with various stakeholders in relation to:

- General consultation with range of stakeholders at annual Bord na Móna Biodiversity Action Plan review days 2010-2018.
- Feehan, J. (2004) A Long-Lived Wilderness; the future of the north midlands peatland network UCD/NWWPC.
- Lauder, A. & O'Toole L. (2017). Concept development for a landscape-scale Wetland Wilderness Park in the Mid Shannon Region. A report funded by the Heritage Council's Heritage Grant Scheme.
- Foss, P.J., Crushell, P. & Gallagher, M.C. (2017). Counties Longford and Roscommon Wetland Study. Report prepared for Longford and Roscommon County Councils.
- Archaeological Liaison Committee (National Museum of Ireland & Dept of Culture Heritage and the Gaeltacht).
- Midlands & East Regional WFD Operational Committee (River Basin Management Plans).
- Sub-committee on Shannon Flooding Work Programme and Measures (OPW, Waterways Ireland, ESB, LA's, Fisheries Ireland, NPWs etc.).

To inform the current Plan, both national and local stakeholders, including neighbours whose land adjoins Moher Bog and local representatives of national bodies (such as Regional National Parks and Wildlife Service staff) and relevant offices in County Councils (such as the Heritage or Environmental Offices) have been contacted. Any identified local interest groups have been sought and informed of the opportunity to engage with this rehabilitation plan, and when identified, invited to submit their comments or observations in relation to the proposed rehabilitation at Moher Bog or the programme in general (see Appendix XI).

All correspondence received has been acknowledged and reviewed and evaluated against the rehabilitation work proposed.

4.2 Issues raised by Consultees

N/A. Not issued to consultees yet.

4.3 Bord na Móna response to issues raised during consultation

N/A.

5. REHABILITATION GOALS AND OUTCOMES

The rehabilitation goals and outcomes outline what Bord na Móna want to achieve by implementing the rehabilitation. These include:

- Meeting conditions of IPC Licence.
- Stabilisation or reduction in water quality parameters of water discharging from the site (e.g. suspended solids).
- Reducing pressure on receiving waterbodies that have been classified as *At Risk* from peatlands and from peat extraction, via stabilization or improving water-quality from this bog, and therefore, reducing pressures.
- Optimising hydrological conditions for **climate action benefits as part of PCAS**.
- Optimising hydrological conditions for the development of reed swamp and fen on shallow more alkaline peat and other subsoils, or *Sphagnum*-rich regenerating wet deep peat vegetation communities on deep residual peat.
- The main goal and outcome of this plan is the successful rehabilitation (environmental stabilisation) of peatlands used for industrial peat production at the bog in a manner that is acceptable to both external stakeholders and to Bord na Móna and which optimise climate action and other ecosystem service benefits.

The rehabilitation goals and outcomes take account of the following issues.

- It will take some time for stable naturally functioning habitats to fully develop at Moher Bog. This will happen over a longer timeframe than the implementation of this rehabilitation plan.
- Re-wetting residual peat will initially maintain and enhance the carbon storage capacity of the bog. There is scientific consensus that restoration of hydrology in damaged bog can improve carbon storage, water storage and attenuation and help support biodiversity both on the site and in the catchment (See Section 3.8). This will reduce carbon emissions from the site from a larger carbon source to a smaller carbon source. In time, the site has the capacity to develop in part as a carbon sink. PCAS is expected to deliver significant contributions to Ireland's climate action.
- It is not expected that the cutover bog in the former production area has the potential to develop active raised bog (ARB) analogous to the priority EU Habitats Directive Annex I habitat within the foreseeable future (c.50 years). A large part of the bog contains residual deep peat and has potential to develop *Sphagnum*-rich habitats in this timeframe. Nevertheless, re-wetting across the entire bog, as part of the Scheme, will improve habitat conditions of the whole bog. Other peatland habitats will develop in a wider mosaic that reflects underlying conditions.
- Rehabilitating former industrial peat production bog will also in the longer-term support other ecosystem services such as such the development of new habitat to support biodiversity and local attenuation of water flows from the bog.
- Moher Bog has several pumps and a partially pumped drainage regime. Removing these pumps will have a significant impact on hydrological management and wetland development across the site. Wetland and typical cutaway habitats have already developed across the south-eastern part of Moher.
- WFD status in receiving water bodies can be affected by peatlands and peat extraction but is also affected by other sources such as agriculture. In addition, receiving water bodies that are assessed as At Risk from peatlands and from peat extraction are likely to have several contributary sources of impacts (private

peat extraction and Bord na Móna). Reducing pressures due to former peat extraction activities at Moher Bog will contribute to stabilising or improving water quality status of receiving water bodies in general. Ultimately, improving the WFD status of the receiving water body will depend on reducing pressure from a range of different sources, including peatlands in general (private and Bord na Móna).

- Re-wetting in general will benefit the future preservation of most known and unknown archaeological features. An Archaeological Impact Assessment (AIA) is to be carried out under the PCAS scheme.

6. SCOPE OF REHABILITATION

The principal scope of this enhanced rehabilitation plan is to rehabilitate the bog. This is defined by:

- The area of Moher Bog within the PCAS rehabilitation footprint.
- EPA IPC Licence - Ref. P0504-01. As part of Condition 10.2 of this license, a rehabilitation plan must be prepared for permanent rehabilitation of the boglands within the licensed area.
- The Scheme is designed to exceed the stabilisation requirements as defined by the IPC Licence. This scheme is designed to enhance the ecosystem services of Moher Bog, in particular, optimising **climate action benefits**. The proposed interventions will mean that environmental stabilization is achieved (meaning IPC obligations are met) and, in addition, significant other ecosystem service benefits particularly for climate action will be accrued.
- Much of the site has deep peat reserves remaining, with some pockets of shallow peat. The local environmental conditions of Moher Bog mean that a combination of dry cutaway measures and wetland creation are the most suitable rehabilitation approach for shallow peat areas. While the majority of the bog will be subject to deep peat measures.
- Bord na Móna have defined the key goal and outcome of rehabilitation at Moher as **environmental stabilisation** of the site via **optimising climate action benefits, where possible**. The re-wetting of residual deep peat will be optimised, **setting the site on a trajectory towards the development of peat-forming communities on residual deep peat, where possible.** While the shallow peat in the cutaway will be optimised **towards the development of wetlands/Reed Swamp and fen.**
- Rehabilitation of Moher Bog will support multiple national strategies of climate action, biodiversity action and other key environmental strategies such was the Water Framework Directive.
- The time frame for the delivery of the planned rehabilitation will be undertaken according to available resources and appropriate constraints.

6.1 Key constraints

- **Bog conditions.** Rehabilitation outcomes of sites are constrained by the environmental characteristics of these particular areas. For example, there is potential for raised bog restoration at some sites where there has not been significant industrial peat extraction and the peat body is largely intact (deep peat sites that are drained). At other sites, most of the peat mass has been removed, the environmental characteristics of these areas have therefore changed radically (peat depths, hydrology, water chemistry, substrate type, nutrient status, etc.) and there will therefore be different habitat outcomes (wetlands, fen, heathland, grassland and Birch woodland).
- The majority of Moher is residual deep peat and is likely to develop Sphagnum-rich embryonic bog vegetation communities in time. Areas of cutaway with shallow residual peat will develop wetland habitats (fen, wetland, reed swamp) in response to re-wetting. Dry cutaway habitats (birch woodland, scrub and heath) are the most likely habitats to develop in more elevated areas such as headlands and ridges.
- **Surrounding landscape and neighbours.** Another key constraint is the interaction between the Bord na Móna sites and the surrounding landscape. Care has to be taken that no active rehabilitation management is carried out that could negatively and knowingly impact on surrounding land. This includes any hydrological management on neighbouring farmland. It is anticipated that the work proposed here (blocking drains and re-wetting cutaway peatlands) will not have any flooding impacts on adjacent land.

- **Archaeology**. The discovery of monuments or archaeological objects during peatland rehabilitation may potentially constrain the rehabilitation measures proposed for a particular area. The rehabilitation will optimise hydrological conditions for the protection of exposed archaeological structures, their retention in situ and preservation into the future. Any newly discovered archaeology may require rehabilitation measures to be reviewed and adapted. An Archaeological Impact Assessment (Appendix XII) will be carried out to mitigate against any impact on archaeology that may be found at Moher Bog. Should any previously unknown archaeological material be uncovered during the rehabilitation works, it will be avoided and reported to the Bord na Móna Archaeological Liaison Officer and the National Museum of Ireland.
- **Public Rights of Way**. There are known rights of way at Moher Bog. Where a public right of way or similar burden exists on Bord na Móna property, consideration will be given to ensuring that these remain intact where possible. In some instances, depending upon previous land uses and management, alternative solutions may be required. These will be explored in consultation with local communities and statutory bodies during the consultation work associated with the decommissioning and rehabilitation work described here.
- **Turf-cutting.** There are areas of active turf cutting northeast around the western margin of the southern block of Moher and in the southern margin of the northern block of Moher, which have been mapped as a constraint.

6.2 Key Assumptions

- It is assumed that Bord na Móna will have all resources required to deliver this project.
- It is expected that weather conditions will be within normal limits over the rehabilitation plan timeframe. Long periods of wet weather have the capacity to significantly affect ground conditions and constrain drain blocking and other ground activities.

6.3 Key Exclusions

The scope of this rehabilitation plan does not cover:

- The area of Cloontuskert Bog. This is dealt with a separate rehabilitation plan.
- Areas subject to turf cutting are excluded.
- The longer-term development of stable naturally functioning habitats at Moher Bog. The plan covers the short-term rehabilitation **actions** and **an additional monitoring and after-care programme** to monitor the rehabilitation and to respond to any needs.
- This plan is not intended to be an after-use or future land-use plan for Moher Bog.
- The longer-term management of this site, potentially as a nature conservation site, or for amenity, or for other uses in the future.

7. CRITERIA FOR SUCCESSFUL REHABILITATION

This section outlines what criteria will be used to indicate successful rehabilitation and what critical success factors are needed to achieve successful rehabilitation. All criteria used to indicate successful rehabilitation will be measured to validate the achievement of the rehabilitation goals and outcomes and validate the completion of the rehabilitation.

The key objective of this enhanced rehabilitation plan is **environmental stabilisation** and the stabilisation of any emissions from the site that related to the former industrial peat extraction activities.

Rehabilitation is generally defined by Bord na Móna as:

- stabilisation of bare peat areas via targeted active management (e.g. drain-blocking/re-wetting) slowing movement of water across the site and encouraging natural colonisation; and
- mitigation of key emissions (e.g. potential run-off of suspended solids).

In addition, Bord na Móna wish to optimise climate action and other ecosystem service benefits via enhanced rehabilitation measures.

7.1 Criteria for successful rehabilitation to meet EPA IPC licence conditions:

- Rewetting of residual peat in the former area of industrial peat production to offset potential silt run off and to encourage and accelerate development of vegetation cover via natural colonisation and reducing the area of bare exposed peat. See Table 7.1 for a summary of the criteria for successful rehabilitation and associated monitoring. The target will be the delivery of measures, and this will be measured by an aerial survey after rehabilitation is completed.
- That there is a stabilizing/improving concentration of suspended solids and ammonia in discharges from Bord na Móna sites, associated with the measures undertaken to stabilize the peat surface by the blocking of the internal drainage system and the maximized rewetting of the peat surface. This will be demonstrated by developing a stable or downward trajectory of water quality indicators (suspended solids and ammonia) towards what would be typical of a re-wetted cutaway bog. This will be measured via water quality monitoring (suspended solids and ammonia) for at least 2 years after the rehabilitation has been completed.
- Receiving water bodies have been classified under the River Basin Management Plan and this classification includes waters that are *At Risk* from peatlands and peat extraction. The success criteria will be that the *At Risk* classification will see improvements in the associated pressures from this peatland or if remaining *At Risk*, that there is an improving trajectory in the pressure from this peatland.

With regard to predicting and estimating likely trends that might materialize or could be considered as a target, monitoring of surface water ammonia emissions from Longfordpass bog in Littleton over 3 years, post cessation of peat extraction with ongoing rehabilitation, were considered. These are indicating a downward trend in Ammonia concentrations.

Similarly monitoring of surface water ammonia emissions from a Corlea bog in Mountdillon over 4 yrs. post cessation of peat extraction with ongoing rehabilitation, indicate downward trends.

As the monthly monitoring program at Moher Bog continues in 2025 and during the rehabilitation works planned for 2025, further trending will be produced to verify any ongoing trends.

Additional criteria for successful rehabilitation to optimise climate action and other ecosystem service benefits:

- Optimising the extent of suitable hydrological conditions to optimise climate action and other ecosystem service benefits (optimising and maximising residual peat re-wetting). This will be measured by an aerial survey after rehabilitation has been completed.
- Accelerating the trajectory of the bog towards becoming a reduced carbon source/carbon sink. This will be measured through habitat mapping and the development of cutaway bog condition assessment. This cutaway bog condition assessment will include assessment of environmental and ecological indicators such as vegetation cover, vegetation communities, presence of key species, *Sphagnum* cover, bare peat cover and water levels (similar to ecotope mapping). Baseline monitoring will be carried after rehabilitation is completed (during the scheme). It is proposed that sites can be monitored against this baseline in the future.
- Reduction in carbon emissions. This will be estimated via a combination of habitat condition assessment and application of appropriate carbon emission factors derived from other sites. Baseline monitoring (habitat condition) will be carried after rehabilitation is completed (during the scheme). It is proposed that sites can be monitored against this baseline in the future.
- Setting the site on a trajectory towards establishment of a mosaic of compatible habitats including *Sphagnum*-rich regenerating wet deep peat vegetation communities, wetland, fen, reed swamp, Heather-dominated bog vegetation, scrub, poor fen, and birch woodland, where conditions are suitable. Some of these habitats have already in part established as pioneer vegetation/wetlands and woodland. It will take some time for stable naturally functioning habitats to fully develop at Moher Bog. This will be demonstrated and measured via aerial photography, habitat mapping and cutaway/habitat condition assessment. Baseline monitoring will be carried after rehabilitation is completed (during the scheme). It is proposed that sites can be monitored against this baseline in the future.
- Improvement in biodiversity and ecosystem services. This will be demonstrated by metrics outlined in Section 9.1 that can be used to measure changes in ecosystem services (e.g. water quality parameters, development of pioneer habitats, breeding bird monitoring). This will be measured by collecting a range of scientific data that can then quickly be adapted and into metrics that can be used to measure changes in various ecosystem services. Baseline monitoring will be carried after rehabilitation is completed (during the scheme). It is proposed that sites can be monitored against this baseline in the future.

Table 7-1 Summary of Success criteria, targets, how various success criteria will be measured and expected timeframes.

Criteria type	Criteria	Target	Measured by	Expected Timeframe
IPC validation	Rewetting in the former area of industrial peat production	Delivery of rehabilitation measures Reduction in bare peat.	Aerial photography after rehabilitation has been completed – to demonstrate measures (drain-blocking) Establishment of a baseline for future monitoring of bare peat, vegetation establishment and habitat condition.	2025-2027
IPC validation	Key water quality parameters Ammonia, Phosphorous, Suspended solids, pH and conductivity	Reduction or stabilisation of key water quality parameters associated with this bog	Water quality monitoring for a period after rehabilitation has been completed	2025-2027
IPC validation	Reducing pressure from peat production on the local water body catchment (WFD)	Where this section of the water body, that this bog drains to, has not been identified as under pressure from peat extraction, that the intervening EPA monitoring programme associated with its Programme of Measures for this water body, confirms that its classification remains at not being at risk from peat extraction associated with activities at this bog.	EPA WFD monitoring programme	WFD schedule
Climate action verification	Optimising the extent of suitable hydrological conditions to optimise climate action	Optimal extent of suitable hydrological conditions	Aerial photography and Habitat mapping to map extent of suitable hydrological conditions. Baseline monitoring to be carried out during the scheme when rehabilitation is complete. Sites can be re-monitored in the future and	2025-2027

Criteria type	Criteria	Target	Measured by	Expected Timeframe
			compared against this baseline.	
Climate action verification	Reduction in carbon emissions.	Reduction in carbon emissions	Carbon emissions – estimated using a bog condition assessment and appropriate carbon emission factors.	2025-2027
Climate action verification	Setting the site on a trajectory towards establishment of a mosaic of compatible habitats	Establishment of compatible cutaway habitats	Habitat map, Cutaway bog condition map Baseline monitoring to be carried out during the scheme when rehabilitation is complete. Sites can be re-monitored in the future and compared against this baseline.	2025-2027

Meeting climate action verification criteria and monitoring of these criteria after the scheme has been completed is dependent on support from the Climate Action Fund or other sources of funding. Note that monitoring and verification of the overall scheme will be stratified – not all these criteria will be measured at each individual site. Baseline monitoring to be carried out during the scheme when rehabilitation is complete. Sites can be re-monitored in the future and compared against this baseline.

7.2. Critical success factors needed to achieve successful rehabilitation as outlined in the plan

The achievement of successful rehabilitation as outlined in the plan requires:

- **Funding to pay for resources required to deliver the planned rehabilitation (Bord na Móna and external).** Bord na Móna maintains a provision on its balance sheet to pay for these future costs when industrial peat extraction ceases. Bord na Móna is fully committed to meeting its obligations relating to rehabilitation and decommissioning under the Integrated Pollution Control Licence. It is expected that additional costs of enhanced rehabilitation will be supported by Government through the Climate Action Fund and Ireland's National Recovery and Resilience Plan.
- **Bord na Móna to have sufficient resources (staff and training) to deliver the planned rehabilitation with required associated skills and competencies.**
- **Bord na Móna to have sufficient resources (suitable machinery) and staff to maintain this machinery.**
- **Weather conditions to be within normal limits over the rehabilitation plan timeframe.** Long periods of wet weather have the capacity to significantly affect ground conditions and constrain the delivery of rehabilitation. The potential impact of wet weather on ground conditions can be reduced by appropriate planning and management. Bord na Móna have significant experience of managing these issues through 70 years of working in these peatland environments.

- **Rehabilitation measures to be effective.** The rehabilitation measures proposed in this plan are based on 40 years of Bord na Móna experience of peatland management and best practice applied internationally in peatland management. Measures proposed in this plan have already been shown to be affective at other sites. Bord na Móna will apply a flexible and adaptable approach to the more innovative rehabilitation measures proposed in this plan**.** If measures are not initially effective, Bord na Móna will review any requirement for additional practical rehabilitation.
- **Natural colonisation of vegetation to develop semi-natural habitats at a rate within the normal limits.** The development of naturally functioning semi-natural habitats on degraded bog takes time. It may take 30-50 years for active raised bog vegetation to re-develop on suitable cutaway that was previously bare peat. However, Bord na Móna experience has demonstrated the effectiveness of these type of measures for re-wetting bog and creating carbon sinks (Renou-Wilson *et al*. 2018).
- Rehabilitation measures have been designed to accelerate and work with natural colonisation and other natural processes. Bord na Móna experience of rehabilitation has shown that re-wetting improves conditions for natural colonisation and that natural colonisation is accelerated where the environmental conditions are most suitable. Rehabilitation measures have been designed to modify the conditions of areas within sites where conditions are less suitable for natural colonisation (modifying hydrology, topography, nutrient status or availability of potential seed sources).
- **Monitoring to be robust and effective.** Rehabilitation Monitoring will be established to validate the success of rehabilitation as required by Condition 10 of the IPC Licence and to verify the benefits of the proposed enhanced measures to optimise climate action. This will focus on a collecting a range of scientific data that can then quickly be adapted and into metrics that can be used to measure changes in various ecosystem services.

8. REHABILITATION ACTIONS AND TIME FRAME

Peatland rehabilitation requires detailed planning and the use of data from desktop surveys and field surveys. This data in association with topographical and hydrological modelling will be important in planning the future peatland landscapes and planning the use of the most appropriate rehabilitation methodologies to maximise climate action benefits. Hydrological modelling indicates those areas that are likely to re-wet when drains are blocked, based on the current topography, and areas where water levels may have to be modified, where needed. Enhanced rehabilitation measures will look to optimise hydrological conditions for re-wetting peat in other areas. This planning is also essential for matching the most sustainable rehabilitation methodology to the most suitable cutaway environment to maximise the benefits of the resource outlay (maximising cost/benefit).

A number of illustrative figures have been produced to inform Rehab Planning and Design, including Aerial Photography, Peat Depths, LiDar Surface Maps, and Depression Analysis modelling; these are included in the accompanying Mapbook as the drawings referenced below:

BNM-DR-26-02-RP-22 titled **Moher Bog: Aerial Imagery 2022**

BNM-DR-26-02-RP-04 titled **Moher Bog: Peat Depths**

BNM-DR-26-02-RP-03 titled **Moher Bog: LiDAR Map**

BNM-DR-26-02-RP-09 titled **Moher Bog: Depression Analysis**

The rehabilitation actions themselves will be a combination of PCAS measures to re-wet peat. The distribution of these measures is provisionally outlined in drawing titled **BNM-DR-26-02-RP-05 Moher Bog: Rehabilitation Measures** in the accompanying Mapbook (note that the actual distribution of these measures may be subject to change in response to stakeholder consultation and refinement of the enhanced rehabilitation measures.)

These enhanced measures for Moher Bog will include (see Table 8.1):

- Re-assessment of the pumping regime and removing pumps if this desired and has no significant external impact. Initial hydrological modelling indicates that a parts of the site will remain as wetland and develop a mosaic of wetland habitats with some permanent deeper water. Hydrological management will look to optimise summer water levels to maximise the development of wetland vegetation (by looking to set water depths at < 0.5 m, where possible. It is inevitable that some sections will naturally have deeper water due to the topography at this site). Water-levels will be adjusted at outfalls and by adjusting piped drainage. More sustainable permanent gravity drainage solutions will be examined. Some targeted bunding may be required. It is expected that a natural seasonal regime of water fluctuation will develop, with water-levels fluctuating in association with levels in the nearby River Shannon. Pumps are expected to be decommissioned and removed at Moher Bog.
- Intensive drain blocking around the existing wetlands or standing water to create/promote the spread of wetland habitats.
- Re-wetting some areas of the bog through regular field drain blocking to create three peat barriers every 100 m along each field drain.
- Re-alignment of piped drainage and creating high level swales to manage water levels and water flows through the site.
- Blocking drains in targeted existing pioneering vegetation mosaics, to accelerate re-wetting, and/or manage water levels.

- The creation of berms across some sections of the bog to control/retain water levels. This measure seeks to retain shallow (< 10 cm) water conditions across multiple fields.
- Targeted fertiliser applications to accelerate vegetation establishment on areas of **bare peat** on headlands and high fields, and within certain areas of dry cutaway. Areas where vegetation has established do not need fertiliser application.
- Deep Peat measures including field re-profiling, on deeper peat; intensive drain blocking (max 7/100 m) and modifying outfalls, and management of water levels with overflow pipes and blocking of internal outfalls.
- Peat field re-profiling to reduce the camber of the fields and cell-bunding between high fields to manage/optimise water levels for revegetation.
- Some small bog remnants around the margins of the bog will be targeted for drain-blocking.
- The existing silt ponds will be retained and maintained during the rehabilitation phase. During the monitoring and verification phase the silt ponds will be continually inspected and maintained, where appropriate. When it is deemed that the silt ponds are not required, as the bog has been successfully stabilised and there is no silt run-off, the condition of the silt ponds will be reviewed. The silt ponds will either be de-watered (water levels lowered to a level where the silt pond will naturally develop as a small wetland feature), left in situ, or infilled (where discharges do not require silt control).
- Inoculation of *Sphagnum* will be considered in the future as part of the Peatlands and People LIFE Project.

Table 8.1: Types of and areas for enhanced rehabilitation measures at Moher Bog. Note that the types of rehab and areas of rehab may change in response to stakeholder consultation and refinement of the enhanced rehabilitation measures.

Type	Rehab Code	Enhanced Rehabilitation Measure	Extent (Ha)
Dry Cutaway	DCT1	Blocking outfalls and managing water levels with overflow pipes	18.35
	DCT2	Regular drain blocking (3/100m), modifying outfalls and managing water levels with overflow pipes and targeted fertiliser treatment.	22.79
Wetland	WLT2	Turn off or reduce pumping to re-wet cutaway + modifying outfalls and managing water levels with overflow pipes + Targeted modifying of outfalls within a site+ targeted fertiliser application	7.86
	WLT4	More intensive drain blocking (max 7/100 m), modifying outfalls and managing overflows, transplanting Reeds and other rhizomes.	22.04
Deep Peat	DPT2	More intensive drain blocking (max 7/100 m) and modifying outfalls and managing overflows	76.12
	DPT3	More intensive drain blocking (max 7/100 m), + field reprofiling + blocking outfalls and managing overflows.	35.38
Marginal land	MLT1	No work required.	26.92
	MLT2	More intensive drain blocking (max7/100 m).	8.94
Additional Work	AW2	Targeted Drain Blocking	19.39

Silt ponds	Silt pond	Silt ponds.	0.72
Constraint	Constraint	Other Constraints (Rights of Way, Turf cutting, Amenity, Archaeology).	26.71
Total			**265.22**

8.1 Completed and ongoing

- A small part of the site is already re-vegetating, with significant cover of pioneer vegetation developing a mosaic of typical cutaway peatland and wetland habitats. Natural re-colonisation of the cutaway so far has been quite effective. Bare peat areas within the cutaway parts of the site are reducing as vegetation develops and consolidates.

8.2 Short-term planning actions (0-1 years)

- Seek formal approval of the enhanced plan, noting the alternative standard plan should funding from the Scheme not materialise from the EPA.
- Agree an *ex ante* budget of eligible costs (based on the approved enhanced plan) with the Scheme regulator.
- Develop a detailed site plan with engineering drawings outlining how the various rehabilitation methodologies (The Scheme PCAS) will be applied to Moher Bog. This will take account of peat depths, topography, drainage, and hydrological modelling. (See map for an indicative view of the application of different rehabilitation methodologies).
- A drainage management assessment of the proposed enhanced rehabilitation measures will be carried out and any issues identified resolved and the rehabilitation plan adapted.
- A review of known archaeology and an archaeological impact appraisal assessment (AIA), of the proposed rehabilitation will be carried out. The results of this assessment will be incorporated into the rehabilitation plan to minimise known archaeological disturbance, where possible.
- A review of issues that may constrain rehabilitation such as known rights of way, turbary and existing land agreements is to be carried out.
- A review of remaining milled peat stocks is to be carried out.
- An ecological appraisal of the potential impacts of the planned rehabilitation on the presence of sensitive ground-nesting bird breeding species (e.g. breeding waders) is to be carried out. The scheduling of rehabilitation operations will be adapted, where required.
- Ensure all activities comply with the environmental protection requirements of the IPC Licence.
- Carry out Appropriate Assessment of the Rehabilitation Plan.
- Track implementation and enforcement of the relevant IPC Licence conditions, the mitigation measures (AA) and other environmental control measures during the implantation of the rehabilitation plan.

8.3 Short-term practical actions (0-2 years)

- Carry out proposed measures as per the detailed site plan. This will include a combination of bunding and drain blocking on deep peat, and fertiliser application targeting bare peat areas of headlands, high fields

and other areas (where required) in addition to wetland creation and management prescriptions. All rehabilitation will be carried out with regard to best practice environmental control measures (Appendix IV).

- Monitor the success of rehabilitation measures in relation to developing suitable hydrological conditions.
- Carry out the proposed monitoring, as outlined.
- While natural colonisation has commenced since peat production ceased, Phase 2 actions will be carried out in targeted areas to accelerate re-vegetation and colonisation of target species. Phase 2 actions may include seeding of targeted vegetation and inoculation of *Sphagnum*.
- Silt ponds will be monitored during this period and there will be continued maintenance and cleaning to prevent potential run-off of suspended solids from the site during the rehabilitation phase.
- Submit an *ex post* report to the Scheme regulator to verify the eligible measures to be carried out in year 1 of the Scheme, and an *ex ante* estimate for year 2 of the Scheme; and so on for each year of the Scheme.

8.4 Long-term (>3 years)

- Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.
- Delivery of a monitoring, aftercare and maintenance programme (See section 10.2 below).
- Decommissioning of silt-ponds will be assessed and carried out, where required.
- Reporting to the EPA will continue until the IPC Licence is surrendered.

8.5 Timeframe

- **2025**: Short-term planning actions.
- **2025-2026**: Short-term practical actions.
- **2026-2027**: Long term practical actions. Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.
- **2028**: Decommission silt-ponds, if necessary.

8.6 Budget and costing

Bord na Móna appreciates the Minister's intention to support Bord na Móna in developing a package of measures, 'the Scheme', for enhanced decommissioning, rehabilitation and restoration of cutaway peatlands referred to as, the Peatlands Climate Action Scheme'. *However, only the additional costs associated with the additional and enhanced rehabilitation, i.e., measures which go beyond the existing standard mandatory decommissioning and rehabilitation requirements arising from Condition 10 will be eligible for support.*

The enhanced decommissioning, rehabilitation and restoration of the peatlands funded by the Scheme will deliver benefits across climate action (GHG mitigation through reduced carbon emissions and acceleration towards carbon sequestration), enrich the State's natural capital, increase eco-system services, strengthen biodiversity, improve water quality and storage attenuation as well as developing the amenity potential of the peatlands.

Bord na Móna maintains a provision on its balance sheet to pay for the future costs of **standard** rehabilitation and decommissioning when industrial peat extraction ceases. This is updated every year - for more information see the Bord na Móna Annual Report (Bord na Móna, 2024). Bord na Móna is fully committed to meeting its obligations relating to rehabilitation and decommissioning under the Integrated Pollution Control Licence.

At this time, a 'standard' rehabilitation provision (sufficient to discharge the requirement of Condition 10 in the licence) has been allocated to the site based on the area of different cutaway types across the site (See Appendix I).

9. AFTERCARE AND MAINTENANCE

9.1 Programme for monitoring, aftercare and maintenance

This programme for monitoring, aftercare and maintenance has been designed to meet the Conditions of the IPC Licence. This is defined as:

- There will be **initial quarterly monitoring assessments** of the site to determine the general status of the site, the condition of the silt ponds, assess the condition of the rehabilitation work, monitoring of any potential impacts on neighbours land, general land security, boundary management, dumping and littering.
- The number of these site visits will reduce after 2 years to bi-annually and then after 5 years to annual visits.
- These monitoring visits will also consider any requirements for further practical rehabilitation measures.
- The **baseline condition of the site will be established** post-rehabilitation implementation by using an aerial survey to take an up to date aerial photo, when rehabilitation is completed. This will be used to verify completion of rehabilitation measures. The extent of bare peat will be assessed using this baseline data, and habitat maps will be updated, if needed. It is proposed that sites can be monitored against this baseline in the future.
- **Water quality monitoring** at the bog will be established. The main objective of this water quality monitoring will be to establish a baseline and then monitor the impact of peatland rehabilitation on water quality from the bog.
- In order to assist in monitoring surface water quality from this bog, it is planned to increase the existing licence monitoring requirements to sampling for the same parameters to every month during the scheduled activities and for a period up to two years post rehabilitation, depending on the period required to confirm that the main two parameters, suspended solids and ammonia are remaining compliant with the licence emission and trigger limit values and there is an improving trajectory in these two parameters i.e. reduction in concentration.
- Enhanced water quality monitoring will aim to include up to 70% of a bogs drainage catchments.
- Monitoring results will be maintained, trended and reported on each year as part of the requirement to report on Condition 10.1 of the IPC Licence on Bog Rehabilitation in the Annual Environmental Report, which will be available in April each year at www.epa.ie.
- The parameters to be included (as per condition 6.2 of the IPC Licence) include monthly monitoring for pH, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour, and COD and DOC.
- This monthly sampling regime on a selected number of silt ponds will be carried out over a two-year cycle. The original (licence) requirement was for a quarterly sampling regime, but this has been increased to a monthly regime to appropriately track the changing water chemistry that will occur as part of this enhanced rehabilitation. In addition, DOC will be included as a parameter to try and identify any changes in carbon in the surface water.
- If, after two years, key criteria for successful rehabilitation are being achieved and key targets are being met, then the water quality monitoring will be reviewed, with consideration of potential ongoing research on site. The water quality data, the aerial surveys and the habitat mapping will be collated and will be submitted to the EPA as part of the final validation report.
- If, after two years, key criteria for successful rehabilitation have **not** been achieved and key targets have **not** been met, then the rehabilitation measures and status of the site will be evaluated and enhanced, where required. This evaluation may indicate no requirement for additional enhancement of

rehabilitation measures but may demonstrate that more time is required before key criteria for rehabilitation has been achieved. Monitoring of water quality will then also continue for another period to be defined.

- Where other uses are proposed for the site that are compatible the provision of biodiversity and ecosystem services, these will be assessed by Bord na Móna in consultation with interested parties. Other after-uses can be proposed for licensed areas and must go through the required assessment process and planning procedures.

Additional monitoring measures are also proposed to monitor ecosystem service benefits that have been derived by enhanced rehabilitation. These proposed monitoring measures will be funded by the proposed Climate Action Fund Scheme or additional other funding. Monitoring of climate action and other ecosystem service benefits will be designed to take account of the requirements of monitoring benefits of the overall Scheme and will be stratified; that is not all monitoring will be carried out in each site. These are defined as:

- Vegetation and habitat monitoring after rehabilitation is completed using a cutaway bog condition assessment. This assessment will include assessment of on environmental and ecological indicators such as vegetation cover, vegetation communities, presence of key species, *Sphagnum* cover, bare peat cover and water levels. It is proposed that sites can be monitored against this baseline in the future.
- The condition of the bog can be assessed using the condition assessment and suitable Greenhouse Gas (GHG) emission factors can be assigned to different habitats. GHG emission factors have been determined for various peatland habitats in Ireland (Wilson *et al*., 2015) and are constantly being refined with more and more research. Bord na Móna is actively supporting research into GHG fluxes in different rehabilitated peatland habitats. This means that potential GHG emissions can be estimated from the site, as the site continues along its trajectory towards a naturally functioning peatland ecosystem.

9.2 Rehabilitation plan validation and licence surrender – report as required under condition 10.4

IPC Licence Condition 10.4. *A final validation report to include a certificate of completion for the Rehabilitation Plan, for all or part of the site as necessary, shall be submitted to the Agency within six months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.*

Reporting to the EPA will continue until the IPC Licence is surrendered. The bog will be included in the full licence surrender process as per the Guidance to Licensees on Surrender, Cessation and Closure of Licensed Sites EPA, 2012, when:

- The planned rehabilitation has been completed.
- The key criteria for successful rehabilitation have been achieved and key targets have been met;
- Water quality monitoring demonstrates that water quality of discharge is stabilising or improving; and
- The site has been environmentally stabilised.

10. REFERENCES

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APPENDIX I: A STANDARD PEATLAND REHABILITATION PLAN TO MEET CONDITIONS OF THE IPC LICENCE

In the event that the Scheme (PCAS) is not supported by additional funding, Bord na Móna is still obligated to carry out peatland rehabilitation to meet the conditions of the IPC Licence. Under its EPA licences and following cessation of peat extraction, Bord na Móna is mandated to 'decommission' its operations by removing materials 'that may result in environmental pollution' and establish that 'rehabilitation' measures have environmentally stabilised peat production areas.

This proposed standard peatland rehabilitation plan is outlined here to **estimate potential costs**. Bord na Móna will still be expected to cover the costs that would have accrued from standard decommissioning and rehabilitation activities, as part of its original obligations. The existing costs associated with both the removal of potentially polluting materials and the environmental stabilisation of the peatlands resides with Bord na Móna. However, the expenditure necessary to deliver the additional and enhanced decommissioning, rehabilitation and restoration and the benefits that flow from these measures and interventions/improvements will be eligible for funding by government through the Climate Action Fund and Ireland's National Recovery and Resilience Plan.

The same process as outlined in Section 2 will be followed.

Scope of rehabilitation

The principal scope of this rehabilitation plan is to rehabilitate the bog. This is defined by:

- The area of Moher Bog.
- EPA IPC Licence - Ref. P0504-01. As part of Condition 10.2 of this license, a rehabilitation plan must be prepared for permanent rehabilitation of the boglands within the licensed area. Moher Bog is part of the Mount Dillon (Lough Ree) Bog Group.
- The current condition of Moher Bog.
- The key objective of rehabilitation, as defined by this licence, is **environmental stabilisation** of the bog.
- To minimise potential impacts on neighbouring land. Boundary drains around Moher Bog will be left unblocked as blocking boundary drains could affect adjacent land.
- Land-use.

Rehabilitation goals and outcomes

The key rehabilitation goal and outcome for Moher Bog is environmental stabilisation of the site via wetland creation. This is defined as:

- Carrying out drain blocking to re-wet peat and slow runoff.
- Stabilising potential emissions from the site (e.g. suspended solids).
- Environmental stabilisation.

The outcome is setting the site on a trajectory towards establishment of natural habitats.

Criteria for successful rehabilitation:

- Rewetting of residual peat and shallow cutaway in the former area of industrial peat production to offset potential silt run off and to encourage development of vegetation cover via natural colonisation and reducing the area of bare exposed peat.
- That there is a stabilising/improving concentration of suspended solids and ammonia associated with the measures undertaken to stabilise the peat surface by the blocking of the internal drainage system and the maximised rewetting of the peat surface. This will be demonstrated by developing a stable or downward trajectory of water quality indicators (suspended solids and ammonia) towards what would be typical of a re-wetted cutaway bog. This will be measured via water quality monitoring (suspended solids and ammonia).
- Receiving water bodies have been classified under the River Basin Management Plan and this classification includes waters that are 'At Risk' from peatlands and peat extraction. The success criteria will be that the 'At Risk' classification will see improvements in the associated pressures from this peatland or if remaining At Risk, that there is an improving trajectory in the pressure from this peatland.

Rehabilitation targets

- Demonstrating the delivery of the rehabilitation through site visits and through updated aerial photography (indicating presence of peat blockages and re-wetting). This will be demonstrated by a post rehab aerial survey.
- Stabilising potential emissions from the site (e.g. suspended solids). The key target will be developing a stable or downward trajectory of water quality indicators (suspended solids and ammonia) towards what would be typical of a re-wetted cutaway bog. This will be demonstrated by water quality monitoring results.

Rehabilitation measures:

- Blocking field drains in drier sections of the former industrial production area using a dozer to create regular peat blockages (three blockages per 100 m) along each field drain.
- Re-alignment of piped drainage; and management of water levels to create/enhance existing wetlands.
- No measures are planned for the majority of surrounding marginal peatland habitats.
- Silt ponds will continue to be maintained during the rehabilitation and decommissioning phase.
- Evaluate success of short-term rehabilitation measures and enhance where necessary.
- Decommissioning of silt-ponds will be assessed and carried out, where required.

Timeframe:

- 2025. 1st phase of rehabilitation. Field drain blocking.
- 2026. 2nd phase. Further realignment of piped drainage and other re-wetting measures dependent on success of 1st phase re-wetting, as determined by ongoing monitoring of water levels and re-vegetation.
- Other enhancement measures such as fertiliser treatment will be carried out, if needed. These will be determined by ongoing monitoring.
- 2027-2028. Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.

- 2027-2028. Decommission silt-ponds, if necessary.

Table AP-1. Rehabilitation measures and target area.

Type	Code	Description	Area (Ha)
Dry cutaway	DCT1	Blocking outfalls and managing water levels with overflow pipes	41.13
Deep peat	DPT1	Regular drain blocking (3/100 m) + blocking outfalls and managing water levels with overflow pipes	111.50
Wetland	WLT1	Turn off or reduce pumping to re-wet cutaway + blocking outfalls and managing water levels with overflow pipes	29.90
Marginal Land	MLT1	No work required	35.86
Additional Works	AW1	Targeted drain blocking	19.39
Other	Silt Pond	Silt ponds	0.72
Other	Constraint	Rights of Ways, Turf Cutting, Amenity, Archaeology	26.71
Total			**265.22**

See Drawing number **BNM-DR-25-02-RP-20 titled Moher Bog: Standard Rehab Measures** included in the accompanying Mapbook which illustrates the standard rehab measures to be applied.

Monitoring, after-care and maintenance

- There will be initial quarterly monitoring assessments of the site to determine the general status of the site, the condition of the silt-ponds, assess the condition of the rehabilitation work, assess the progress of natural colonisation, monitoring of any potential impacts on neighbouring land and general land security. The number of site visits will reduce after 2 years to bi-annually. These site visits will assess the need to additional rehabilitation.
- Water quality monitoring will be established.
- Monitoring results will be maintained, trended and reported on each year as part of the requirement to report on Condition 10.1 of the IPC Licence on Bog Rehabilitation in the Annual Environmental Report, which will be available in April each year at www.epa.ie.
- The parameters to be included (as per condition 6.2 of the IPC Licence) include monthly monitoring for pH, Flow, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour, and COD.
- This sampling regime on a selected number of silt ponds will be carried out over a two-year cycle. The original (licence) requirement was for a quarterly sampling regime.
- Where other uses are proposed for the site, these will be assessed by Bord na Móna in consultation with interested parties. Other after-uses can be proposed for licensed areas and must go through the required assessment and planning procedures.

Validation and IPC Licence surrender

Reporting to the EPA will continue until the IPC Licence is surrendered. The bog will be included in the full licence surrender process as per the Guidance to Licensees on Surrender, Cessation and Closure of Licensed Sites (EPA, 2012) when:

- The planned rehabilitation has been completed;
- Water quality monitoring demonstrates that water quality of discharge is stabilising or improving; and
- The site has been environmentally stabilised.

APPENDIX II: BOG GROUP CONTEXT

The Mount Dillon Bog Group IPC Licenced area is made up of two sub-groups (Lough Ree- the Mount Dillon Energy Peat Group) and Mostrim) and the bog units within the group have been in industrial peat production for several decades. There are 28 defined bog units covering a total area of 11,322 ha. Of the 28 units, 23 mainly straddle the River Shannon within counties Roscommon and Longford, with five sites partially in County Westmeath to the east. Each bog area further comprises a range of habitats from bare milled peat former production areas to re-colonising cutaway to workshops areas and transport infrastructure. Industrial peat extraction from these sites mainly supplied ESB power stations at Lanesborough (LRP) or for horticultural peat products.

Industrial peat extraction in the Mount Dillon Bog Group finally ceased in 2021. Peat stockpiles which were harvested within the Bog Group continued to be delivered to Lough Ree Power Station until its closure in 2020. The removal of harvested peat stocks from the Mount Dillon Bog Group to supply other customers finally ceased in 2024. Intensive decommissioning and rehabilitation for the Mount Dillon Bog Group started in 2020/2021.

One bog site, Cloonmore, was never used for industrial peat production. Several bogs in the Mostrim group were drained but never fully developed and still retain typical high bog characteristics. These include Clonwhelan, Glenlough and a section of Mostrim. These sites have been zoned for biodiversity and a high bog drain blocking has been used to re-wet the high bog and encourage restoration of the raised bog habitat. Several sites (Glenlough, Mostrim, Clonwhelan and Clynan) were assessed by consultants for NPWS as part of the review of the raised bog Natural Heritage Area network (NPWS 2014).

The rehabilitation plan for the Mount Dillon Bog Group encompasses all areas involved in industrial peat production including former industrial production areas and associated facilities. It also includes rehabilitation measures for those bogs that were initially drained but not fully developed.

A breakdown of the component bog areas for the Mount Dillon Bog Group IPC Licence Ref. P0-504-01 is outlined in Table Ap-2.

Industrial peat production history varies across the Mount Dillon bog group, so there is a wide range of peat depths at present. Bogs close to Lanesborough tend to have shallower peat depths or have been cutaway, while some bogs on the periphery of the group tend to have deeper peat reserves. Several sites such as Mount Dillion and Derrycashel have been mostly cutaway to the fen peat layers or in some cases to expose the underlying gravel/sub-soil. Several bogs in the Mostrim group have only been partially developed or have had no industrial peat production, and have relatively deep peat depths.

Table Ap-2: Mount Dillon Bog Group names, area and indicative status (Mount Dillon Energy Peat sub-group)

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
Begnagh	265	Cutover Bog Industrial peat production commenced at Begnagh Bog in 1977 and ceased in 2020. Deep peat reserves remain on much of the former production area. Begnagh is considered a deep peat cutover bog.	Begnagh Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power Some areas of cutaway on site are developing pioneer cutaway vegetation communities. A greenway through Begnegh has been proposed as part of an amenity project with	2020	Finalised 2022 Rehab started in 2022

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
			Faillte Ireland and Longford County Council (Midlands Trail Network).		
Clooneeny	358	Cutover Bog Industrial peat production commenced at Clooneeny Bog in 1985 and ceased in 2020. Deep peat reserves remain on much of the former production area. Clooneeny is considered a deep peat cutover bog.	Clooneeny Bog formerly supplied a range of commercial functions including; horticultural peat and fuel peat for Lough Ree Power Most of the former production area on site is bare peat. Some areas of cutaway on site are developing pioneer cutaway vegetation communities.	2020	Finalised 2022 Rehab started in 2022
Cloonmore	102	N/A	Never developed for industrial peat production; scattered plots.	N/A	N/A
Moher Rail Link	28	Moher rail link is a link between sites.	N/A	N/A	N/A
Corlea	163	Cutaway Bog Industrial peat production commenced at Corlea Bog in 1960 and ceased in 2018. Long-term peat extraction has reduced peat reserves on this bog. Corlea is considered a shallow peat cutaway bog.	The former production area at Corlea has already extensively colonised. Pioneer wetland and scrub development has occurred over much of the site. Some wetland and rehabilitation management was undertaken between 2016-2018. Part of site leased to local community development group to develop amenity walkway in association with Longford County Council. This greenway has been constructed.	2018	Finalised in 2023 Rehab started in 2023
Derraghan	289	Cutover Bog Industrial peat production commenced at Derraghan Bog in the 1940's and ceased in 2020. Most of the former production area has shallow peat reserves. Some pockets of deep peat remain. Derraghan is considered a shallow peat cutover bog.	Derraghan Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power Much of the former production area at Derraghan has been out of production for some time. These areas have already extensively colonised with pioneer wetland and scrub vegetation communities.	2020	Plan Finalised 2021 Rehab commenced 2022
Derryadd	653	Cutover Bog Industrial peat production commenced at Derryadd Bog in 1964 and ceased in 2019. Long-term peat extraction has reduced peat reserves on this bog. Most of the former production area has shallow peat reserves. Some pockets of deep peat remain. Derryadd is considered a shallow peat cutover bog.	Much of the former production area at Derryadd has been out of production for some time. These areas have already extensively colonised with pioneer wetland and scrub vegetation communities Derryadd Bog will form part of the footprint of the proposed Derryadd Wind Farm Project (in pre-planning). An amenity walkway through part of Derryadd Bog is proposed for the Derryadd Wind Farm project	2019	Draft 2024
Derryadd2	328	Cutover Bog Industrial peat production commenced at Derryadd 2 Bog in 1960 and ceased in 2020. Long-term peat extraction has reduced peat reserves on this bog. Most of the former production area has shallow peat reserves. Some pockets of deep peat remain. Derryadd 2 is considered a shallow peat cutover bog.	Much of the former production area at Derryadd 2 has been out of peat production for some time. These areas have already extensively colonised with pioneer wetland and scrub vegetation communities	2020	Finalised 2023 Rehab started 2023
Derryarogue	895	Cutover Bog Industrial peat production commenced at Derryarogue Bog in	Much of the former production area at Derryarogue has been out of production for some time. These areas have already	2019	Derryarogue West

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
		1952 and ceased in 2019. Long-term peat extraction has reduced peat reserves on this bog. Most of the former production area has shallow peat reserves. Some pockets of deep peat remain. Derryarogue is considered a shallow peat cutover bog.	extensively colonised with pioneer wetland, cutaway and scrub vegetation communities. Derryarogue Bog will form part of the footprint of the proposed Derryadd Wind Farm project (in pre-planning). An amenity walkway through part of Derryarogue is proposed for the Derryadd Wind Farm project. Additional greenway through Derryarogue is in construction as part of an amenity project with Longford County Council. A further section of greenway has been proposed as part of an amenity project with Faillte Ireland and Longford County Council (Midlands Trail Network).		Finalised in 2023 Rehab started in 2023 Derryarogue Draft 2024 (remainder of site)
Derrycashel	388	Cutover Bog Industrial peat production commenced at Derrycashel Bog in 1951 and ceased in 2018. Long-term peat extraction has reduced peat reserves on this bog. Most of the former production area has shallow peat reserves. Some pockets of deep peat remain. Derrycashel is considered a shallow peat cutover bog.	Derrycashel Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power Much of the former production area at Derryarogue has been out of production for some time. These areas have already extensively colonised with pioneer wetland and scrub vegetation communities. Some wetland and rehabilitation management was undertaken (c.60ha) between 2014-2015.	2018	Finalised 2021 Rehab started in 2021
Derrycolumb	454	Cutover Bog Industrial peat production commenced at Derrycolumb Bog in the 1980's and ceased in 2019. Most of the former production area still has deep peat reserves. Derrycolumb is considered a deep peat cutover bog.	Derrycolumb Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power Much of the former production area at Derrycolumb has been out of production for some time. These areas have already extensively colonised with pioneer wetland and scrub vegetation communities. A greenway through Derrycolumb has been constructed as part of an amenity project with Longford County Council.	2018	Finalised 2021 Rehab started in 2021
Derrymoylin	356	Cutover Bog Industrial peat production commenced at Derrymoylin Bog in 1985 and ceased in 2020. Long-term peat extraction has reduced peat reserves on this bog. Derrymoylin is considered a shallow peat cutover bog.	Derrymoylin Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power. Most of the former production area on site is bare peat. A greenway through Derrymoylin has been proposed as part of an amenity project with Faillte Ireland and Roscommon County Council (Midlands Trail Network).	2020	To be finalised 2024
Derryshannoge	452	Cutover Bog Industrial peat production commenced at Derryshannoge Bog in 1985 and ceased in 2020. Deep peat reserves remain across most of the site. Derryshannoge is considered a deep peat cutover bog.	Derryshannoge Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power. Much of the former production area at Derryshannoge has been out of production for some time. These areas have already extensively colonised with pioneer cutaway and scrub vegetation communities.	2020	Finalised 2023 Rehab started in 2024

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
Edera	281	Cutover Bog Development for industrial peat production commenced at Edera Bog in 1990's. Active extraction from Edera began in 2003 and ceased in 2018. Edera is considered a deep peat cutover bog.	Edera Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power. The majority of Edera Bog former production area is bare peat.	2020	Finalised 2021 Rehab started in 2021
Erenagh	93	Cutover Bog Development for industrial peat production commenced at Erenagh Bog in 1970's. Erenagh is considered a deep peat cutover bog.	Erenagh Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power. Much of the former production area at Erenagh has been out of production for some time. These areas have already extensively colonised with pioneer cutaway and scrub vegetation communities.	2020	Draft 2024
Granaghan	212	Cutover Bog Development for industrial peat production commenced at Granaghan Bog in 1980's. Long-term peat extraction has reduced peat reserves on this bog but deep peat reserves remain on site. Granaghan is considered a deep peat cutover bog.	Granaghan Bog formerly supplied a range of commercial functions including; horticultural peat and fuel peat for Lough Ree Power. The majority of Granaghan Bog former production area is bare peat.	2020	Finalised 2023 Rehab to start in 2024
Killashee	110	Cutover Bog Development for industrial peat production commenced at Killashee Bog in 1985. Killashee is considered a deep peat cutover bog.	Killashee Bog formerly supplied a range of commercial functions including; horticultural peat and fuel peat for Lough Ree Power. The majority of Killashee Bog former production area is bare peat. Some areas have colonised with pioneer cutaway and scrub vegetation communities.	2020	Finalised 2023 Rehab started in 2024
Knappoge	313	Cutaway Bog Peat Production at Knappoge bog commenced in 1963, and finished in 2018. Peat depths on the former production area are generally shallow. There are some pockets of deeper peat. Knappoge is considered a shallow peat cutaway bog.	Knappoge Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power. The majority of Knappoge Bog former production area is bare peat. Some areas have colonised with pioneer cutaway and scrub vegetation communities. A greenway through Knappogue has been constructed as part of an amenity project with Longford County Council. An additional section has been proposed as part of an amenity project with Faillte Ireland and Longford County Council (Midlands Trail Network).	2018	Finalised 2021 Rehab started in 2022
Lough Bannow	739	Cutaway Bog Peat Production at Lough Bannow bog commenced in 1964 and finished in 2019. Peat depths on the former production area are generally shallow. There are some pockets of deeper peat. Lough Bannow is considered a shallow peat cutaway bog.	Much of the former production area at Lough Bannow has been out of production for some time. These areas have already extensively colonised with pioneer cutaway and scrub vegetation communities. A small (35ha) conifer plantation was established in 1980's. Lough Bannow will form part of the footprint of proposed Derryadd Wind Farm Project (in pre-planning).	2019	Draft 2024

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
			An amenity walkway through part of Lough Bannow is proposed for the Derryadd Wind Farm project		
Moher	483	Cutover Bog Peat Production at Moher Bog commenced in the 1960'S, and finished in 2020. Peat depths on the former production area remain relatively deep. Moher is considered a deep peat cutover bog.	Moher Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power. Much of the former production area at Moher has been out of production for some time. These areas have already extensively colonised with pioneer cutaway and scrub vegetation communities.	2020	Draft 2024 Rehab to start 2025
Mount Dillon	592	Cutaway Bog Peat Production at Mount Dillon bog commenced in the 1940'S, and finished in 2020. Peat depths on the former production largely shallow and the peat is considered cutaway. Some deep peat remains on the west of the site. Mount Dillon is considered a shallow peat cutaway bog.	Mount Dillon Bog formerly supplied a range of commercial functions including; fuel peat for Lough Ree Power. Much of the former production area at Mount Dillon has been out of production for some time. These areas have already extensively colonised with pioneer cutaway, wetland and scrub vegetation communities.	2020	Draft 2024 Rehab to start 2025

See Drawing number **BNM-DR-25-02-RP-24** titled **Mount Dillon Bog Group**, included in the accompanying Mapbook which illustrates the location of Moher Bog and the Mount Dillon Bog Group in context to the surrounding area.

APPENDIX III: ECOLOGICAL SURVEY REPORT

The below ecological survey report was completed in 2012 by Bord na Móna ecologists. This report includes Cloontuskert bog as a third subsection of Moher. Cloontuskert bog is being rehabilitated as a separate subsection. Details pertaining to Cloontuskart bog in the below report are not relevant to this rehabilitation plan.

Moher bog was resurveyed in October 2024 by Bord na Móna ecologists to confirm the presence and distribution of naturally occurring pioneer habitats, the area remaining as bare peat and to inform on the presence of protected species. This updated habitat and species data has been used to develop the current habitat map and rehabilitation plan.

Ecological Survey Report (Bord na Mona 2012)

Note: This report outlines an ecological survey of the bog. This report should not be taken as a management plan for the site as other land-uses may still be considered. Information within this report may inform the development of other land-uses and identify areas with particular biodiversity value.

Bog Name:	**Moher**	**Area (ha):**	486ha
Works Name:	Mount Dillon	**County:**	Roscommon
Recorder(s):	BnM Ecology Section	**Survey/ monitoring Date(s):**	22nd August 2012

Habitats present (in order of dominance)

The most common habitats present at this site include:

- Bare peat (BP) (Codes refer BnM classification of pioneer habitats of production bog. See Appendix II).
- Pioneer dry heath communities (dHeath)
- Scrub (eBir, OBir and CBir).
- Silt Ponds (Silt) with associated habitats such as scrub, Bracken, rank grassland (GS2), dry calcareous grassland (gCal) and typical pioneer communities of disturbed areas (disTuss).

The most common habitats present around the margins at this site include:

- Birch woodland (WN7) (Codes refer to Heritage Council habitat classification, Fossitt 2000), See Appendix II)
- Scrub (WS1) (Gorse scrub and Birch scrub developing of dry high bog around margins)
- Raised bog (PB1)
- Cutover bog (PB4) (several small fragments)
- Wet grassland (GS4).

Description of site

Moher Bog is located approximately 2.6km to the West of Lanesborough in County Roscommon. This site is located within three main blocks. Erenagh Bog is located immediately to the north of the site. The majority of the site is in active industrial peat production with a small area of cutover located in the southern section of the site. The peat is used as fuel peat in Lough Ree Power in Lanesborough. Moher Bog has been in full industrial peat production since the early 1980's and contains a number of pumps.

Moher bog is relatively young in industrial peat production terms as it has only been in production since the late 1970's. As a result there is in excess of 2.6m of peat in most sections of the site and this peat is "red" or "Sphagnum" peat and is acidic in nature.

An area of the site in the south eastern corner has been cutaway for a number of years. This area has become re-vegetated with pioneer poor fen habitats (pJeff, pEang, pTyp, pPhrag and pRos), small sections of open water have also developed in this area while the drier sections along the margins have developed Birch scrub.

Smaller areas of cutaway have developed across the site; these areas appear to be young and are mainly comprised of pioneer poor fen habitats.

Small rivers flow through the mid section of the site, along the southern boundary and along the north eastern boundary of the site. These rivers are tributaries of the River Shannon and Lough Ree. Otter spraint were located beside the river that flows through the mid section of the site.

Other habitats along the margins of the site include Birch woodland, wet grassland, dry heath and cutover bog.

Domestic turf cutting is extensive around some of the margins of the site.

Designated areas on site (cSAC, NHA, pNHA, SPA other)

The site does not overlap any site designated for nature conservation.

Lough Ree SAC (site code: 000440) and Lough Ree SPA (site code: 004064) are located less than 1km to the east of the site.

Corbo Bog SAC (site code: 002349) is located less than 1km to the south west of the site.

Adjacent habitats and land-use

Adjacent habitats include wet grassland (GS4), improved agricultural grassland (GA1), raised bog (PB1), scrub (WS1), Birch woodland (WD7), conifer plantation along with active and inactive cutover bog (PB4).

Watercourses (major water features on/off site)

- The Keelcurragh River flows along the southern boundary of the site. This river flows into Lough Ree.
- A tributary of the River Shannon flows through the mid section of the site while another branch of this river flows alongside the north eastern corner of the site.
- The River Shannon is located approximately 1.5km to the east of the site.
- Lough Ree is located less than 1km to the south east of the site.

Peat type and sub-soils

The majority of Moher contains in excess of 2.6m of peat in the southern and northern sections of the site. There is no information available on peat depths in the middle section of the site. Sections of the site in the southern section and along the edges of the site are classed as cutaway and have re-vegetated with pioneer poor fen habitats.

The bog is under laid with a mix of gravel and marl.

Fauna biodiversity

Birds

Several bird species were noted on the site during the survey.

- Teal
- Mallard
- Kestrel (with juveniles hunting on the site)
- Snipe
- Skylark
- Other more common bird species include Chaffinch, Robin, Blackbird, Hooded Crow, Heron, Meadow Pipit, Swallow and Wood Pigeon.

Mammals

Signs of several mammal species were noted on the site during the survey.

- Otter
- Badger
- Fox
- Pine Marten
- Hare

References

Cross, J.R. 2006. The Potential Natural Vegetation of Ireland. Biology and Environment: Proceeding of the Royal Irish Academy, Vol. 106B, No. 2, 65-116 (2006).

European Commission (2013). Interpretation manual of European Union Habitats. European Commission DG Environment Nature ENV B.3.

Fossitt, J. (2000). A guide to habitats in Ireland. Kilkenny. The Heritage Council.

NRA (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes (Revision 2). National Roads Authority.

APPENDIX IV: ENVIRONMENTAL CONTROL MEASURES TO BE APPLIED TO BOG REHABILITATION

- Bog restoration/rehabilitation measures will be restricted to within the footprint of the proposed rehabilitation area.
- The proposed rehabilitation will have due regard to noise limits and hours of operation (i.e. dusk and dawn) to minimise any potential disturbance on resident and local fauna that utilise the site and immediate environs.
- All plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (SI 359/1996).
- The proposed activities will be restricted to daylight hours and there will be no requirement for artificial lighting.
- Silt ponds will be inspected and maintained as per the IPC Licence.
- During periods of heavy precipitation and run-off, activities will be halted.
- Measures will be carried out using a suitably sized machine and in all circumstances, excavation depths and volumes will be minimised where possible.
- All machines will be regularly checked and maintained prior to arrival at the site to prevent hydrocarbon leakage.
- Hoses and valves will be checked regularly for signs of wear and will be closed and securely locked when not in use.
- Fuelling and lubrication of equipment shall only be carried out in designated areas away from surface water drainage features and ecologically sensitive areas.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling.
- Vehicles will never be left unattended during refuelling.
- No direct discharges to waters will be made. No washings from vehicles, plant or equipment will be carried out on site.
- All plant refuelling will take place using mobile fuel bowsers. Only dedicated trained and competent personnel will carry out refuelling operations.
- Mobile storage such as fuel bowsers will be bunded to 110% capacity to prevent spills. Tanks for bowsers and generators shall be double skinned. When not in use, all valves and fuel trigger guns from fuel storage containers will be locked. All pumps using fuel or containing oil will be locally and securely bunded where there is the possibility of discharge to waters.
- Potential impacts caused by spillages etc. during rehabilitation will be reduced by keeping spill kits and other appropriate equipment on-site.
- Site activities will be carried out in accordance with 'best practice'. In order to ensure compliance and implementation of 'best practice', these measures will be communicated to relevant Bord na Móna staff and updated as required.

APPENDIX V: BIOSECURITY

The potential for importation or introduction of non-native plant species (such as Japanese Knotweed, Himalayan Balsam, etc.) during future rehabilitation management, such as drain-blocking using excavators, has the potential to result in the establishment of invasive species within the site. Section 49 of the European Communities (Birds and Natural Habitats) Regulations 2011 prohibits the introduction and dispersal of invasive alien species (particularly plant species) listed on Part 1 (third column) of the 'Third Schedule'.

This section aims to reduce the risk from, and impacts of, invasive species and protecting biodiversity on lands under Bord na Móna ownership. Rehabilitation and decommissioning in the bog will have due regard to the relevant biosecurity measures outlined below:

- Records of problematic invasive species within the various bog units will be marked out with signs to highlight areas of infestation to personnel.
- All plant machinery will be restricted from disturbing known colonies of invasive species.
- All plant machinery will avoid unnecessary crossings to adjoining lands.
- Good site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (i.e. Japanese Knotweed (*Fallopia japonica*), Himalayan Balsam (*Impatiens glandulifera*), Himalayan Knotweed (*Persicaria wallichii*), etc.) by thoroughly washing vehicles prior to entering the area.

The biosecurity measures outlined above are in line with best practice guidelines issued by the National Roads Authority (NRA, 2010) – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads and broadly based on the Environment Agency's (2013) – The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Version 3, amended in 2013).

In addition to the above, Best Practice measures around the prevention and spread of Crayfish plague[5] will be adhered with throughout all rehabilitation measures and activities.

[5] https://www.biodiversityireland.ie/projects/invasive-species/crayfish-plague/

APPENDIX VI: POLICY AND REGULATORY FRAMEWORK

Bord na Móna Plc is a publicly owned company, originally established in 1934 to develop some of Ireland's extensive peat resources for the purposes of economic development and to support energy security. In the decades since its establishment the company has employed tens of thousands of people in its fuel, energy, and horticultural growing media businesses. For much of its history the company's support of important national policy aims has been enabled and encouraged in a variety of ways by Government.

Today, Bord na Móna is undertaking a number of highly significant actions in support of climate policy. These actions involve a radical transformation and decarbonisation of nearly the entire Bord na Móna business. This transformation will be driven by unlocking the full potential of our land and creating significant value for Ireland and the Midlands in particular.

Bord na Móna is an integral part of the economic, social, and environmental fabric of Ireland and Irish life. As a key employer in the Midlands, the company is conscious that its obligations go beyond purely commercial and environmental – there is also a social responsibility to employees and the communities served by Bord na Móna. It is the company's role and absolute priority to ensure that its long-term strategy delivers on all of these important areas in a robust and balanced way.

There are a wide range of policies, plans, legislation and land designations that inform the development of this Bord na Móna peatland rehabilitation plan. Bord na Móna have also developed and operate various policies and strategies that also inform the development of this rehabilitation plan.

1 EPA IPC Licence

Bord na Móna operates under IPC Licence issued and administered by the EPA to extract peat within the Mount Dillon bog group (Ref. PO-504-01). As part of Condition 10.2 of this license, a rehabilitation plan must be prepared for permanent rehabilitation of the boglands within the licensed area. The bog is part of the Mount Dillon group. This regulatory requirement is the main driver of the development of this rehabilitation plan.

2 The Peatlands Climate Action Scheme (PCAS)

Bord na Móna understand that it is the Minister's (DECC) intention to impose an obligation on Bord na Móna to develop a programme of measures, 'the Scheme', for the enhanced decommissioning, rehabilitation and restoration of boglands previously used to supply peat for electricity generation within the State. The enhanced decommissioning, rehabilitation and restoration of the peatlands funded by the Scheme (PCAS) will deliver benefits across climate action (GHG mitigation through reduced carbon emissions and acceleration towards carbon sequestration), enrich the State's natural capital, increase eco-system services, strengthen biodiversity, improve water quality and storage attenuation as well as developing the amenity potential of the peatlands.

It is envisaged that Bord na Móna carry out an enhanced decommissioning, rehabilitation and restoration, under the Scheme (PCAS), and supported by the Climate Action Fund and Ireland's National Recovery and Resilience Plan across a footprint of 33,000 ha. This scheme will significantly go beyond what is required to meet rehabilitation and decommissioning obligations under existing EPA IPC licence conditions. Interventions and measures supported by the Scheme will ensure that environmental stabilisation is achieved (meaning IPC obligations are met), and importantly, significant additional benefits, particularly relating to climate action and other ecosystem services, will also be delivered. However, only the additional costs associated with the additional

and enhanced rehabilitation, i.e., those activities which go beyond the existing decommissioning and rehabilitation requirements arising from Condition 10 will be eligible for support under the Scheme.

The proposed enhanced rehabilitation detailed in this document, are predicated on the understanding that the element of the activities, over and above the 'standard' rehabilitation necessary to comply with pre-existing Condition 10 IPC Licence requirements, will be deemed eligible costs by the Scheme regulator and funded by the Climate Action Fund and Ireland's National Recovery and Resilience Plan.

For the avoidance of doubt, should the Scheme and the associated statutory obligation on Bord na Móna not materialise, Bord na Móna will not carry out the enhanced decommissioning, rehabilitation and restoration measures described in this plan. Bord na Móna will instead plan to complete an adapted standard decommissioning and rehabilitation measures required under Condition 10 and outlined in Appendix I.

3 National Climate Policy

The National Policy Position establishes the fundamental national objective of achieving a transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. It sets out:

- the context for the objective;
- clarifies the level of GHG mitigation ambition envisaged; and
- establishes the process to pursue and achieve the overall objective.

The evolution of climate policy in Ireland will be an iterative process based on the adoption by government of a series of national plans over the period to 2050. GHG mitigation and adaptation to the impacts of climate change are to be addressed in parallel national plans – respectively through the National Climate Action Plan. The plans will be continually updated, as well as being reviewed on a structured basis at appropriate intervals and, at a minimum, every five years. This will include early identification and ongoing updating of possible transition pathways to 2050 to inform sectoral strategic choices.

Bord na Móna is following a decarbonisation programme aimed at reducing the carbon emissions from its activities. Industrial peat production has now ceased, and several other decarbonisation measures are being implemented. The company aims to further develop renewable energy and resource recovery markets with a key objective of reducing the carbon intensity of all products. In addition, the carbon emission mitigation benefits associated with the post-peat extraction rehabilitated peatland following re-wetting, revegetation and colonisation of significant areas with native woodland will make a significant contribution to achieving the State's carbon emission reduction targets.

4 National Peatlands Strategy

The National Peatlands Strategy (2015) contains a comprehensive list of actions, necessary to ensure that Ireland's peatlands are preserved, nurtured and become living assets within the communities that live beside them. It sets out a cross-governmental approach to managing issues that relate to peatlands, including compliance with EU environmental law, climate change, forestry, flood control, energy, nature conservation, planning, and agriculture. The Strategy has been developed in partnership between relevant Government Departments/State bodies and key stakeholders through the Peatlands Council.

The strategy recognises that Ireland's peatlands will continue to contribute to a wide variety of human needs and to be put to many uses. It aims to ensure that Ireland's peatlands are sustainably managed so that their benefits

can be enjoyed responsibly. It aims to inform appropriate regulatory systems to facilitate good decision making in support of responsible use. It also aims to inform the provision of appropriate incentives, financial supports and disincentives where required. The strategy attempts to strike an appropriate balance between different needs, including local stakeholders like turf-cutters and semi-state bodies such as Bord na Móna.

In line with a National Peatlands Strategy recommendation, a Peatlands Strategy Implementation Group (PSIG), was established, assisted in the finalisation of the Strategy, is overseeing subsequent implementation and will report to Government on an annual basis on the implementation of the actions and principles contained within the Strategy.

Bord na Móna is a key stakeholder in the National Peatlands Strategy and the Peatlands Strategy Implementation Group. The strategy recognises the potential for some Bord na Móna sites to be restored and to contribute to the national SAC and NHA network of protected raised bog sites. The strategy (agreed in 2015) also recognises the various different values of cutaway bog and developed six key principles (with Bord na Móna) for the after-use of cutaway bog.

- Bord na Móna will continue to assess and evaluate the potential of the company's land bank, using a land use review system. The assessment will help prepare a set of evidence-based management plans for the various areas of peatland. These plans will also inform its cutaway bog rehabilitation.
- The policy of Bord na Móna is not to open up any undrained new bogs for peat production.
- Lands identified by Bord na Móna as having high biodiversity value and/or priority habitats will be reserved for these purposes as the principal future land use.
- Generally, Bord na Móna cutaway bogs that flood naturally will be permitted to flood unless there is a clear environmental and/or economic case to maintain pumped drainage.
- In deciding on the most appropriate afteruse of cutaway peatlands, consideration shall be given to encouraging, where possible, the return to a natural functioning peatland ecosystem.
- This will require re-wetting of the cutaway peatlands which may lead in time to the restoration of the peatland ecosystem.
- Environmentally, socially and economically viable options should be analysed to plan the future use of industrial cutaway peatlands, in conjunction with limiting factors as outlined in Bord na Móna's Strategic Framework for the Future Use of Peatlands.

The National Peatlands Strategy highlights the importance and value of developing peatland rehabilitation plans for Bord na Móna cutaway sites and implementing this peatland rehabilitation. Some of these principles have now been superseded by the company's decision to cease industrial peat extraction. The National Peatlands Strategy is currently being reviewed by Government.

5 National River Basin Management Plan 2022-2027 (Water Framework Directive)

The River Basin Management Plan for Ireland 2022-2027 (Department of Housing, Local Government and Heritage, 2024) is the key national plan for Ireland to achieve the objectives of the Water Framework Directive (WFD). In broad terms, the objectives of the WFD are (1) to prevent the deterioration of water bodies and to protect, enhance and restore them with the aim of achieving at least good status and (2) to achieve compliance with the requirements for designated protected areas.

The NRBMP 2022-2027 outlined how peat extraction can be a potentially significant pressure on various water quality parameters. Peatland rehabilitation of Bord na Móna cutaway (in addition to other measures) was part of

the WFD (2022-2027) programme of measures. The NRBMP 2022-2027 takes account of the fact that Bord na Móna was in the process of phasing out the extraction of peat for energy production, that it set a target to rehabilitate 9,000 ha of cutaway bogs (covering 25 peatlands) by 2021 (in 2018) and will look to implement best-available mitigation measures to further reduce water quality impacts caused by peat extraction while the phasing-out process is taking place. This NRBMP 2022-2027 rehabilitation target was superseded by the acceleration of the Bord na Móna de-carbonisation programme and the Scheme **(PCAS)**.

The development of site rehabilitation plans and the delivery of peatland rehabilitation by Bord na Móna was expected to have a positive impact on water quality and will help the NRBMP 2022-2027 deliver its objectives in relation to the Water Framework Directive and is one of the five key principal actions.

The NRBMP 2022-2027 describes how the number of waterbodies impacted by peat, industry and forestry have decreased by 10, 10 and 5 waterbodies, respectively since the second cycle. Impacts on water quality and river habitat arising from peat and peat extraction and associated drainage include the release of ammonium and fine-grained suspended sediments, and physical alteration of aquatic habitats. Drainage of peatlands also results in changes to the hydromorphological condition of rivers.

The NRBMP 2022-2027 outlines how maintaining and restoring Irish bogs will lead to a decrease in waterborne carbon leaching to levels comparable with intact bogs as well as reducing losses of peat silt and ammonia. Vegetation on the surface of the peat can also slow the flow of water over the land surface. Based on the EPA's most recent reports, peat extraction and drainage is impacting on 106 water bodies across the country, with peat the single pressure on 28 of these water bodies. However, compared to the data in the second-cycle plan, the number of water bodies impacted by peat has decreased.

The cessation of industrial peat extraction by Bord na Móna in 2021 was expected to have a significant positive impact on water quality of receiving water courses by reducing the impact of peat extraction as a key pressure on particular water courses. This is now being supported by the results and conclusions of the NRBMP 2022-2027.

6 4th National Biodiversity Action Plan 2023-2030

Ireland's 4th National Biodiversity Action Plan (NBAP) sets the national biodiversity agenda for the period 2023-2030 and aims to deliver the transformative changes required to the ways in which we value and protect nature. The 4th NBAP has been developed with the support, advice and input of the interdepartmental Biodiversity Working Group and the independent Biodiversity Forum. Ireland's 2nd National Biodiversity Conference was held to gather insights and recommendations for the development of the NBAP and a public consultation process was held to provide further opportunities to engage with the Plan.

The 4th NBAP strives for a "whole of government, whole of society" approach to the governance and conservation of biodiversity. The aim is to ensure that every citizen, community, business, local authority, semi-state and state agency has an awareness of biodiversity and its importance, and of the implications of its loss, while also understanding how they can act to address the biodiversity emergency as part of a renewed national effort to "act for nature".

The delivery of rehabilitation via PCAS is expected to significantly contribute in the future to actions and targets of the 4th National Biodiversity Action Plan 2023-2030, particularly in relation to peatland restoration, nature restoration and creation of new habitats such as wetlands and woodlands.

7 EU Nature Restoration Law

The EU Nature Restoration Law is a key element of the EU Biodiversity Strategy, which sets binding targets to restore degraded ecosystems, in particular those with the most potential to capture and store carbon and to prevent and reduce the impact of natural disasters. The regulation combines an overarching restoration objective for the long-term recovery of nature in the EU's land and sea areas with binding restoration targets for specific habitats and species. These measures should cover at least 20% of the EU's land and sea areas by 2030, and ultimately all ecosystems in need of restoration by 2050.

This regulation has now been adapted and it is expected that all Member States will be required to produce a National Restoration Plan within two years of adoption. This will be led by the National Parks and Wildlife Service and will comprise a broad and deep public participation process, informed by robust ecological and socio-economic impact assessments. Bord na Móna are working with NPWS to identify bog restoration and other re-wetted cutaway sites that can contribute towards Irelands targets for the Nature Restoration Law.

8 National conservation designations

Bord na Móna operates in a wider landscape that also includes a network of European and National nature conservation sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs), National Heritage Areas (NHAs, cNHAs) and National Nature Reserves). Bord na Móna will take account of this network of conservation objectives and their conservation objectives when developing these rehabilitation plans. It is expected that peatland rehabilitation will, in general, benefit the conservation objectives of this network of nature conservation sites.

9 National Raised Bog Special Area of Conservation Management Plan 2017-2022.

The National Raised Bog Special Area of Conservation Management Plan 2017-2022 sets out a roadmap for the long-term management, restoration and conservation of protected raised bogs in Ireland. The Plan strikes an appropriate balance between the need to conserve and restore Ireland's raised bog network as part of Ireland's commitments towards the EU Habitats Directive, and the needs of stakeholders and gives recognition to the important role that communities have to play in the conservation and restoration of raised bogs. The National Raised Bog Special Areas of Conservation (SACs) Management Plan 2017-2022 is part of the measures being implemented in response to the on-going infringement action against Ireland in relation to the implementation of the EU Habitats Directive, with regard to the regulation of turf cutting on the Special Areas of Conservation (SACs). The then Minister for Arts, Heritage and the Gaeltacht, also published a **Review of Raised Bog Natural Heritage Area Network** in 2014.

Bord na Móna has played a key role in the development of the National Raised Bog Special Area of Conservation Management Plan 2017-2022 and the Review of the Raised Bog Natural Heritage Area Network. Several Bord na Móna sites were assessed by the National Parks and Wildlife Service as part of the above Plan and Review and there is an expectation that several Bord na Móna sites will be designated as SACs and NHAs in the future. This will reinforce the network of protected raised bog sites and replace in part sites that will be de-designated as they have been deemed to be significantly damaged and are deemed to have no raised bog restoration prospects. PCAS is expected to restore several sites that will contribute to The National Raised Bog Special Areas of Conservation (SACs) Management Plan 2017-2022 targets in relation to the restoration of raised bog habitat.

Bord na Móna has also responded to the needs of the NRBMP and provided several sites to the government for the relocation of turf-cutters from SACs. This is part of a suite of ongoing bog conservation measures in the NRBMP to manage turf-cutting in protected sites. Bord na Móna and the National Parks and Wildlife Service continues to engage regarding the ongoing relocation of turf-cutters from protected raised bog sites.

10 All-Ireland Pollinator Plan 2021-2025

The All-Ireland Pollinator Plan 2021-2025 outlines key objectives and actions to protect and support pollinating insects and the habitats they rely on. A Bord na Móna specific action in this plan includes the adoption of pollinator-friendly management within the Bord na Móna network of sites. One action to help achieve this objective is habitat rehabilitation and restoration, where possible, of pollinator-friendly habitats, including peatland habitats.

11 Land-use planning policies

As Bord na Móna operates in many counties across Ireland, it is important to note the respective development plans in these counties. Many of the existing development plans recognise the potential that exists in the after-use of cutover/cutaway peatlands. Bord na Móna seeks to work with all of the relevant local authorities to ensure that the most appropriate after-uses are reflected in local planning policy. The following areas of consistent importance are of both direct and indirect relevance to Bord na Móna: heritage, tourism, biodiversity/conservation, landscape, renewable energy, and economy/enterprise.

12 National Archaeology Code of Practice

Bord na Móna operated under an agreed Code of Practice (COP) regarding archaeology with the Department of Arts, Heritage and the Gaeltacht and the National Museum of Ireland which provided a framework to enable the Company to progress peat extraction whilst carrying out archaeological mitigation. (https://www.archaeology.ie/sites/default/files/media/publications/cop-bord-na-mona-en.pdf)

Under the Code, Bord na Móna, the Minister and Director worked together to ensure that appropriate archaeological survey and mitigation was carried out in advance of peat extraction.

As peat extraction ceased in 2019, the remaining elements of the COP that are still applicable include:

- Bord na Mona must ensure that any newly discovered monuments on Bord na Móna lands are reported in a timely manner to the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht.
- Bord na Mona must ensure that any archaeological objects discovered on Bord na Móna lands are reported immediately to the Duty Officer of the National Museum of Ireland.
- Bord na Móna will adhere to the Archaeology Code of Practice relating to management of any archaeological finds that may arise during cutaway peatland rehabilitation and decommissioning.

Under the Peatlands Climate Action Scheme, an Archaeological Impact Assessments is prepared for each bog in advance, from a review of historical data and desk-based searches of:

- The IAWU Peatland Survey
- Bord na Móna Re-assessment survey 2009

- The Sites and Monuments Record that is maintained by the Dept of Housing, Local Government and Heritage
- The topographical files of the National Museum of Ireland.
- The Excavations database
- Previous assessments
- Field survey

The Draft AIA determines and advises on any known archaeology and its required protection, and determines what is required to be undertaken if archaeology is found during the rehabilitation.

13 Bord na Móna Biodiversity Action Plan 2016-2021

Rehabilitation of industrial peatlands is a key objective of the Bord na Móna Biodiversity Action Plan 2016-2021. This action plan outlines the main objectives and actions around biodiversity on Bord na Móna lands. The Bord na Móna Biodiversity Action Plan also outlines key International and European policy in relation to biodiversity. This includes the **United Nations Convention on Biodiversity 2011-2020 (CBD)** and **European Biodiversity Strategy to 2020**. Further details of these policies and Bord na Móna s responses can be found in the Bord na Móna Biodiversity Action Plan (Bord na Móna, 2016). Both policy documents highlight targets such as reducing pressure on biodiversity, promoting sustainability, habitat restoration and benefits of ecosystem services.

One example of a key CBD target is:

- *"Restore at least 15% of degraded areas through conservation and restoration activities."*

The EUs headline target for progress by 2020 is to:

- *"halt the loss of biodiversity and the degradation of ecosystems in the EU by 2020, restore them as far as feasible, while stepping up the EU contribution to averting global biodiversity loss."*

This rehabilitation plan is aligned to the CBD target and the EU Biodiversity Strategy target and will help Ireland meet its commitment to these international Biodiversity polices.

14 Bord na Móna commitments

Bord na Móna made the commitment in 2009 not to develop any new peatland sites for industrial peat production. The company has continued to work with different stakeholders.

In line with Bord na Móna's accelerated decarbonisation programme, the company made a further commitment to a significantly larger rehabilitation target. This was reflected in our plans to rehabilitate a further 20,000 hectares of cutaway and cutover bog to wetland and woodland mosaics by 2025. In addition, we planned to restore a further 1,000 hectares of raised bog habitat by 2025. These initial targets have been achieved.

The company announced the cessation of industrial peat production in 2021 and that it would rehabilitate a target of 33,000 ha between 2021-2026 . Rehabilitation measures will continue to be carried out with the focus on re-wetting and rehabilitation of cutover and cutaway areas in line with national policies (such as the National Peatland Strategy, the National Biodiversity Action Plan, The Nature Restoration Law, the Climate Action Plan, the Water Framework Directive, etc.) and rehabilitation guidelines set down by the Environmental Protection Agency. Bord na Móna has now transitioned to a Climate Solutions company with a key commercial and development focus being the delivery of renewable energy to support Ireland's Climate Action Plan. In general,

Bord na Móna will seek to balance and optimise commercial, social, and environmental value of its bogs, and develop integrated land-uses, while taking account of the need for sustainability and their biodiversity value.

These commitments outline the importance of peatland rehabilitation to Bord na Móna. The company will continue to demonstrate environmental responsibility and continue to deliver on these commitments in relation to peatland rehabilitation and in relation to the future management of these lands to maximise their benefits, particularly their ecosystem service benefits, along with the sustainable development of a portion of the land bank for other uses, such as renewable energy.

APPENDIX VII: DECOMMISSIONING

1. Condition 10 Decommissioning

Decommissioning is a requirement of the applicable Integrated Pollution Control Licence issued by the Environmental Protection Agency. This condition 10.1 requires the following:

10.1 Following termination of use or involvement of all or part of the site in the licensed activity, the licensee shall:

10.1.1 Decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

The main success criteria pertaining to successfully complying with this condition is ensuring that no environmental liability remains from this infrastructure and material and that the bog can be deemed suitable for surrender of the licence under section 95 of the EPA Acts. This is achieved by Bord na Móna identifying and quantifying any mechanical and infrastructural resources that were installed in the bog to enable the development and production operation at the site. This list is then refined to identify any items that would be deemed as possibly resulting in environmental pollution, should they not be removed.

Typically, these items/infrastructures would be any remaining, unconsolidated plant, equipment and attachments, waste materials, unused raw materials such as land drainage pipes, remaining peat stockpiles, stock pile covering, pumps, septic tanks and fuel tanks.

In relation to this bog, the list and tasks would be as follows:

Item	Description	Moher Decommissioning Plan
1	Clean-up of remaining or unconsolidated waste or materials located in Bogs, Yards, Buildings and Offices	Clean-up of Bog
2	Cleaning Silt Ponds	Cleaning Silt Ponds
3	Decommissioning Peat Stockpiles	Peat Stockpile Management
4	Decommissioning or Removal of Buildings and Compounds	Decommissioning or Removal of Buildings and Compounds
5	Decommissioning Fuel Tanks and associated facilities	Where relevant
6	Decommissioning and Removal of Bog Pump Sites	Where relevant
7	Decommissioning or Removal of Septic Tanks	Where relevant

In addition, condition 7 of the licence requires these now defined waste items to be disposed of or recovered as follows:

7.1 Disposal or recovery of waste shall take place only as specified in *Schedule 2(i) Hazardous Wastes for Disposal/Recovery* and *Schedule 2(ii) Other Wastes for Disposal/Recovery* of this licence and in accordance with the appropriate National and European legislation and protocols. No other waste shall be disposed of/recovered either on-site or off-site without prior notice to, and prior written agreement of, the Agency.

7.2 Waste sent off-site for recovery or disposal shall only be conveyed to a waste contractor, as agreed by the Agency, and only transported from the site of the activity to the site of recovery/disposal in a manner which will not adversely affect the environment.

7.3 A full record, which shall be open to inspection by authorized persons of the Agency at all times, shall be kept by the licensee on matters relating to the waste management operations and practices at this site. This record shall as a minimum contain details of the following:

7.3.1 The names of the agent and transporter of the waste.

7.3.2 The name of the persons responsible for the ultimate disposal/recovery of the

waste.

7.3.3 The ultimate destination of the waste.

7.3.4 Written confirmation of the acceptance and disposal/recovery of any hazardous waste consignments sent off-site.

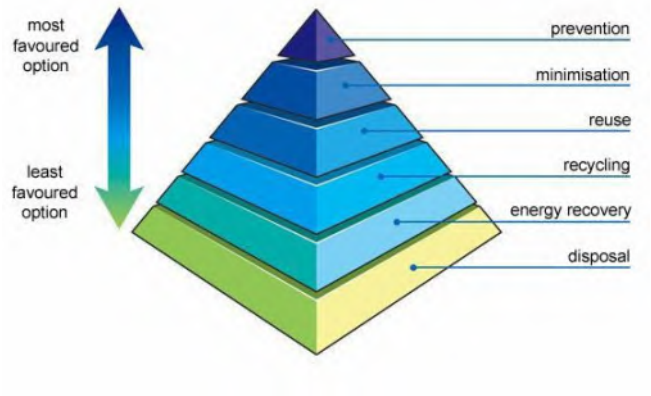
7.3.5 The tonnages and EWC Code for the waste materials listed in *Schedule 2(i) Hazardous Wastes for Disposal/Recovery* and *Schedule 2(ii) Other Wastes for Disposal/Recovery* sent off-site for disposal/recovery.

7.3.6 Details of any rejected consignments.

A copy of this Waste Management record shall be submitted to the Agency as part of the AER for the site.

As required by the licence, these waste items will be removed for recycling or disposal, using external contractors with the required waste collection permits, approved under 7.2, with waste records maintained as required under 7.3.

Where possible, Bord na Móna will utilize the appropriate waste hierarchy to identify waste that can reused or recycled ahead of disposal.



The validation of the success of condition 10.1 is carried out through an Independent Closure Audit (ICA), followed by and EPA Exit Audit (EA) and the eventual partial or full surrender of the licence.

2. Enhanced Decommissioning.

The remaining infrastructure does not constitute a risk to the environment and would not be a requirement of condition 10 of the licence. The removal of these are deemed as enhanced measures. These may enhance the future after use of the bog for amenity value, security against access for illegal and unsocial activities and general State and community benefit. In relation to this bog, this would include the infrastructure defined below:

Item	Enhanced Decommissioning Type	Moher Decommissioning Plan
1	Removal of Railway Lines	Removal of Railway Lines
2	Decommissioning Bridges and Underpasses	Where Applicable
3	Decommissioning Railway Level Crossing	Where Applicable
4	Restricting Access (bogs and silt ponds)	Restricting Access to Bog
5	Removal of High Voltage Power Lines	Where Applicable

APPENDIX VIII: GLOSSARY

Cutaway Bog: A Bord na Móna site generally becomes cutaway when it is economically unviable to continue industrial peat extraction or when the majority of peat has been removed.

Deep peat cutover bog. Deep peat cutover bog is defined as former raised bogs that have been in industrial peat production, where production has ceased but the residual peat depth is typically in excess of 2m. *Sphagnum* mosses are key species of raised bogs and the majority of the peat mass is formed from these mosses. *Sphagnum* species and other raised bog species are a key part of raised bog habitat function and prefer more acidic, nutrient poor, water-logged conditions. Typical raised bog *Sphagnum* mosses and other bog species do not thrive with the more typical alkaline water chemistry of cutaway bog but do grow well in these more acidic conditions where peat has been re-wetted. There is potential to re-develop *Sphagnum*-rich plant communities in these conditions if the peat can be re-wetted. This brings the opportunity of re-developing *Sphagnum*-rich vegetation communities that are considered Carbon sinks or peat-forming habitats and restoring the carbon sequestration function of these sites.

Dry cutaway bog: Cutaway bog is categorised as dry cutaway where it is not practical or feasible to re-wet these areas completely. It is inevitable that some areas of cutaway will remain relatively dry due to the heterogenous topography of the cutaway, as well as requirements for continued drainage on site for identified after-uses, or off site in relation to neighbouring lands or other infrastructure. Ridges and mounds of glacial deposits can become exposed during peat extraction and form a heterogenous topographical mosaic separated by basins. Dry cutaway may have very thin or no residual peat where ridges and mounds have been exposed. The exposed sub-soils are a mix of glacial gravels, muds and tills that can be quite free-draining. Dry cutaway may also have deeper residual peat, but in a location (i.e. at the margin) where the peat cannot be re-wetted due to boundary constraints. Dry cutaway may also develop in situations where there a relatively steep slope that inhibits re-wetting. The majority of dry cutaway will develop towards grassland, heath, scrub and dry woodland habitats.

Enhanced decommissioning: This is defined as decommissioning carried out under the Scheme, which is proposed to be externally funded.

Enhanced rehabilitation: This is defined as rehabilitation carried out under Scheme, which is proposed to be externally funded. It is proposed by Government that Bord na Móna be obligated to carry out enhanced decommissioning, rehabilitation and restoration on peatlands. This Scheme will significantly go beyond what is required to meet rehabilitation and decommissioning obligations under existing EPA IPC licence conditions. Interventions and activities supported by the Scheme will ensure that environmental stabilisation is achieved (meaning IPC obligations are met), and importantly, significant additional benefits, particularly relating to climate action and other ecosystem services, will also be delivered. However, only the costs associated with the additional, enhanced and accelerated measures, i.e., those interventions which go beyond the existing decommissioning and rehabilitation requirements arising from Condition 10 will be eligible for support under the Scheme.

Environmental stabilisation: The key objective of peatland rehabilitation is environmental stabilisation. This means developing habitats and vegetation back onto the bare peat, slowing water movement across the bog, minimising effects to downstream waterbodies and meeting the conditions of the IPC Licence. This is achieved by a combination of re-wetting, where possible, and natural colonisation of the former cutaway, with or without intervention**.** Habitats will develop that reflect the underlying environmental conditions. Other after-use development may also serve to act as environmental stabilisation.

Marginal land. Marginal land is defined as land around the margin of the industrial peat production area. This margin generally contains a range of habitats including scrub, birch woodland, cutover bog and raised bog remnants. It has a variety of land-uses including turf-cutting (private turbary). The Scheme will consider potential rehabilitation and restoration actions (e.g. drain blocking) within marginal land zones, where appropriate.

Rehabilitation: Rehabilitation is defined in general by Bord na Móna as environmental stabilisation of the former cutaway. This is generally achieved via re-wetting, where possible, and natural colonisation of the former cutaway, with or without intervention. It is not possible to restore raised bog habitats on Bord na Móna cutaway in general in the short-term. In general, most of the peat mass has been removed from many Bord na Móna cutaway sites and the environmental characteristics of these areas have therefore changed radically (peat depths, hydrology, water chemistry, substrate type, nutrient status. This means there will therefore be different habitat outcomes (wetlands, fen, heathland, grassland and Birch woodland). Other after-use development may also serve to act as rehabilitation.

Restoration: Ecological restoration to defined as the process of re-establishing to the extent possible the structure, function and integrity of indigenous ecosystems and the sustaining habitats they provide" (SER, 2004). Defined in this way, restoration encompasses the repair of ecosystems (Whisenant, 1999) and the **improvement of ecological conditions in damaged wildlands** through the **reinstatement of ecological processes**. In general, Bord na Móna cutaway peatlands cannot be restored back to raised bog in a reasonable timeframe as their environmental conditions has changed so radically (with the removal of the acrotelem – the living layer and much of the peat mass). However, they can be returned to a **trajectory** towards a naturally functioning peatland system (Renou-Wilson, 2012). **Raised bog restoration** is an objective of some Bord na Móna sites where there is residual natural raised bog vegetation and where the majority of the peat is still intact.

Standard rehabilitation: This is defined as rehabilitation that is designed to meet the conditions of the EPA IPC Licence. The key objective of rehabilitation is environmental stabilisation. This is achieved by a combination of re-wetting, where possible, and natural colonisation of the former cutaway, with or without intervention**.** Other after-use development may also serve to act as rehabilitation.

Standard decommissioning: This is defined as decommissioning that is designed to meet the conditions of the EPA IPC Licence. This is defined as to render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

Wetland cutaway bog. Wetland cutaway bog is defined as former raised bogs that have been in industrial peat production, where production has ceased and the majority of peat has been cutaway, and where this cutaway has the potential to be re-wetted. A significant number of Bord na Móna sites have pumped drainage and these sites are likely to develop a mosaic of wetland habitats when pumping in reduced or stopped. The water chemistry of wetland cutaway frequently is strongly influenced by the more alkaline sub-soils that have been exposed during peat production. This means that pioneer vegetation is more typical of fen and wetland, rather than raised bog. Wetland cutaway will have a broad range of hydrological conditions depending on the local topography. In some cases, these wetlands may form deep water (> 0.5 m) whilst other areas may have the water table at or just below the surface of the ground.

APPENDIX IX: EXTRACTIVE WASTE MANAGEMENT PLAN

(Minimisation, treatment, recovery and disposal)

Objective:
The objective of this generic plan is to comply with the requirements of regulation 5 of the Waste Management (Management of Waste from Extractive Industries) Regulations, and to prevent or reduce waste production and its harmfulness.

Scope:
This plan covers IPPC Licence's Ref P0504-01, Mountdillon Group of Bogs located in Co. Longford.

1.0 Extractive Waste:
Waste classified as extractive waste from peat extraction operations arise from three operations associated with this activity.

1.1 Silt Pond excavations and maintenance.
All peat extraction activities in the Mountdillon bog group are serviced by silt lagoons/ponds. During the excavation of these silt ponds, pre IPPC Licensing in 1999 and since licensing, the excavated material is stored adjacent to the silt pond, where it either remains in situ ores levelled out. As required by condition 6.6, these silt lagoons are cleaned twice per annum or more often if inspections dictate. These silt cleanings are also deposited on the same location, adjacent to the silt pond, where they may be levelled periodically to allow room for subsequent cleanings. These mounds of silt pond excavation material and cleanings are generally no higher that 2-3 metres.

1.2 Power Station screenings:
Lough Ree Power Station screens the peat from the bogs prior to processing. This screening removes oversized peat, stones and bogs timbers. Schedule 3 (ii) of the IPPC licence permits disposal of these peat screenings back to the bog, where it is levelled and graded into the surrounding peat landscape. These locations have been agreed with the Agency as per condition 7.4 of the IPPC Licence, and as per the attached locations.

1.3 Bog Timbers:
During peat extraction operations, bog timbers often arise in the bog surface and are required to be cleared. These timbers consist of bog pine, oak and some yew. Some of these timbers, such as the oak and yew are removed for use in the wood craft industry, with the remaining bog pine stockpiled in locations at the opposite end of each bog, where it generally becomes a habitat for flora and fauna. These piles of timber are generally no higher than 1-2 metres.

2.0 P0504-01 IPPC Licence Extractive Waste Conditions

2.1 Condition 7.5 Extractive Waste Management
The licensee shall draw up a Waste Management Plan (to be known as an Extractive Waste Management Plan) for the minimisation, treatment, recovery and disposal of extractive waste. This Plan shall meet the requirements of regulation 5 of the Waste Management (Management of Waste from the Extractive Industries) Regulations,2009. The Plan shall be submitted for agreement by the Agency by the 31' December 2012. The Plan shall be reviewed at least once every five years thereafter in a manner agreeable to the Agency and amended in the event of substantial changes to the operation of a waste facility or to the waste deposited. Any amendments shall be notified to the Agency.
All extractive waste shall be managed in accordance with the Extractive Waste Management Plan. A report on the implementation of the Extractive Waste Management Plan shall be provided in the AER.

2.2 Condition 7.6 Waste Facility
(i) No new waste facility may be developed or an existing waste facility modified unless agreed by the Agency.
(ii) The licensee shall ensure that all existing waste facilities are managed and maintained to ensure their physical stability and to prevent pollution or contamination of soil, air, surface water or groundwater.
(iii) The licensee shall ensure that all new waste facilities are constructed, managed and maintained to ensure their physical stability and to prevent pollution or contamination of soil, air, surface water or groundwater.
(iv) Operational measures shall be continuously employed to prevent damage to waste facilities from personnel, plant or equipment.
(v) The licensee shall establish and maintain a system for regular monitoring and inspection of waste facilities.
(vi) All records of monitoring and inspection of waste facilities, as required under the licence, shall be maintained on-site in order to ensure the appropriate handover of information in the event of a change of operator or relevant personnel.

2.3 Condition 7.7 Excavation Voids
7.7.1 Unless otherwise agreed by the Agency, only extractive waste shall be placed in excavation voids.
7.7.2 When placing extractive waste into excavation voids for rehabilitation and construction purposes, the licensee shall, in accordance with regulation 10 of the Waste Management (Management of Waste from the Extractive Industries) Regulations, 2009, and the Extractive Waste Management Plan:

- Secure the stability of the waste
- Put in place measures to prevent pollution of soil, surface water and ground water.
- Carry out monitoring of the extractive waste and excavation void.

Condition 7.5. Extractive Waste Management Plan. 5 (1)

3.0 Minimisation.
3.1 Silt pond excavation material and cleanings.
IPPC Licence conditions require all production areas to be serviced by an appropriately designed silt pond based on storage volume and retention time. Condition 6.6 requires all ponds to be cleaned bi-annually and more often if inspections dictate, so the only opportunity for minimisation of same is

through Standard Operating Procedures. These are required under condition 2.2.2 (i) regarding minimisation of suspended solids, and are in-place to minimise the generation of silt, which in-turn will minimise the generation of silt pond waste.

3.2 Power Station Screenings.
These screenings cannot be minimised as they are a consequence of peat production, stones, timbers and oversize peat materials are naturally occurring on the bog, and are required to be removed prior to processing.

3.3 Bog Timbers.
Bog timbers are also naturally occurring materials within a bog and are required to be removed prior for production. The volume of these bog timbers varies from bog to bog and as such their minimisation is not controllable or quantifiable.

4.0 Treatment
4.1 Silt pond excavation material and cleanings.
The silt pond excavation material and silt cleanings do not require any treatment for its end use which will be either backfilling these silt pond voids as per condition 7.7.1 above as part of the Bog Rehabilitation Plan, or reincorporated into the surrounding peatlands.

4.2 Power Station Screenings.
The factory screenings are permitted to be returned to the bog as they were naturally occurring materials from the bog, and as such do not require any treatment to serve this purpose.

4.3 Bog Timbers
As per 1.3 above, these timbers are stockpiled at two locations in each bog, as per the attached list of sites and become habitats for various flora and fauna.

5.0 Recovery
5.1 Silt pond excavation material and cleanings.
Condition 2.2.2 (vi) requires the reuse of silt pond waste to be examined. This was undertaken in 2006, the outcome of which was that this waste peat silt material, as a fuel, was contaminated with sub-soils, rendering it unsuitable for combustion. In addition, volumes are small compared to overall peat production volumes.

5.2 Power Station Screenings.
Given the nature of these screenings as outlined in 1.2 above, there is no further use identified and they are permitted to be disposed of back to the bog.

5.3 Bog Timbers
Investigations into processing these materials into smaller fractions for potential heating purposes did not yield any viable results. In addition, these older stockpiles are now classified as habitats and as such would not be considered for reuse as a fuel.

6.0 Disposal
6.1 Silt pond excavation material and cleanings.
Schedule 3 (ii) permits the disposal of silt pond cleanings (Lagoon Sediments) to the bog and these locations, adjacent to the silt pond site, are presented in the attached spreadsheet, with associated grid coordinates.

6.2 Power Station Screenings.
Schedule 3 (ii) permits the disposal of screenings (Peat Screenings) to the bog at designated locations agreed under Condition 7.4, and these locations, are presented in the attached spreadsheet, with associated grid coordinates.

6.3 Bog Timbers
These naturally occurring bog timbers are stockpiled at locations in each bog, grid coordinates attached.

7.0 Extractive Waste Management Plan

5 (2a)(i)
The vast majority of peat extraction bogs were all designed and drained for production prior to the 1960's and as such the production fields layout cannot' be altered. Under our Cleaner Reduction Procedures, various design changes have been implemented to the production machines and process to reduce lost peat which eventually is captured in the silt ponds and requires removal as waste peat silt. This along with training and ongoing research and development will continuously reduce waste peat and subsequently waste silt pond cleanings. Bog timbers are present naturally in various volumes and quantities in different bogs and as peat production involves stripping peat in layers, the exposure, generation and removal of these timbers is unavoidable. Work has been undertaken recently into project looking at grinding of these bog timbers in situ using a timber miller, and if this project becomes viable it will contribute to the reduction of bog timbers.

5 (2a)(ii)
Given the nature and expanse of peat bogs, the stockpiling and storage of these waste materials do not present a visual, storage or stability problem. As required under Condition 10 of the IPPC Licence, the silt pond excavations and screenings will be utilised to backfill the silt pond voids once the bogs have finished and stabilised in accordance with out Bog Rehabilitation Plan. Storage of these wastes in the interim, open to the elements does not present a change on the nature of these wastes that will threaten the environment or prevent their reuse during the bog rehabilitation process.

5 (2a)(iii)
Under Condition 10 of the IPPC Licence, all silt ponds will be decommissioned once the bog surface has stabilised, in agreement with the Agency. This will involve the removal of weirs and flow controls, returning the silt pond back to its original drain or removing the silt pond from the drainage system. Both of these activities will involve placing the silt pond extraction and cleaning material back into the excavation void.

5 (2a)(iv)
The peat bogs do not contain any topsoil, so this is not required.

5 (2a)(v)
Peat mineral resources do not undergo any treatment.

5 (2b)
These three extractive waste are all being reused and recovered back to their original extraction points and have not undergone any physical, chemical, or biological change.

5 (2c)(i, ii & iii)
These three extractive wastes, stored on the bog for reuse or recovery during the bog rehabilitation phase, do not require any management or monitoring during the operation of these bogs. Silt pond excavations and cleanings are stored adjacent to the silt pond and quickly revegetated and stabilise, the screenings are graded back into the bog at the agreed locations upon disposal and the bog timbers do not prevent any water or airborne danger to the environment.

5 (3)
The three extractive wastes arising from peat extraction operations at this site are classified wastes from mineral non-metalliferous excavation, with an EWC code of 0101 02. The materials are not classified as hazardous under Directive 91/689/EEC20, and do not contain substances or preparations classified as dangerous under Directives 67/548/EEC5 or 1999/45/EC6 above a certain threshold.
The peat excavations and cleanings are stored in locations and in a manner that they could not collapse, and are remote in their nature. The stockpiles are located adjacent to silt ponds that are cleaned regularly and as such these stockpiles are managed and levelled to facilitate further cleanings.
Therefore the material stored at these waste facilities would not be considered to be a Category A waste facility.

Classification in accordance Annex II.

Waste Material	Description	**C**lassification	Chemical Process treatment	Deposition description	Transport System
Silt Pond Excavations and cleanings	Peat and mineral soils associated with peatlands. Stored for reuse during bog rehabilitation, with no displacement of overburden	01 01 02	None	Excavated from silt ponds by excavator and deposited adjacent to the silt pond.	Excavator
Peat Screenings	Stones, timbers and oversized peat particles, reincorporated into low areas, agreed with the Agency, and stabilized under normal natural bog conditions	01 01 02	None	Removed by screen at the factory and transported by tractor and trailer to the designated and agreed locations	Tractor and trailer.
Bog Timbers	Pine, Oak and Yew species, stored at locations in each bog. Not subject to any stability issues due to exposure to atmospheric/meteorological conditions.	01 01 02	None	Removed from the bog surface by excavator and transported by tractor and trailer to the agreed locations	Tractor and Trailer

Description of operations.
Silt pond excavations arise from the requirement to have silt ponds treating all peat extraction sites. Silt pond cleanings arise from the removal of peat silt from silt ponds as required under IPPC Licence. Bog timbers arise from preparation of the bogs surface for peat production. Estimated quantities of materials are below:

Closure plan. (Bog Rehabilitation Plan).
Condition 10.1 – 10.3 of the IPPC Licence requires the following:

- 10.1 Following termination of use or involvement of all or part of the site in the licensed activity, the licensee shall:
- 10.1.1 Decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.
- 10.1.2 Implement the agreed cutaway bog rehabilitation plan (refer Condition 10.2).

10.2 Cutaway Bog Rehabilitation Plan:

- 10.2.1 The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area. This plan shall be submitted to the Agency for agreement within eighteen months of the date of grant of this licence.

- 10.2.2 The plan shall be reviewed every two years and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without the written agreement of the Agency.

10.3 The Rehabilitation Plan shall include as a minimum, the following:

- 10.3.1 A scope statement for the plan; to include outcome of consultations with relevant Agencies, Authorities and affected parties (to be identified by the licensee).
- 10.3.2 The criteria which define the successful rehabilitation of the activity or part thereof, which ensures minimum impact to the environment.
- 10.3.3 A programme to achieve the stated criteria.
- 10.3.4 Where relevant, a test programme to demonstrate the successful implementation of the rehabilitation plan.
- 10.3.5 A programme for aftercare and maintenance.

10.4 A final validation report to include a certificate of completion for the Rehabilitation Plan, for all or part of the site as necessary, shall be submitted to the Agency within six months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment. This plan including maps and ecological classifications are available on file at the Allen Clonsast IPPC Licence Coordinators office.
The location in relation to the silt pond excavations and cleanings are adjacent to the silt ponds, which are considered under the Shannon River Basin Management Plan in accordance with the requirements of Directive 2000/60/EC.
Screenings and bog timbers are all naturally occurring elements of peatland and there placement back to the bog in smaller concentrated designated waste facilities does not constitute a risk to the prevention of water compliance.
The lands under where these materials are deposited are peatlands and are un-effected by the placing of this material.

Review.
This plan will be reviewed every five years, the first review to take place in September 2017. This review will entail an inspection of these waste facilities to ensure their placing, management, maintenance and stability comply with the requirements of the Extractive Waste Management requirements and condition 7.5, 7.6 and 7.7 of the Mount dillon IPPC Licence P0504-01.

APPENDIX X: MITIGATION MEASURES FOR THE APPLICATION OF FERTILISER

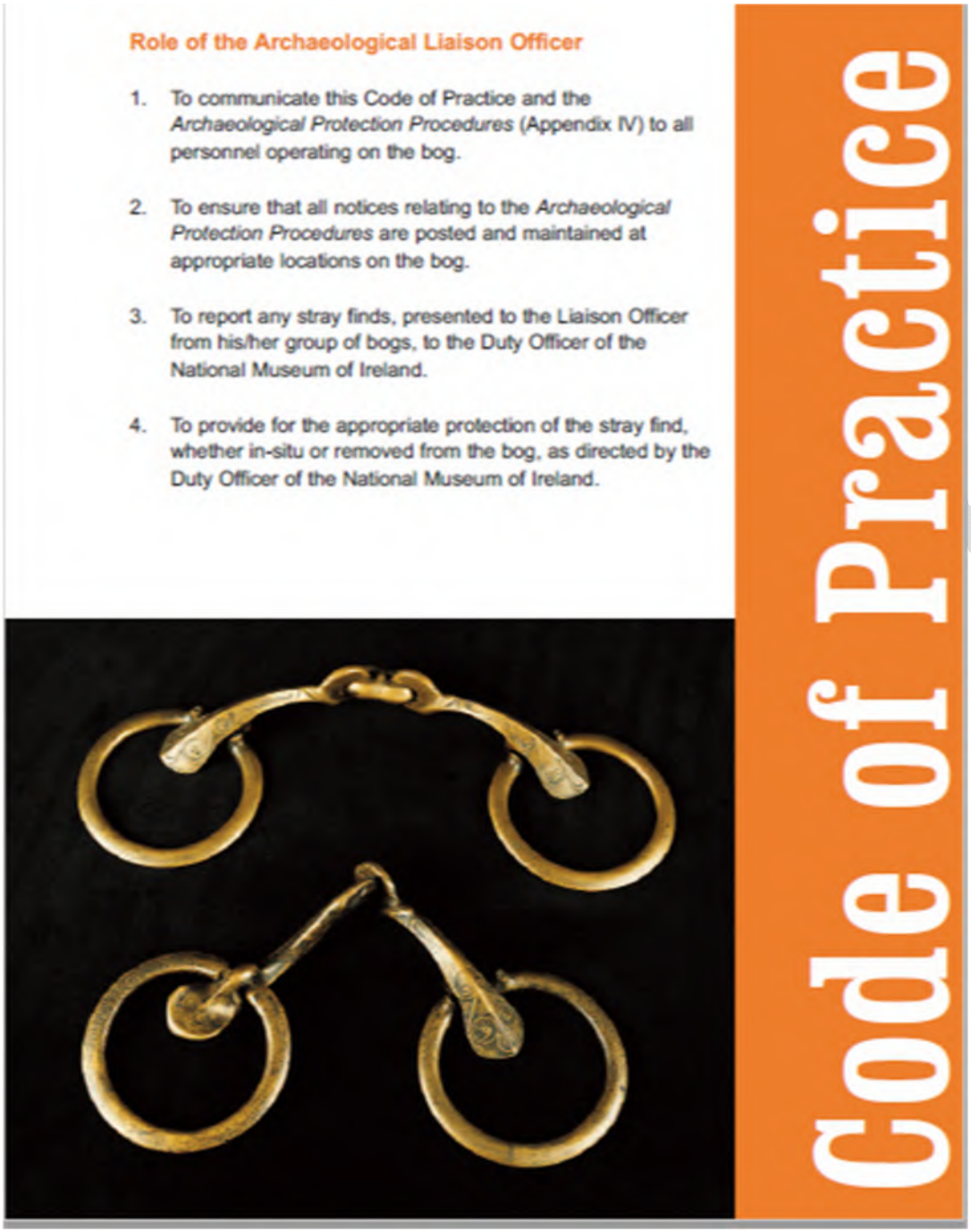
- Any fertiliser used will be Rock Phosphate and will not be applied in the following conditions:
    1. The land is waterlogged;
    2. The land is flooded, or it is likely to flood;
    3. The land is frozen, or covered with snow;
    4. Heavy rain is forecast within 48 hours (forecasts will be checked from Met Éireann).
    5. The ground slopes steeply and there is a risk of water pollution, when factors such as surface run-off pathways, the presence of land drains, the absence of hedgerows to mitigate surface flow, soil condition and ground cover are taken into account.
- No fertiliser will be spread on land within 2 metres of a surface watercourse.
- Buffer zones in respect of waterbodies, as specified on https://www.epa.ie/about/faq/name,57156,en.html, will be adhered with at all times with regard to fertiliser application. Reproduced as follows:

Water body / Feature	Buffer zone
Any water supply source providing 100m^3 or more of water per day, or serving 500 or more people	200 metres (or as little as 30 metres where a local authority allows)
Any water supply source providing 10m^3 or more of water per day, or serving 50 or more people	100 metres (or as little as 30 metres where a local authority allows)
Any other water supply for human consumption	25 metres (or as little as 30 metres where a local authority allows)
Lake shoreline	20 metres
Exposed cavernous or karstified limestone features (such as swallow holes or collapse features)	15 metres
Any surface watercourse where the slope towards the watercourse exceeds 10%	10 metres
Any other surface waters	5 metres*

APPENDIX XI: CONSULTATION SUMMARIES

N/A

APPENDIX XII: ARCHAEOLOGY



22

Code of Practice

5. To arrange for the delivery or collection of the stray find, as directed by the Duty Officer of the National Museum of Ireland.

6. To complete the Report of Discovery of Archaeological Object(s) in Bogs (Appendix V), as directed by the Duty Officer of the National Museum of Ireland.

7. To maintain a file of all stray finds and associated documentation and provide copies to the Project Archaeologist.

8. To provide assistance, where required, to the Department during archaeological surveys.

9. To provide assistance, where required, to Bord na Móna's Consultant Archaeologists, during investigation and mitigation of monuments.

10. To report to the Bord na Móna members on the Archaeology Management Liaison Committee any planned developments or new activities on cutaway peatland areas within his/her group of bogs.

Bord na Móna	**Procedure: ENV017**	**Rev: 1**
Title: Archaeological Findings	**Approved: EM**	**Date: 13/10/2020**

1) Purpose

The purpose of this procedure is to describe the arrangements in Bord na Móna for findings of Archaeological material (Stray Finds).

All objects, sites or monuments, no matter how fragmentary, are important elements of our heritage.

2) Procedure

1. Check whether there are any known archaeological monuments in your area.
2. Be vigilant at all times - objects or traces of structures can be found on the field surfaces, in the drain faces, on the bog margins or caught within the mechanics of machinery.
3. If an object is found leave it in place, if it is safe to do so, note its position and immediately contact your Archaeological Liaison Officer who will assess the situation and contact the Duty Officer of the National Museum of Ireland.
4. Resist the temptation to investigate the find spot as this may disturb fragile archaeological deposits.
5. If the object is already dislodged or is in imminent danger, remove it carefully, mark its find spot and report it immediately to your Archaeological Liaison Officer.
6. Objects made of wood, leather or textile, which are removed from peat should be kept in conditions similar to those in which they are found. This can be done by packing them in peat or, if waterlogged, placing them in a clean basin of water and sealing the container. Resist the temptation to clean or remove peat from the object.
7. If timbers or other materials, such as gravel or stones, which could be part of a man-made structure are noted on the bog, mark the location and report it immediately to your Archaeological Liaison Officer. If you suspect the find is of archaeological importance, resist the temptation to expose it any further as this could result in damage to the structure.
8. Report anything that looks unnatural in the bog – your Archaeological Liaison Officer will decide whether it should be referred to the appropriate authorities.

NOTE: Our archaeological heritage is a finite, non-renewable resource. Once a site is destroyed its information is lost forever and we have lost the chance to understand a little more about our past, where we have come from and perhaps the opportunity to learn for the future.

Your Archaeological Liaison Officer is ……

3) Records

Revision Index			
Revision	Date	Description of change	Approved
1	13/09/2020	First release	EMcD
2			

Archaeological Impact Assessment of Proposed Bog Decommissioning and Rehabilitation at Moher Bog, Co. Roscommon

Draft

Report For

Bord Na Móna Energy Ltd.

Author

Dr. Charles Mount

Bord Na Móna Project Archaeologist

Introduction

The EPA (2020) *Guidance on the process of preparing and implementing a bog rehabilitation plan* notes that the licensee should characterise the bog prior to embarking on detailed planning and implementation. This characterisation should detail how the land is classified in terms of statutory protections, e.g. as European sites, world heritage sites, RAMSAR sites, National Heritage Areas, national monuments, archaeological heritage, etc. This archaeological impact assessment report was prepared by Dr. Charles Mount for Bord na Móna Energy Ltd to fulfil this characterisation in relation to archaeological heritage. It represents the results of a desk-based assessment and field survey of the impact of proposed bog rehabilitation of c.265 hectares at Moher Bog, Co. Roscommon on the known archaeological heritage of the bog. The proposed rehabilitation actions will be a combination of measures to create wetlands and re-wet deep peat as outlined in the draft Methodology Paper for the proposed Bord na Móna Decommissioning, Rehabilitation and Restoration Scheme. These enhanced measures for Moher Bog will include (See Table 1 and Fig. 1):

•

• Re-assessment of the pumping regime and removing pumps if this desired and has no significant external impact. Initial hydrological modelling indicates that a parts of the site will remain as wetland and develop a mosaic of wetland habitats with some permanent deeper water. Hydrological management will look to optimise summer water levels to maximise the development of wetland vegetation (by looking to set water depths at < 0.5 m, where possible. It is inevitable that some sections will naturally have deeper water due to the topography at this site). Water-levels will be adjusted at outfalls and by adjusting piped drainage. More sustainable permanent gravity drainage solutions will be examined. Some targeted bunding may be required. It is expected that a natural seasonal regime of water fluctuation will develop, with water-levels fluctuating in association with levels in the nearby River Shannon. Pumps are expected to be decommissioned and removed at Moher Bog.

• Intensive drain blocking around the existing wetlands or standing water to create/promote the spread of wetland habitats.

• Re-wetting some areas of the bog through regular field drain blocking to create three peat barriers every 100 m along each field drain.

• Re-alignment of piped drainage and creating high level swales to manage water levels and water flows through the site.

• Blocking drains in targeted existing pioneering vegetation mosaics, to accelerate re-wetting, and/or manage water levels.

• The creation of berms across some sections of the bog to control/retain water levels. This measure seeks to retain shallow (< 10 cm) water conditions across multiple fields.

• Targeted fertiliser applications to accelerate vegetation establishment on areas of bare peat on headlands and high fields, and within certain areas of dry cutaway. Areas where vegetation has established do not need fertiliser application.

• Deep Peat measures including field re-profiling, on deeper peat; intensive drain blocking (max 7/100 m) and modifying outfalls, and management of water levels with overflow pipes and blocking of internal outfalls.

• Peat field re-profiling to reduce the camber of the fields and cell-bunding between high fields to manage/optimise water levels for revegetation.

- Some small bog remnants around the margins of the bog will be targeted for drain-blocking.

- The existing silt ponds will be retained and maintained during the rehabilitation phase. During the monitoring and verification phase the silt ponds will be continually inspected and maintained, where appropriate. When it is deemed that the silt ponds are not required, as the bog has been successfully stabilised and there is no silt run-off, the condition of the silt ponds will be reviewed. The silt ponds will either be de-watered (water levels lowered to a level where the silt pond will naturally develop as a small wetland feature), left in situ, or infilled (where discharges do not require silt control).

- Inoculation of Sphagnum will be considered in the future as part of the Peatlands and People LIFE Project.

Type	Rehab Code	Enhanced Rehabilitation Measure	Extent (Ha)
Dry Cutaway	DCT1	Blocking outfalls and managing water levels with overflow pipes	18.35
	DCT2	Regular drain blocking (3/100m), modifying outfalls and managing water levels with overflow pipes and targeted fertiliser treatment.	22.79
Wetland	WLT2	Turn off or reduce pumping to re-wet cutaway + modifying outfalls and managing water levels with overflow pipes + Targeted modifying of outfalls within a site+ targeted fertiliser application	7.86
	WLT4	More intensive drain blocking (max 7/100 m), modifying outfalls and managing overflows, transplanting Reeds and other rhizomes.	22.04
Deep Peat	DPT2	More intensive drain blocking (max 7/100 m) and modifying outfalls and managing overflows	76.12
	DPT3	More intensive drain blocking (max 7/100 m), + field reprofiling + blocking outfalls and managing overflows.	35.38
Marginal land	MLT1	No work required.	26.92
	MLT2	More intensive drain blocking (max7/100 m).	8.94
Additional Work	AW2	Targeted Drain Blocking	19.39
Silt ponds	Silt pond	Silt ponds.	0.72
Constraint	Constraint	Other Constraints (Rights of Way, Turf cutting, Amenity, Archaeology, extant high bog).	26.71
Total			**265.22**

Table 1. Types of and areas for enhanced rehabilitation measures at Moher Bog.

Moher Bog is located c.2km west of Lanesborough, and north of the N63 road. The overall rehabilitation area occupies the townlands of Cappagh, Sheehaun, Moher, Cloondarra, Anrittabeg, Cloncashel More, Cloonshee and Cloonshee Beg on OS 6 inch sheet Roscommon No. 36.

Methodology

This is a desk-based archaeological assessment that includes a collation of existing written and graphic information to identify the likely archaeological potential of Moher Bog, followed by a field survey. The overall extent of the rehabilitation is indicated in Fig. 1. This area was examined using information from:

- The Peatland Survey 2007 & 2008
- The Record of Monuments and Places
- The Sites and Monuments Record that is maintained by the Dept of Housing, Local Government and Heritage
- The topographical files of the National Museum of Ireland.
- The Excavations database
- Previous assessments
- Field survey

An impact assessment has been prepared, and recommendations have been made.

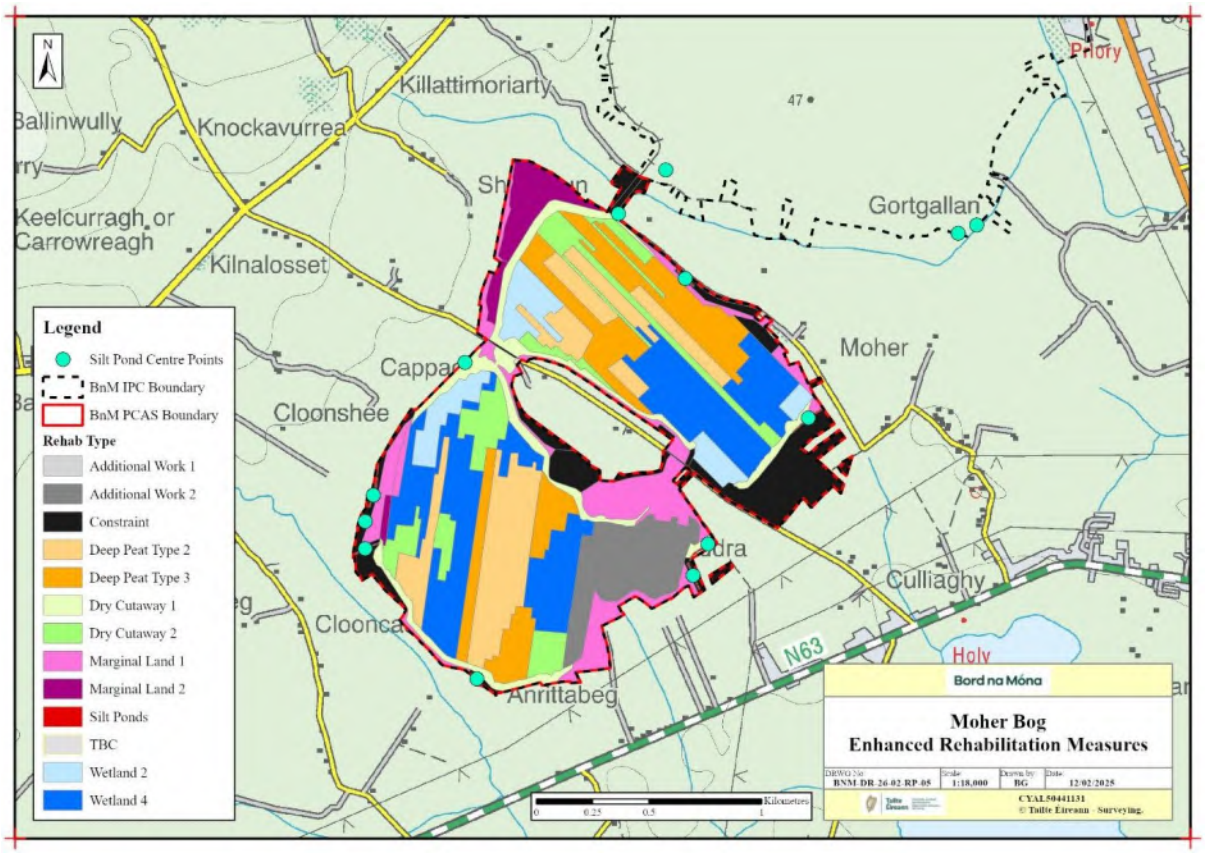


Fig. 1. Moher Bog, Co. Roscommon, proposed enhance rehabilitation measures.

Desktop assessment

Recorded Monuments

The Record of Monuments and Places (RMP) for Co. Roscommon which was established under Section 12 of the National Monuments (Amendment) Act, 1994 was examined as part of the assessment (DAHGI 1998). These records were published by the Minister in 1998 and include sites and monuments that were known in Moher Bog before that date. This review established that there are no RMPs within the rehabilitation area (see Fig. 1).

Sites and Monuments Record

The Sites and Monuments Record (SMR) which is maintained by the Department of Housing, Local Government and Heritage was examined as part of the assessment on the 21st of February 2025. The SMR consists of records included in the RMP and sites and monuments notified to the Dept. since the publication of the RMP. This review established that there are no entries in the SMR in the proposed rehabilitation area (see Fig. 2).

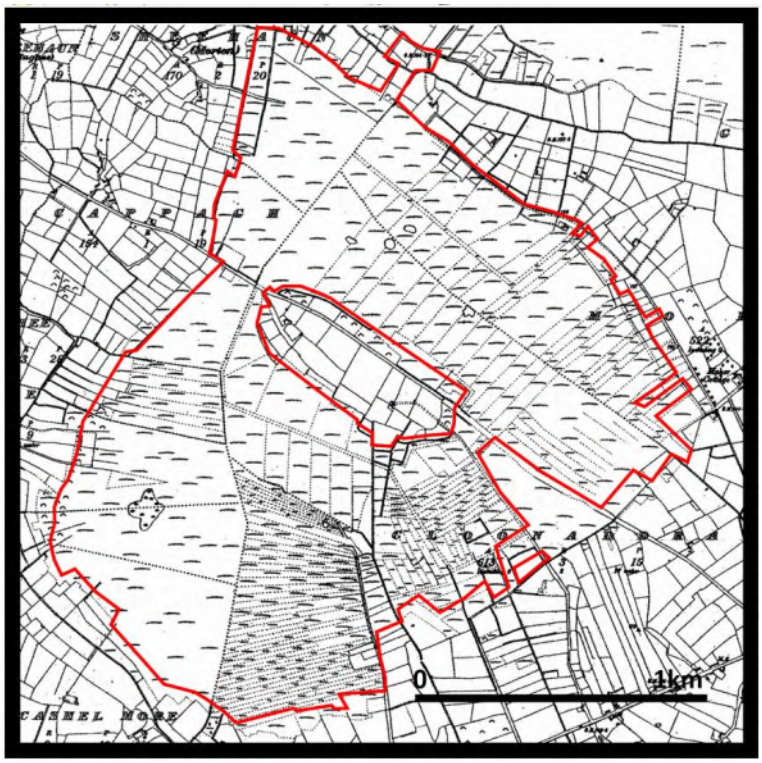


Fig. 1. Moher Bog, Co. Roscommon, detail of the Sites and Monuments Record with six inch map. The proposed rehabilitation area is outlined with the red line. There are Recorded Monuments in the rehabilitation area.

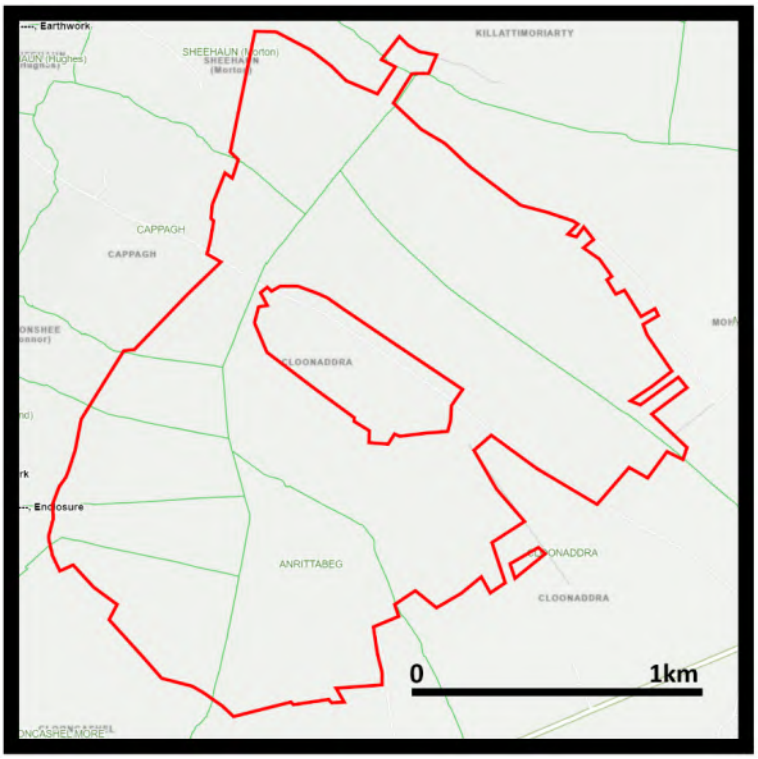


Fig. 2. Moher Bog, Co. Roscommon, detail of the Sites and Monuments Record with OS Discovery map. The proposed rehabilitation area is outlined with the red line. There are no SMRs in the rehabilitation area.

Peatland survey

Moher and Cloonadra Bogs (as the southern part of Moher was then called) were surveyed by the DOEHLG & Bord na Móna Survey 2007 & 2008 (Rohan 2009, 135, 143; unlicenced). Nothing of archaeological significance was found during the field walking of the Bogs.

Previous assessments

There have been no previous assessments of Moher Bog.

Reported finds

The DOEHLG & Bord na Móna Survey 2007 & 2008 (Rohan 2009) contains a complete list of the known archaeological objects from Moher Bog reported to the National Museum of Ireland up to 2009 and these are included in Table 2.

Townland	Museum No.	Description
Cloonadra Bog	1931:19	Sword
Cappagh	1948:2	Leather shoe
Moher Bog	20017-119	Bog butter
Moher Bog	20017-120	Bog butter

Table 2. List of archaeological finds from Moher Bog reported to the National Museum of Ireland.

Archaeological investigations

Reports of additional archaeological excavations and licensed monitoring in the study area listed in the excavations database at excvations.ie were examined as part of the assessment. There are no additional reports of archaeological investigation carried out in the rehabilitation area.

Field Survey

A field survey of Moher Bog will be completed in 2025. Moher Bog is considered to be suitable for a field survey as it:

- has wide drains at regular spaced intervals,
- appears from recent aerial photography not to be densely overgrown with vegetation.

Impact assessment

There are no sightings of archaeological material recorded in Moher Bog. There are several archaeological objects known from the bog that have been removed to the National Museum.

Recommendations

There are several archaeological objects known from the bog that have been removed to the National Museum. Should any previously unknown archaeological material be uncovered during the rehabilitation works, it should be avoided and reported to the Bord na Móna Archaeological Liaison Officer and the National Museum of Ireland.

Note this is a draft desktop report and will be revised with the results of the field survey carried out in 2025. As there will be a full field survey observing the surfaces and every second drain face, archaeological monitoring during rehabilitation works is not recommended.

Conclusion

There are no sightings of archaeological material recorded in Moher Bog. Should any previously unknown archaeological material be uncovered during the rehabilitation works, it should be avoided and reported to the Bord na Móna Archaeological Liaison Officer and the National Museum of Ireland.

Note this is a draft desktop report and will be revised with the results of the field survey carried out in 2025. As there will be a full field survey observing the surfaces and every second drain face, archaeological monitoring during rehabilitation works is not recommended.

References

DAHGI 1998. Recorded Monuments Protected under Section 12 of the National Monuments (Amendment) Act, 1994. County Roscommon.

EPA 2020. Guidance on the process of preparing and implementing a bog rehabilitation plan.

Rohan, N. 2009. 2007 & 2008 Peatland Survey. Blackwater, Derryfadda, Coolnagun & Mountdillon Group of bogs, Counties Offaly, Galway, Longford, Westmeath and Roscommon. Unpublished report Bord na Móna.

Dr. Charles Mount
21 February 2025

APPENDIX XIII: WATER QUALITY MONITORING RESULTS FOR MOHER BOG

PCAS SW Sampling Scheme				Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/8/22	1/9/22	1/10/22	1/11/22	1/12/22	1/1/23	1/2/23	1/3/23	1/4/23	1/5/23	1/6/23	1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23
Mountdillon	P0504-01	Moher	SW31	11	3	2	NF	2	2	2	2	3	3	5	6	2	NF	NF	2	10
Monthly Rainfall (mm) Lanesborough (Cloonadra)				70.5	107.2	197.5	122.4	113.2	96.4	19	173.2	93.9	35.9	80.8	219.9	142.1	129.9	128.1	101.1	152
Suspended solids ELV				35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
				2	32	4.9047619														

PCAS SW Sampling Scheme				Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co
				1/8/22	1/9/22	1/10/22	1/11/22	1/12/22	1/1/23	1/2/23	1/3/23	1/4/23	1/5/23	1/6/23	1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23
Mountdillon	P0504-01	Moher	SW31	184	397	297	NF	179	205	138	197	264	421	267	295	552	NF	NF	212	273
Monthly Rainfall (mm) Lanesborough (Cloonadra)				70.5	107.2	197.5	122.4	113.2	96.4	19	173.2	93.9	35.9	80.8	219.9	142.1	129.9	128.1	101.1	152

PCAS SW Sampling Scheme				COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/8/22	1/9/22	1/10/22	1/11/22	1/12/22	1/1/23	1/2/23	1/3/23	1/4/23	1/5/23	1/6/23	1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23
Mountdillon	P0504-01	Moher	SW31	41	84	75	NF	48	34	48	46	77	74	88	114	137	NF	NF	30	43
Monthly Rainfall (mm) Lanesborough (Cloonadra)				70.5	107.2	197.5	122.4	113.2	96.4	19	173.2	93.9	35.9	80.8	219.9	142.1	129.9	128.1	101.1	152
COD Trigger Level				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

PCAS SW Sampling Scheme				pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH
Bog Group	Licence No	Bog Name	SW Code - GIS	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units
				1/8/22	1/9/22	1/10/22	1/11/22	1/12/22	1/1/23	1/2/23	1/3/23	1/4/23	1/5/23	1/6/23	1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23
Mountdillon	P0504-01	Moher	SW31	7.4	7	6.7		7.7	6.2	8	7.6	7.4	6.9	7.1	7.2	6.4			6.3	5.8
Monthly Rainfall (mm) Lanesborough (Cloonadra)				70.5	107.2	197.5	122.4	113.2	96.4	19	173.2	93.9	35.9	80.8	219.9	142.1	129.9	128.1	101.1	152

PCAS SW Sampling Scheme				TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/8/22	1/9/22	1/10/22	1/11/22	1/12/22	1/1/23	1/2/23	1/3/23	1/4/23	1/5/23	1/6/23	1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23
Mountdillon	P0504-01	Moher	SW31	0.15	0.05	0.05	NF	0.05	0.05	0.05	0.05	0.05	0.07	0.08	0.14	0.05	NF	NF	0.05	0.05
Monthly Rainfall (mm) Lanesborough (Cloonadra)				70.5	107.2	197.5	122.4	113.2	96.4	19	173.2	93.9	35.9	80.8	219.9	142.1	129.9	128.1	101.1	152

PCAS SW Sampling Scheme				TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/8/22	1/9/22	1/10/22	1/11/22	1/12/22	1/1/23	1/2/23	1/3/23	1/4/23	1/5/23	1/6/23	1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23
Mountdillon	P0504-01	Moher	SW31	507	179	78	NF	330	131	367	142	219	184	325	271	164	NF	NF	42	76
Monthly Rainfall (mm) Lanesborough (Cloonadra)				70.5	107.2	197.5	122.4	113.2	96.4	19	173.2	93.9	35.9	80.8	219.9	142.1	129.9	128.1	101.1	152

PCAS SW Sampling Scheme				Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/8/22	1/9/22	1/10/22	1/11/22	1/12/22	1/1/23	1/2/23	1/3/23	1/4/23	1/5/23	1/6/23	1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23
Mountdillon	P0504-01	Moher	SW31	0.399	0.178	0.558	NF	0.209	0.167	0.1	0.247	0.017	0.088	0.071	1.44	0.36	NF	NF	0.085	0.129
Monthly Rainfall (mm) Lanesborough (Cloonadra)				70.5	107.2	197.5	122.4	113.2	96.4	19	173.2	93.9	35.9	80.8	219.9	142.1	129.9	128.1	101.1	152
Ammonia Trigger Level				1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
				1.44	0.017	0.2481429														

PCAS SW Sampling Scheme				DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/8/22	1/9/22	1/10/22	1/11/22	1/12/22	1/1/23	1/2/23	1/3/23	1/4/23	1/5/23	1/6/23	1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23
Mountdillon	P0504-01	Moher	SW31	13.7	30.5	28.2	NF	20.8	13.1	17.7	17.2	21.5	30.4	32.1	31.2	52.7	NF	NF	16.1	12.3
Monthly Rainfall (mm) Lanesborough (Cloonadra)				70.5	107.2	197.5	122.4	113.2	96.4	19	173.2	93.9	35.9	80.8	219.9	142.1	129.9	128.1	101.1	152

PCAS SW Sampling Scheme				Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids	Suspended Solids
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/1/24	1/2/24	1/3/24	1/4/24	1/5/24	1/6/24	1/7/24	1/8/24	1/9/24	1/10/24	1/11/24	1/12/24
Mountdillon	P0504-01	Moher	SW31	2	8	2	4	32	3	6	D	D	D	3	2
Monthly Rainfall (mm) Lanesborough (Cloonadra)				74.8	122.7	126	93.9	64.6	41.8	56.9	104.6	33			
			Suspended solids ELV	35	35	35	35	35	35	35	35	35	35	35	35

PCAS SW Sampling Scheme				Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour	Colour
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co	mg/l Pt Co
				1/1/24	1/2/24	1/3/24	1/4/24	1/5/24	1/6/24	1/7/24	1/8/24	1/9/24	1/10/24	1/11/24	1/12/24
Mountdillon	P0504-01	Moher	SW31	323	230	384	229	394	316	175	D	D	D	294	265
Monthly Rainfall (mm) Lanesborough (Cloonadra)				74.8	122.7	126	93.9	64.6	41.8	56.9	104.6	33			

PCAS SW Sampling Scheme				COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD	COD
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/1/24	1/2/24	1/3/24	1/4/24	1/5/24	1/6/24	1/7/24	1/8/24	1/9/24	1/10/24	1/11/24	1/12/24
Mountdillon	P0504-01	Moher	SW31	65	60	75	55	85	84	59	D	D	D	95	71
Monthly Rainfall (mm) Lanesborough (Cloonadra)				74.8	122.7	126	93.9	64.6	41.8	56.9	104.6	33			
			COD Trigger Level	100	100	100	100	100	100	100	100	100	100	100	100

PCAS SW Sampling Scheme				pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH
Bog Group	Licence No	Bog Name	SW Code - GIS	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units
				1/1/24	1/2/24	1/3/24	1/4/24	1/5/24	1/6/24	1/7/24	1/8/24	1/9/24	1/10/24	1/11/24	1/12/24
Mountdillon	P0504-01	Moher	SW31	7.3	7.4	6.9	7.6	7.6	7.3	7				7	7.1
Monthly Rainfall (mm) Lanesborough (Cloonadra)				74.8	122.7	126	93.9	64.6	41.8	56.9	104.6	33			

PCAS SW Sampling Scheme				TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
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Mountdillon	P0504-01	Moher	SW31	0.07	0.12	0.05	0.13	0.14	0.05	0.1	D	D	D	0.05	0.05
Monthly Rainfall (mm) Lanesborough (Cloonadra)				74.8	122.7	126	93.9	64.6	41.8	56.9	104.6	33			

PCAS SW Sampling Scheme				TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/1/24	1/2/24	1/3/24	1/4/24	1/5/24	1/6/24	1/7/24	1/8/24	1/9/24	1/10/24	1/11/24	1/12/24
Mountdillon	P0504-01	Moher	SW31	175	249	189	147	246	247	254	D	D	D	294	17
Monthly Rainfall (mm) Lanesborough (Cloonadra)				74.8	122.7	126	93.9	64.6	41.8	56.9	104.6	33			

PCAS SW Sampling Scheme				Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/1/24	1/2/24	1/3/24	1/4/24	1/5/24	1/6/24	1/7/24	1/8/24	1/9/24	1/10/24	1/11/24	1/12/24
Mountdillon	P0504-01	Moher	SW31	0.064	0.092	0.155	0.069	0.046	1.12	0.064	D	D	D	0.023	0.107
Monthly Rainfall (mm) Lanesborough (Cloonadra)				74.8	122.7	126	93.9	64.6	41.8	56.9	104.6	33			
			Ammonia Trigger Level	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42

PCAS SW Sampling Scheme				DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC	DOC
Bog Group	Licence No	Bog Name	SW Code - GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/1/24	1/2/24	1/3/24	1/4/24	1/5/24	1/6/24	1/7/24	1/8/24	1/9/24	1/10/24	1/11/24	1/12/24
Mountdillon	P0504-01	Moher	SW31	29.1	20.3	29.4	19.7	30	29.4	20.9	D	D	D	33.3	24.4
Monthly Rainfall (mm) Lanesborough (Cloonadra)				74.8	122.7	126	93.9	64.6	41.8	56.9	104.6	33			

APPENDIX XIII: STOCKPILE DECOMMISSIONING PROCEDURE

Scope

All IPC licensed peatlands with residual peat stockpiles requiring decommissioning and rehabilitation, as required by Condition 10.

The aim of this Stockpile Decommissioning Procedure is to stabilise any remaining stockpiles by depositing the peat in the two drains located immediately adjacent to the stockpile field, enabling the re-shaping of the stockpile to facilitate stabilization and revegetation.

Condition 10:

10.1 Following termination of use or involvement of all or part of the site in the licensed activity, the licensee shall:

10.1.1 Decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

Procedure:

1. Strip any remaining stockpile protection and remove using the poly wrapper for recycling.
2. Ensure the silt pond servicing this pile field catchment has been cleaned within the last six months as per condition 6.8, and visually inspected as per condition 6.7, prior to any pile decommissioning.
3. Where stockpiles occur within areas planned for rehabilitation, such planned rehabilitation measures (regular drain blocking) will be implemented in advance of any stockpile decommissioning, with priority given to the required adjacent stockpile field drains.
4. Once the rehabilitation measure above has been completed, proceed to reprofile the stockpile as per below.
5. Using suitable available excavator/dozer to make a safe ramp up onto the end of the pile.
6. Track up onto the pile and establish a safe level base.
7. Using the machine to reduce and reprofile the pile height and deposit into the adjoining pile field drains. The residual height to be determined based on stockpile size and area required to reprofile.
8. Work along the pile using this method until reaching the pile end.
9. Using a suitable machine, track the peat into the pile field drain along both sides of the pile, ensuring the final level is below the existing drain blocks and any damage to existing drain blocks avoided.
10. If required, use a suitable machine to track along the top of the reprofiled stockpile to level and flatten the profile to reduce the runoff gradient.
11. Fertiliser application and any grass seed mix should be applied to each stockpile following completion of the above steps, to accelerate the stabilisation.

APPENDIX 2

MOHER BOG- DECOMMISSIONING AND REHABILITATION PLAN GIS MAPBOOK

Bord na Móna

Moher Bog
GIS Map Book
2025

MAKING COMPLEX EASY

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This document comprises:	DCS	TOC	Text (Body)	References	Maps	No. of Appendices
	1	1	0	0	32	0

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Name(s):	BG	ML	CC
Date:	21/02/2025	21/02/2025	21/02/2025
Rev. 1.0	**Author(s):**	**Checked By:**	**Approved By:**
Name(s):	BG	ML	CC
Date:	24/02/2025	24/02/2025	24/02/2025

Bord na Móna would like to thank and acknowledge RPS Consultants for their input into this document and the provision of data for inclusion in these maps.

Note: This Document is confidential and commercially sensitive – not for release under FOI or AIE

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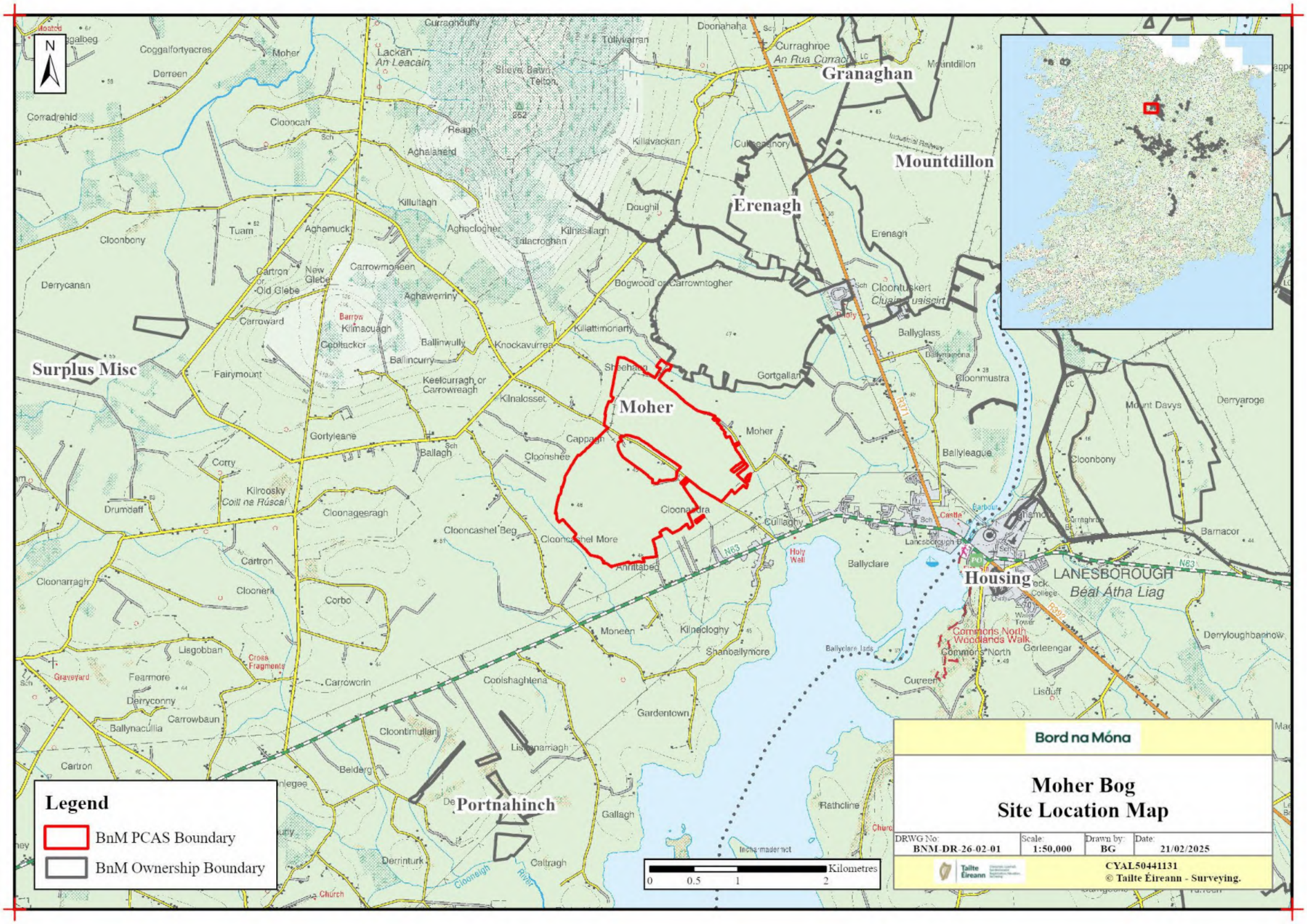

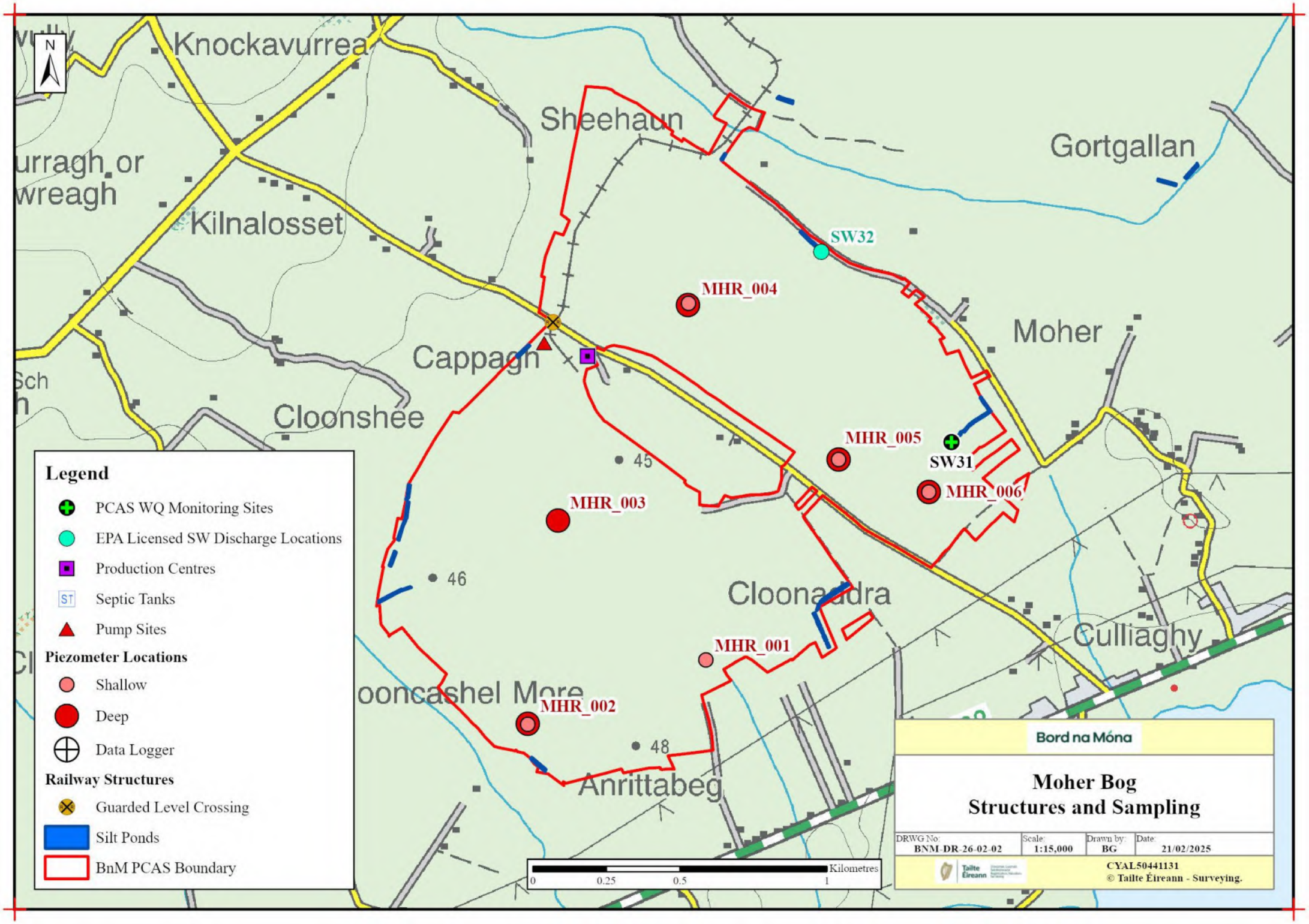
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Septic Tanks
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Railway Structures
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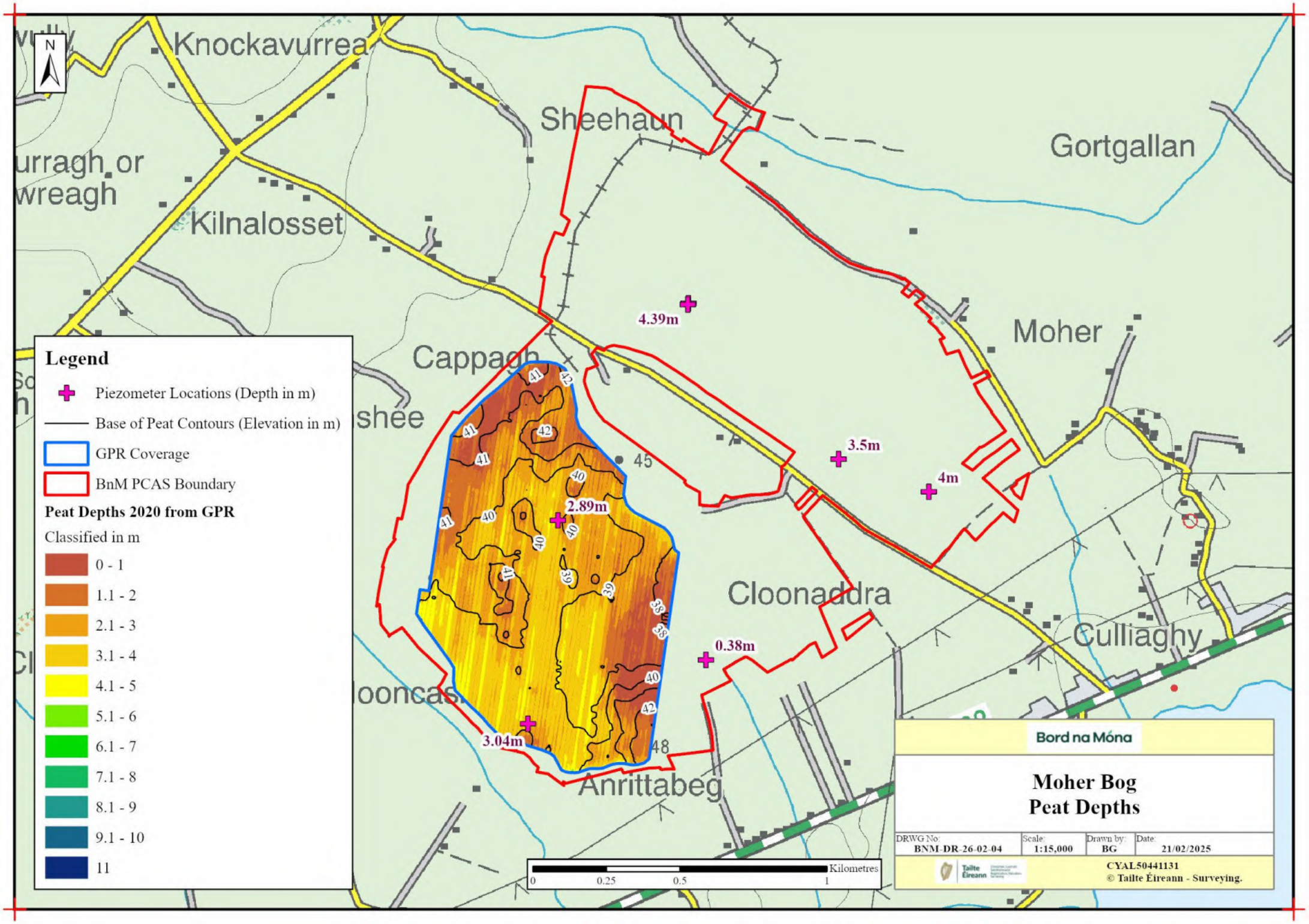

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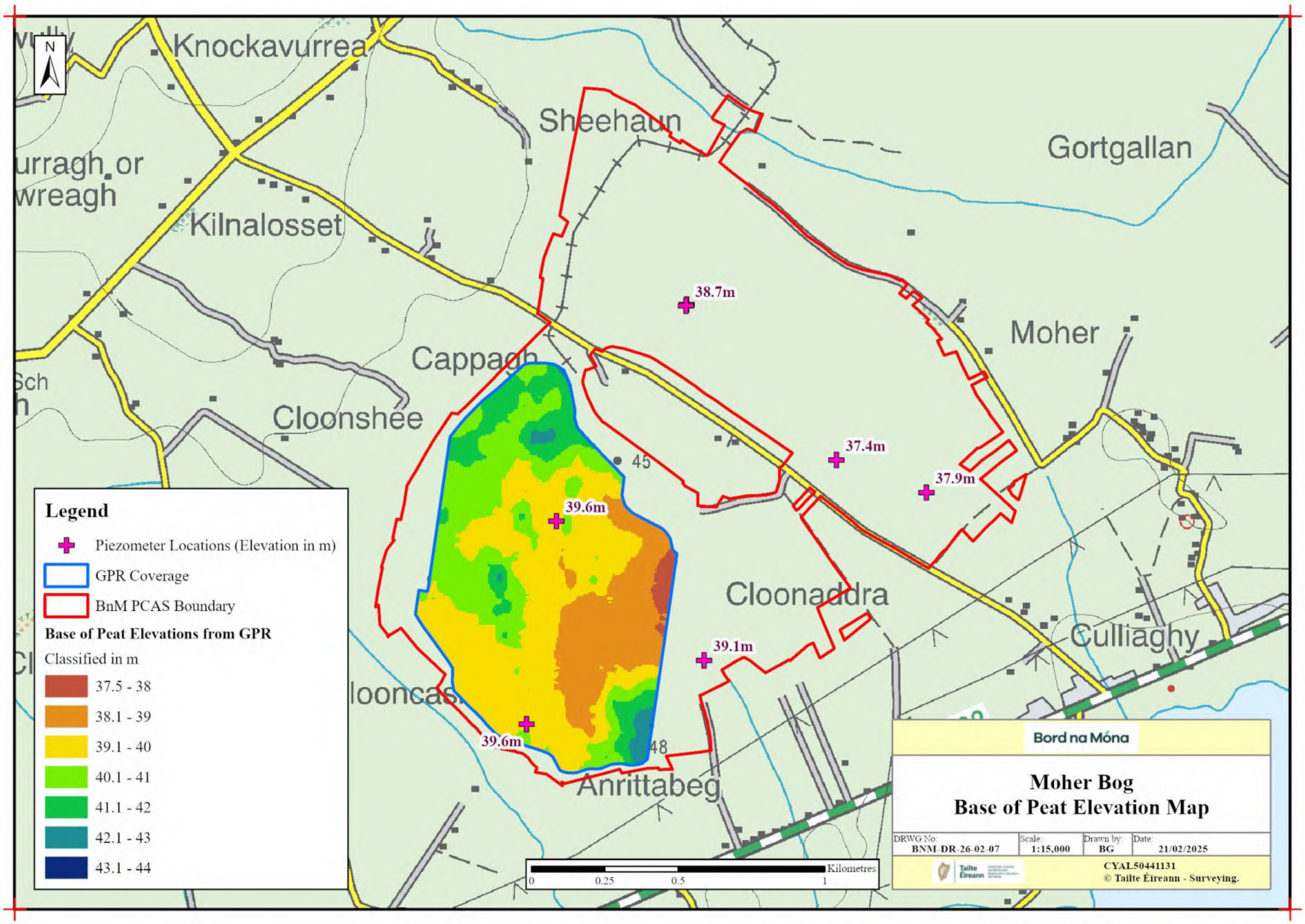

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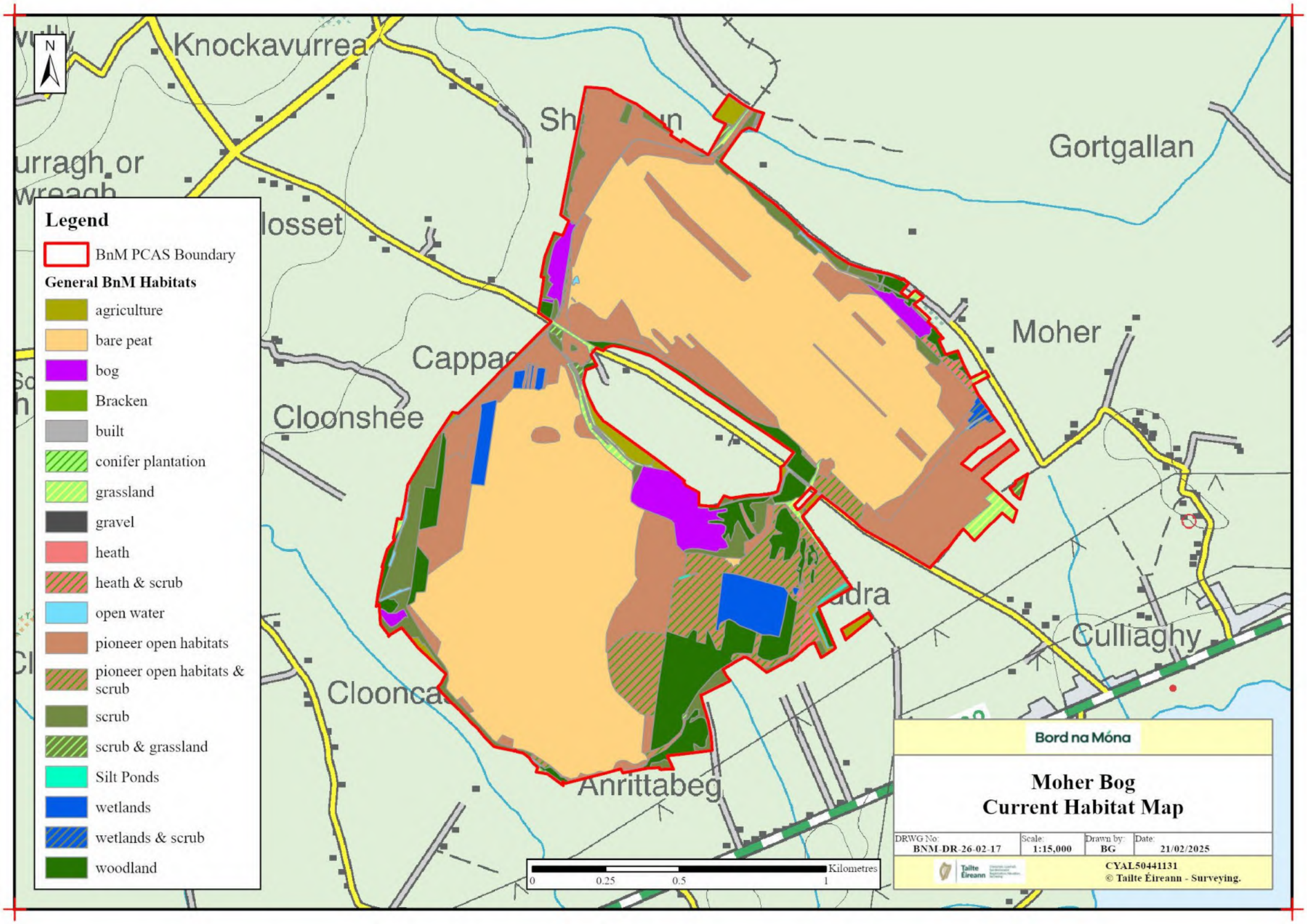

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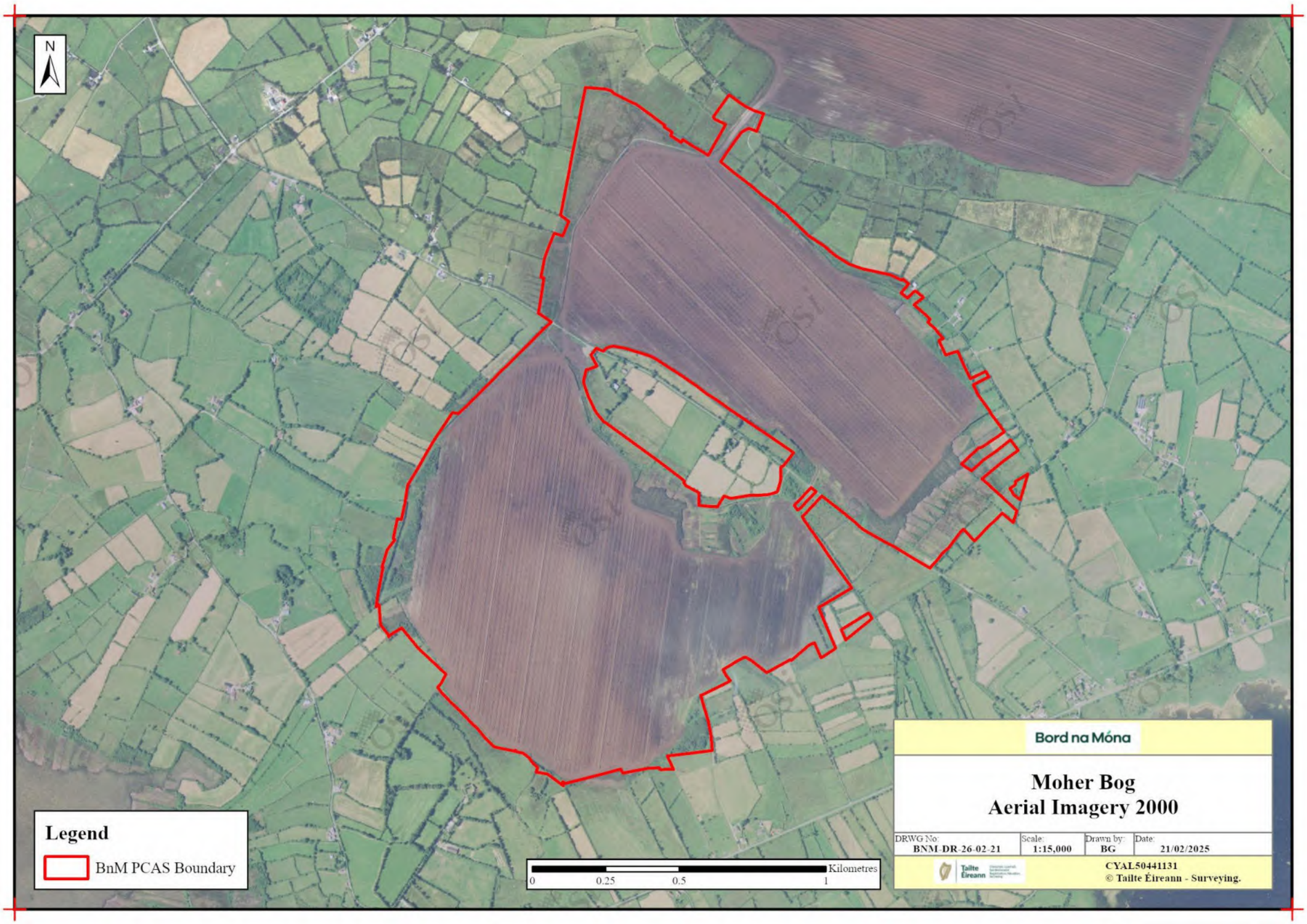

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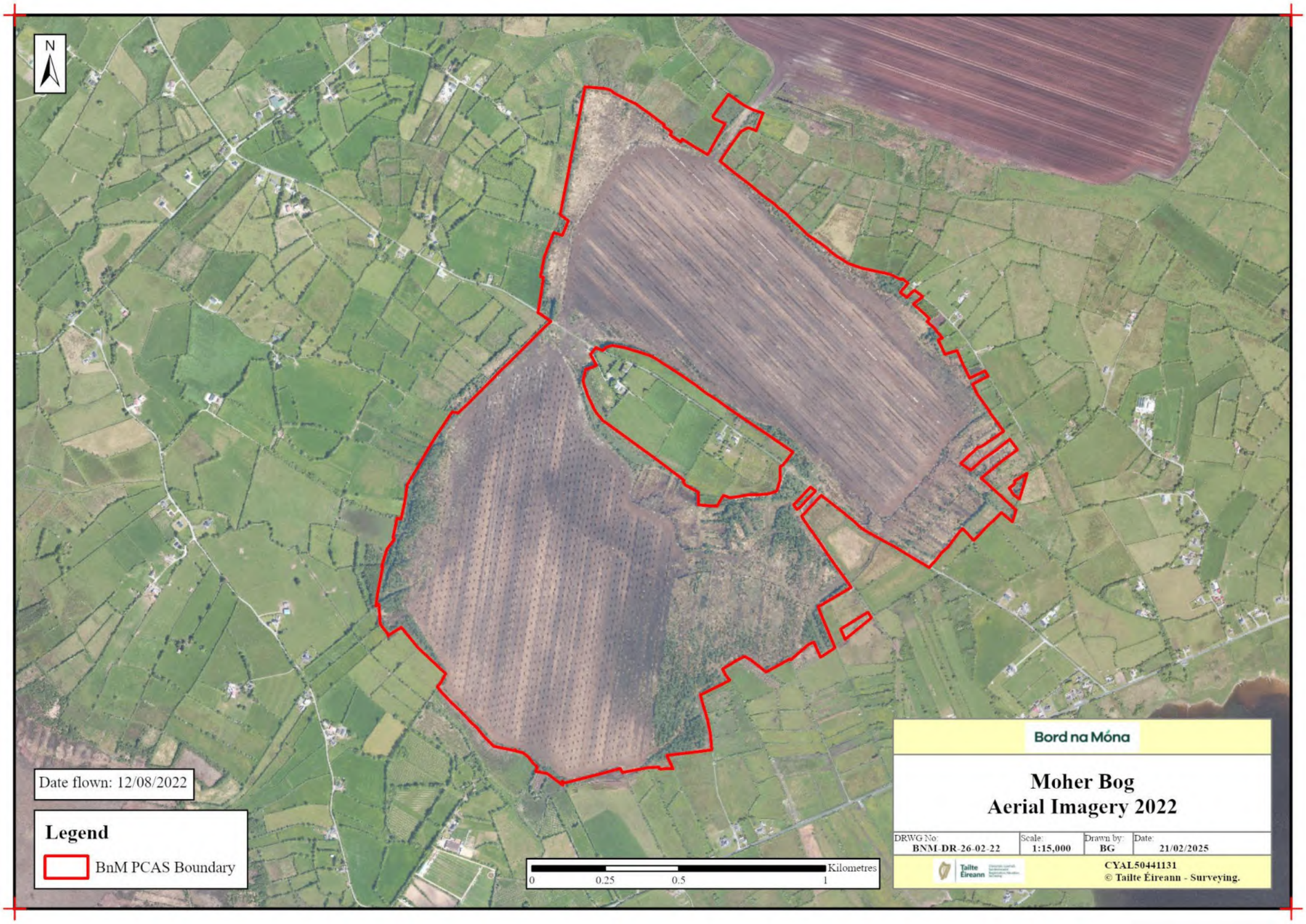

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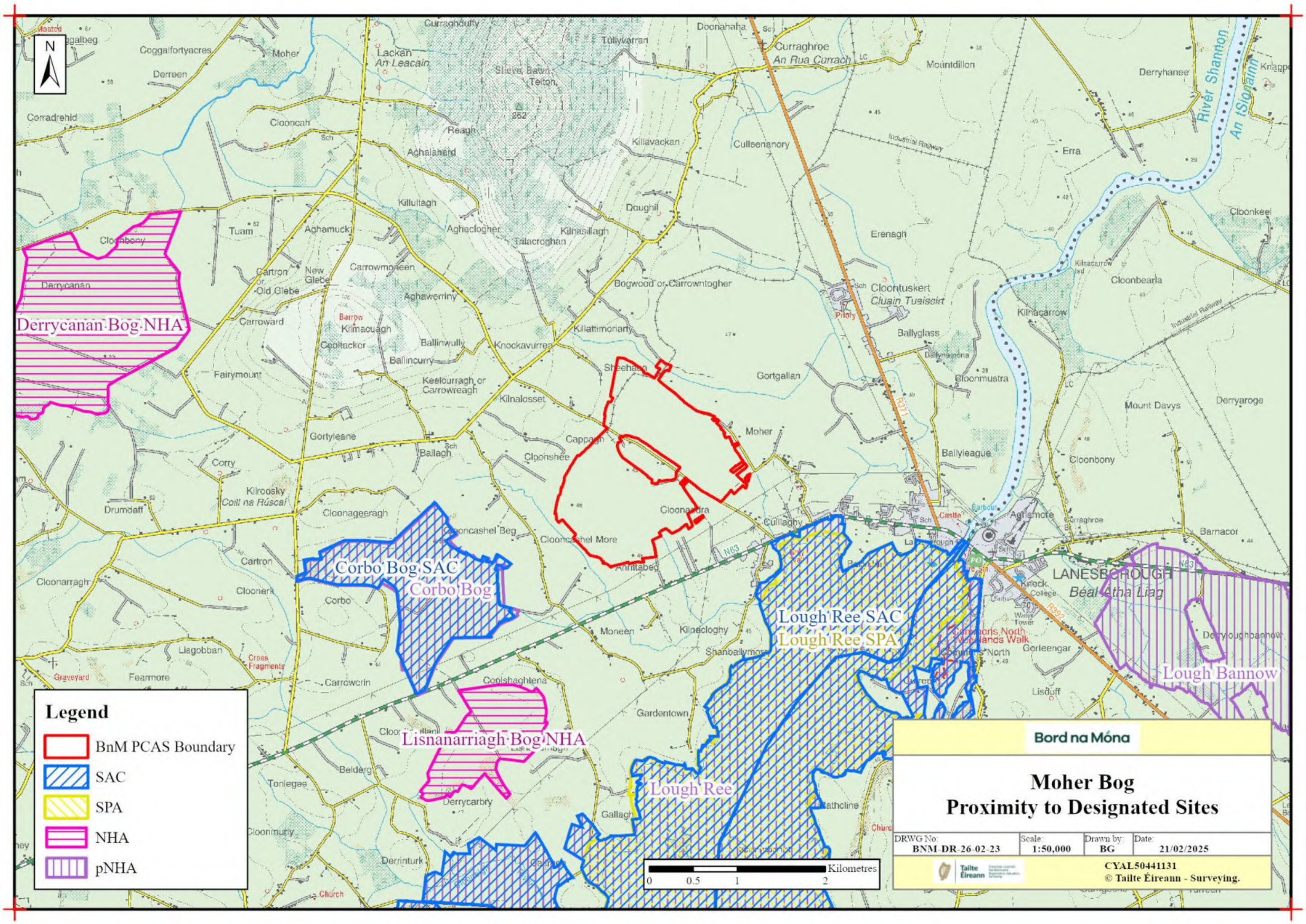

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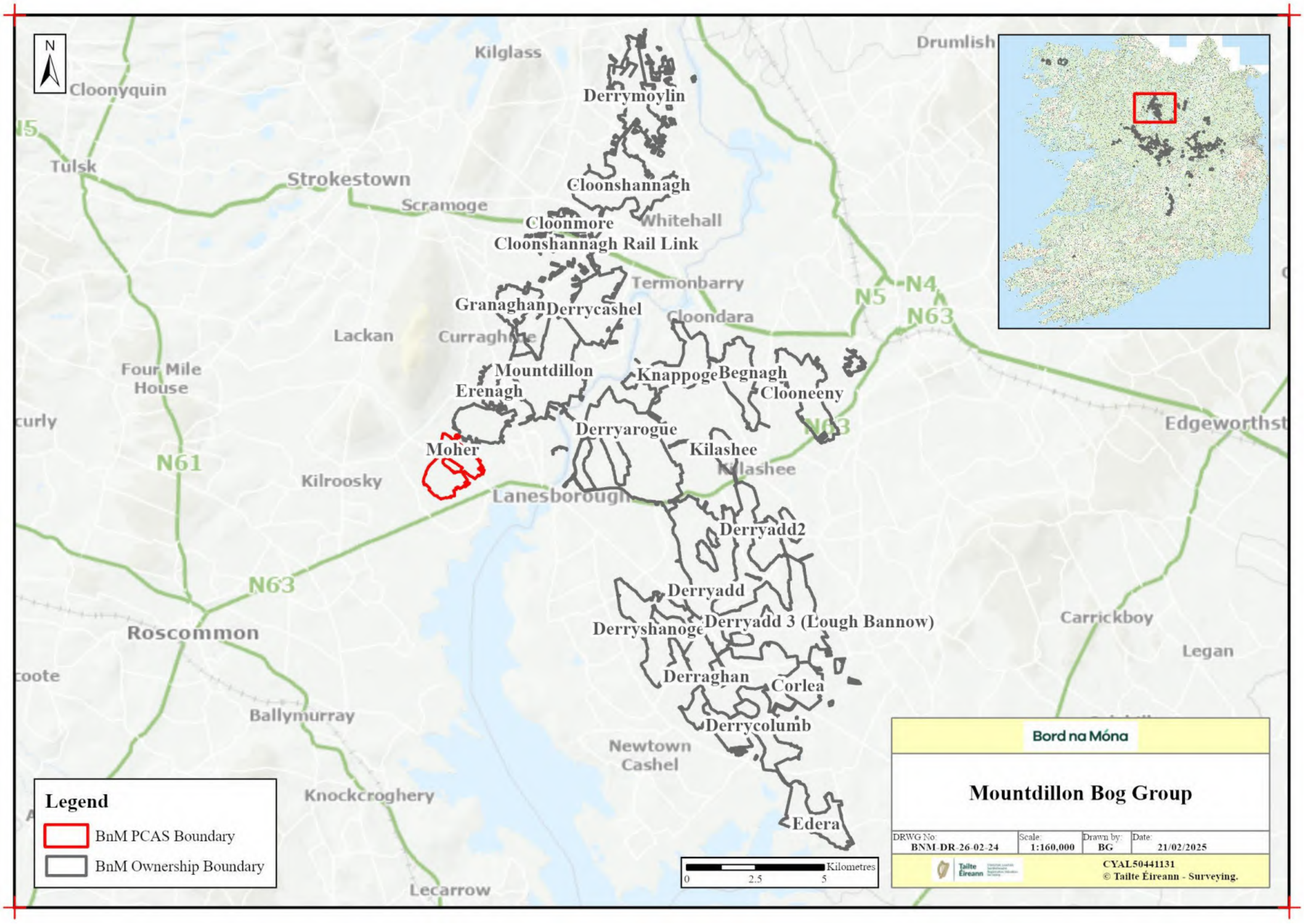

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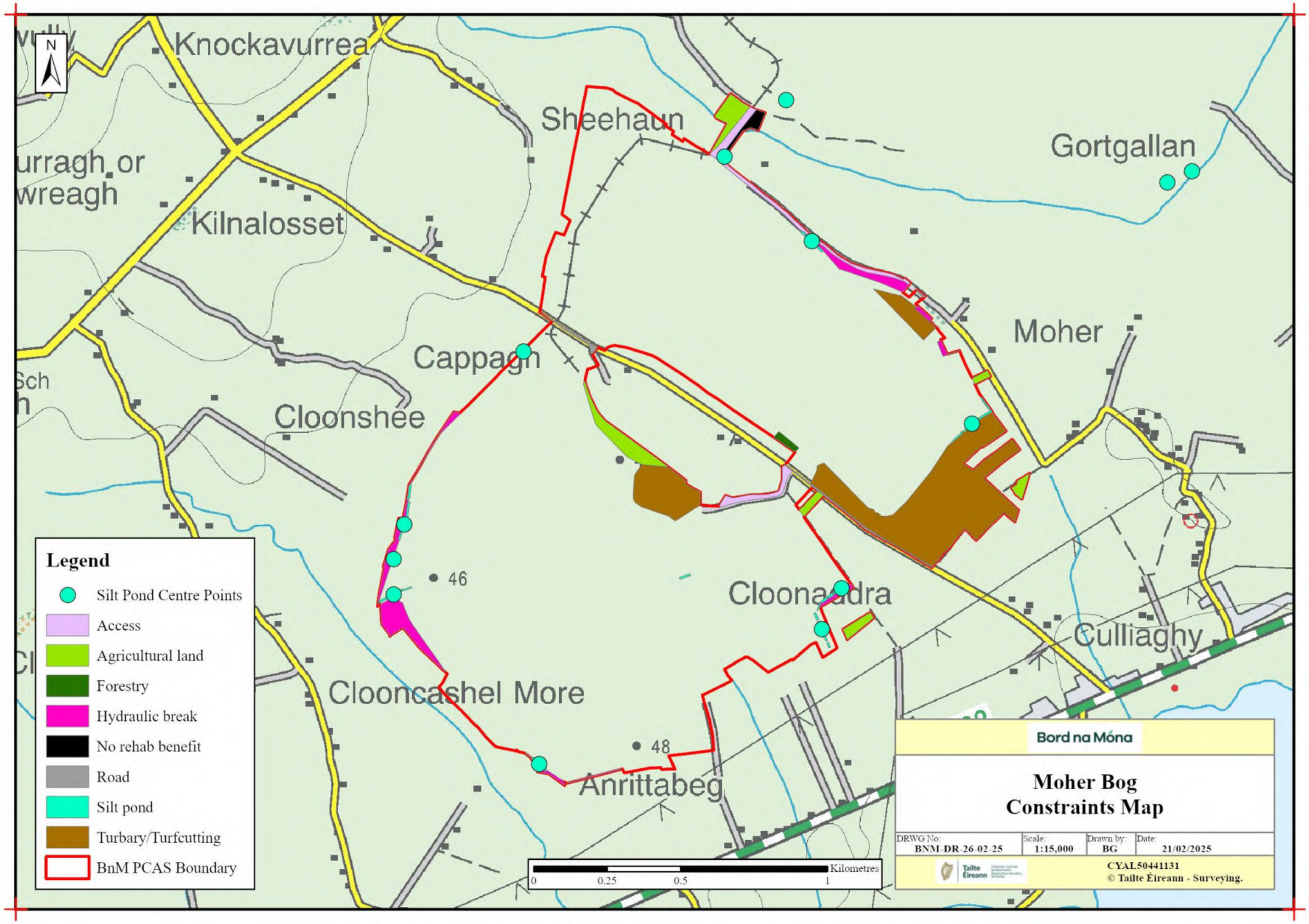

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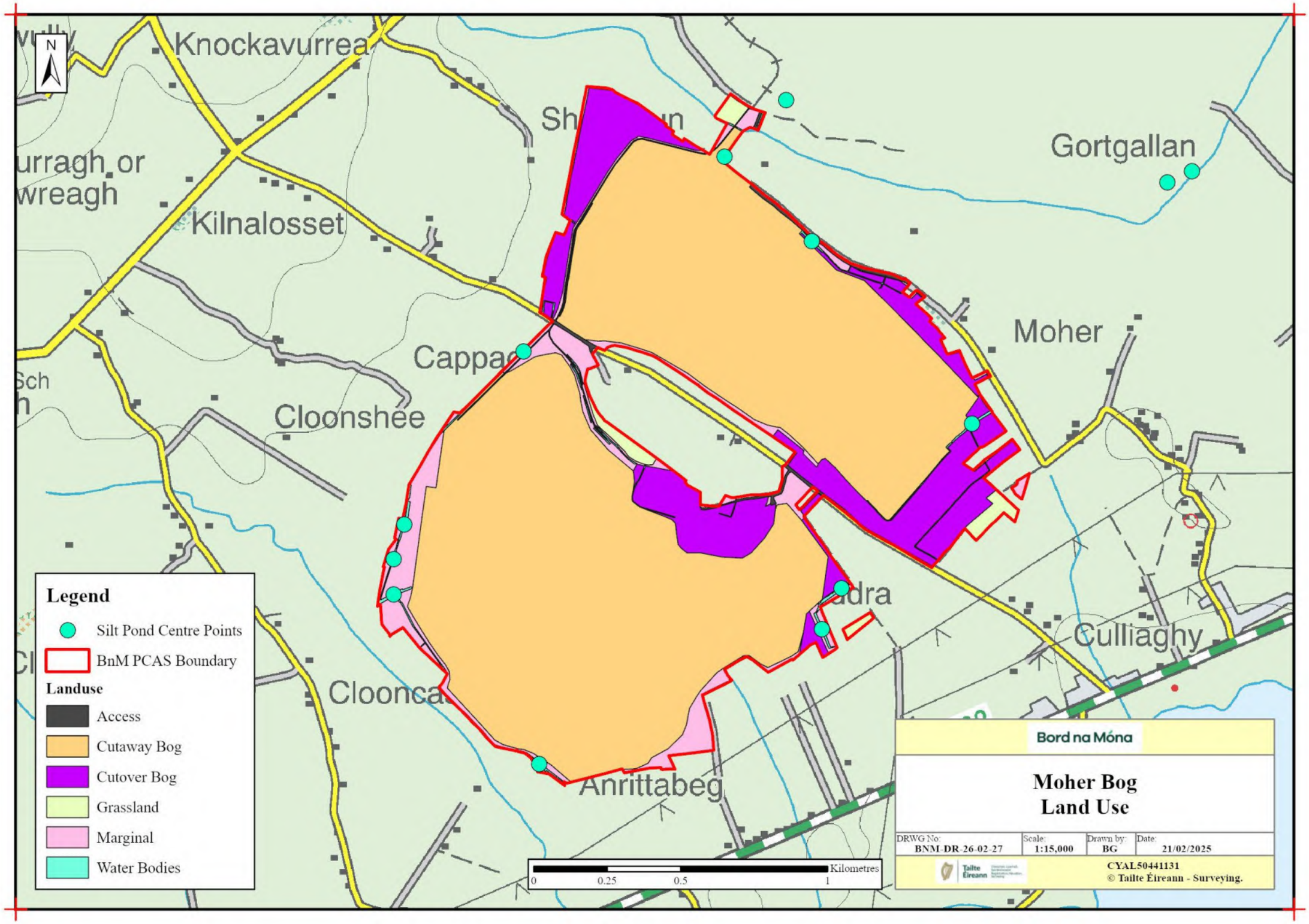

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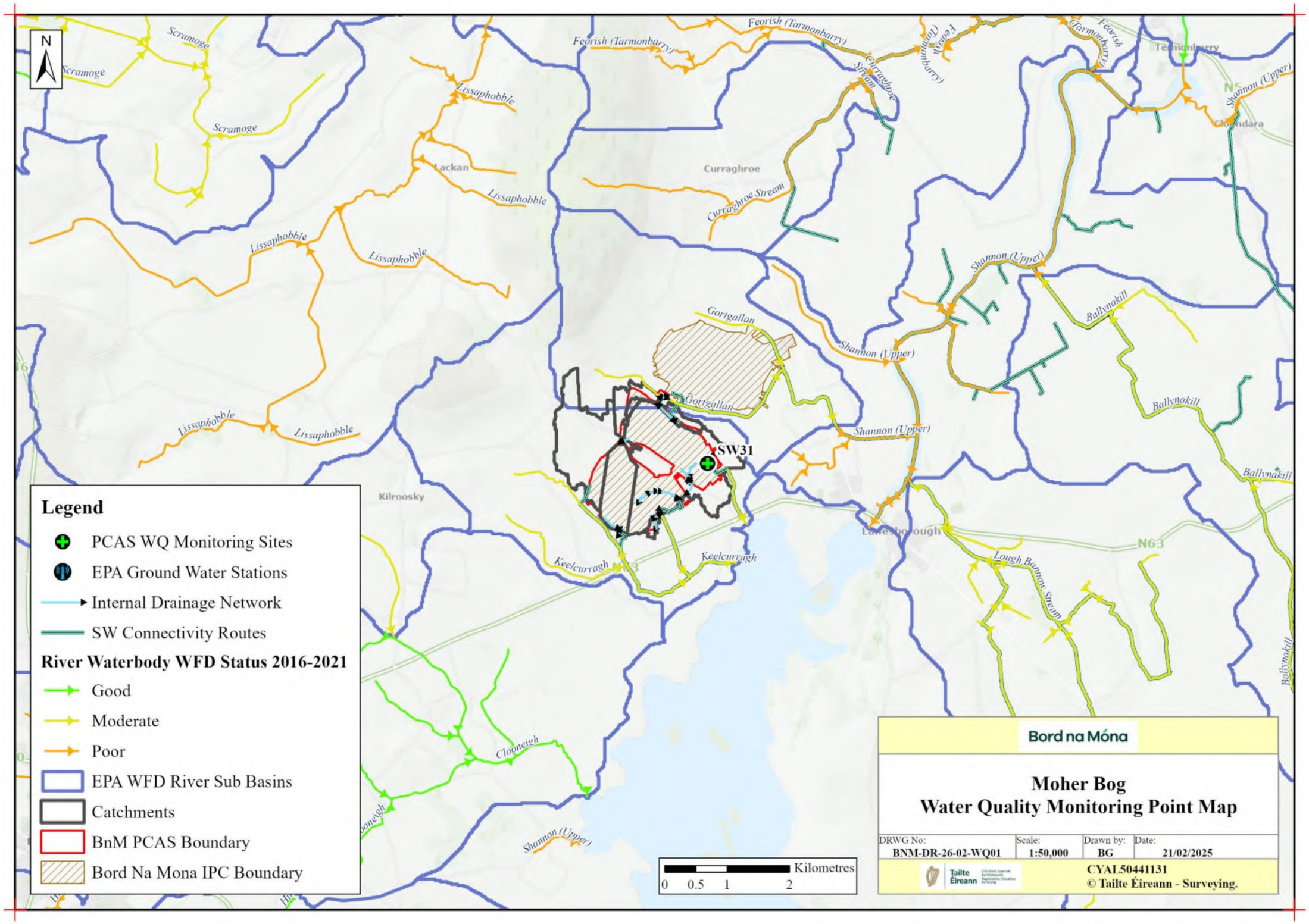

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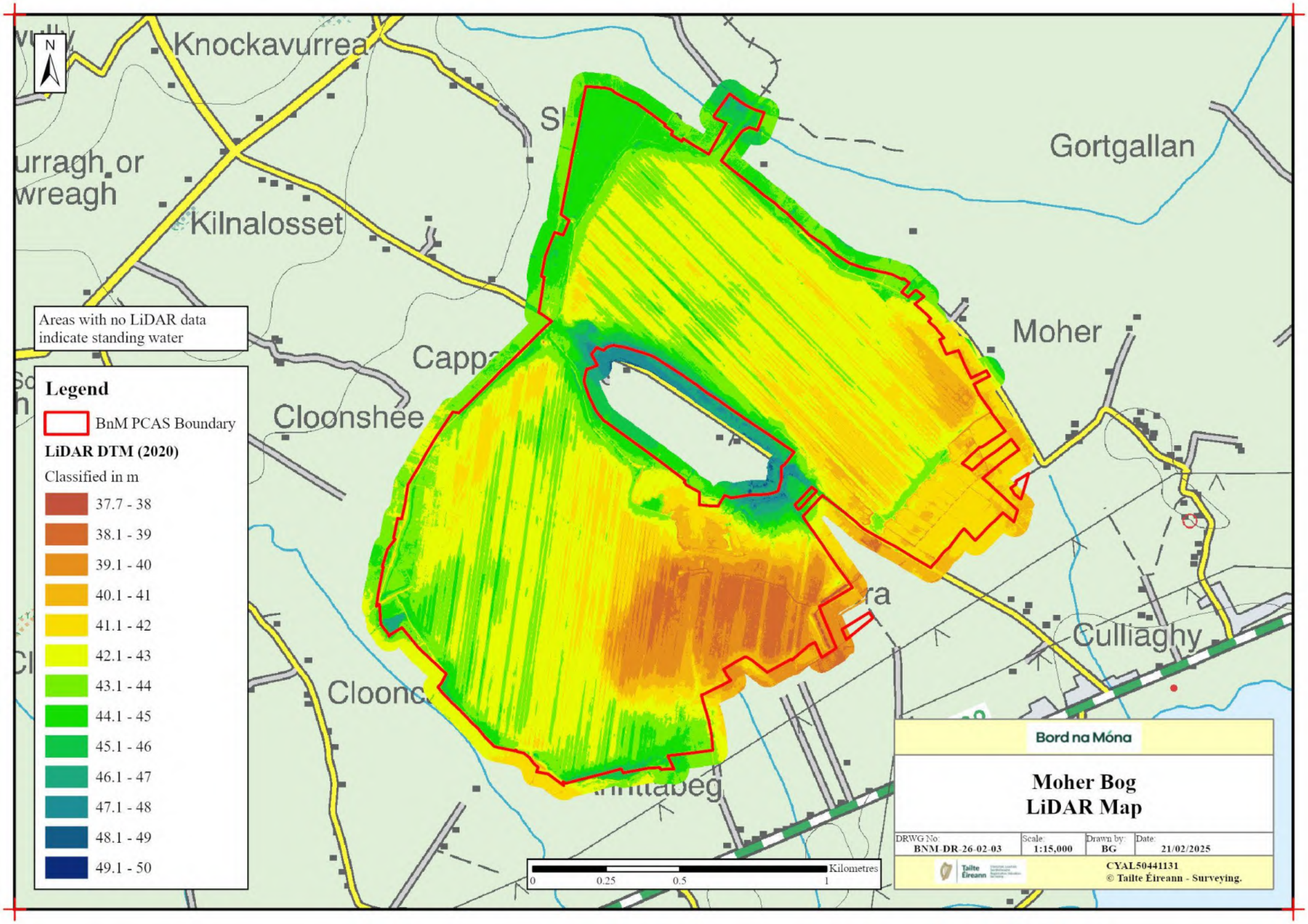

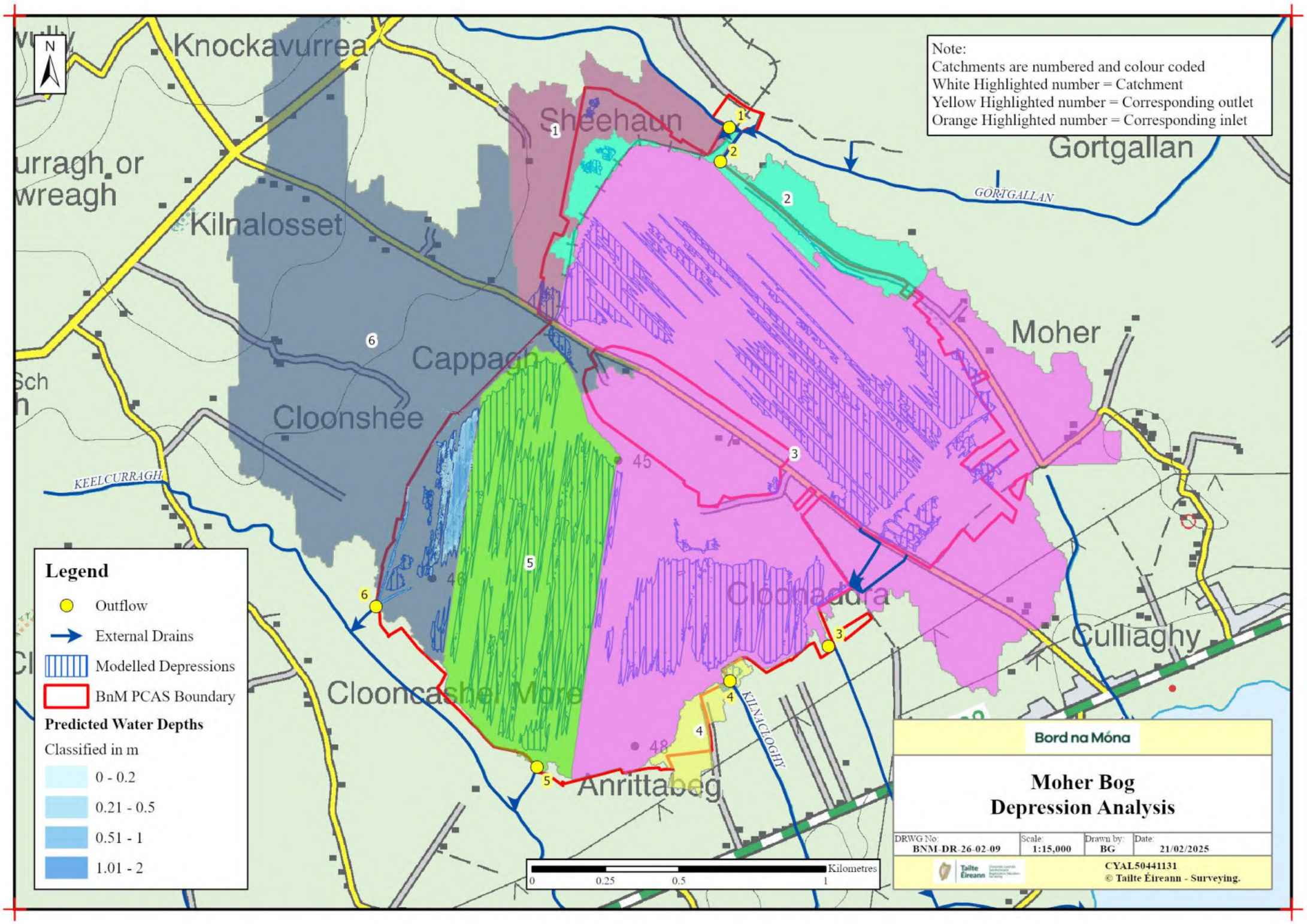
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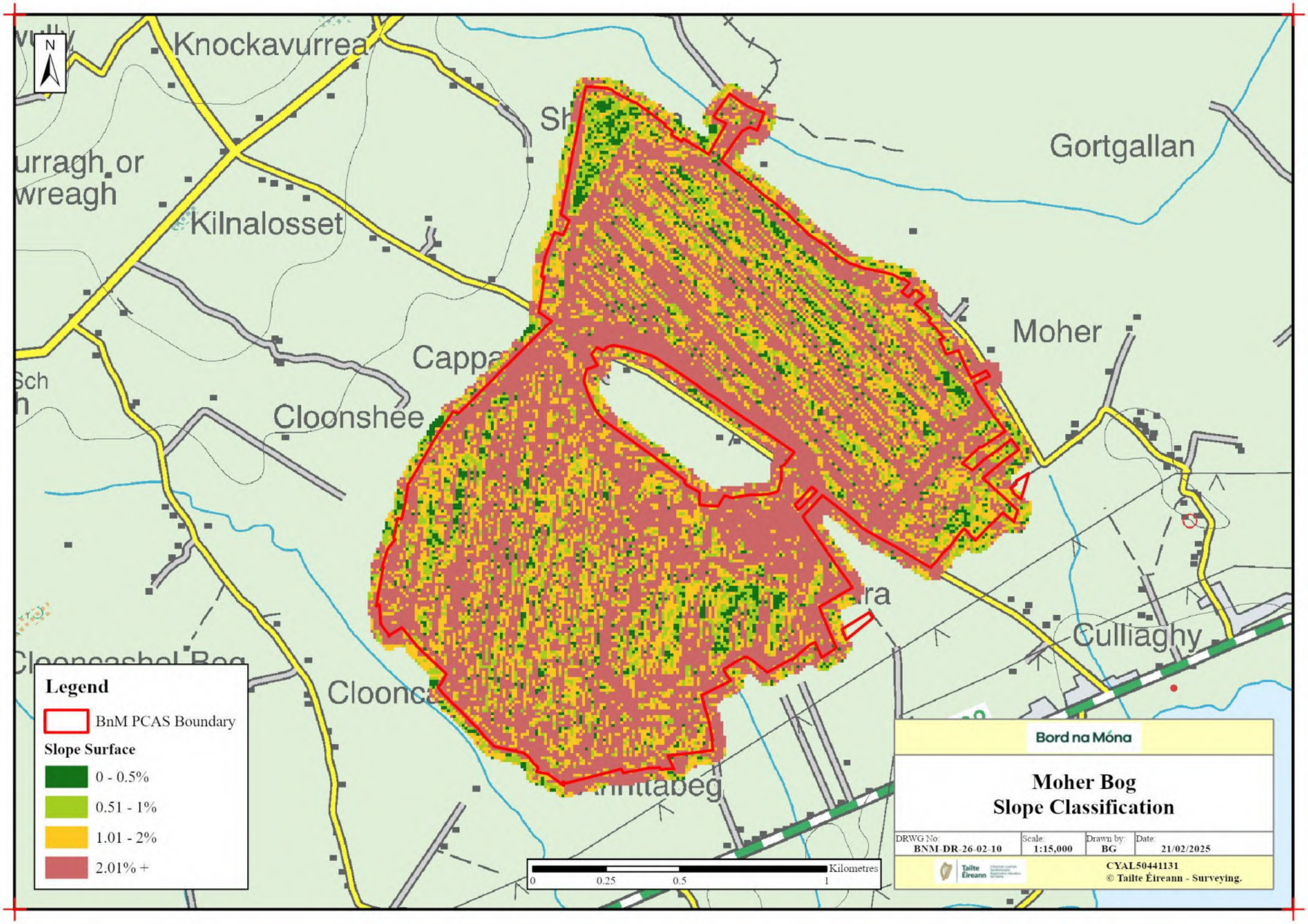

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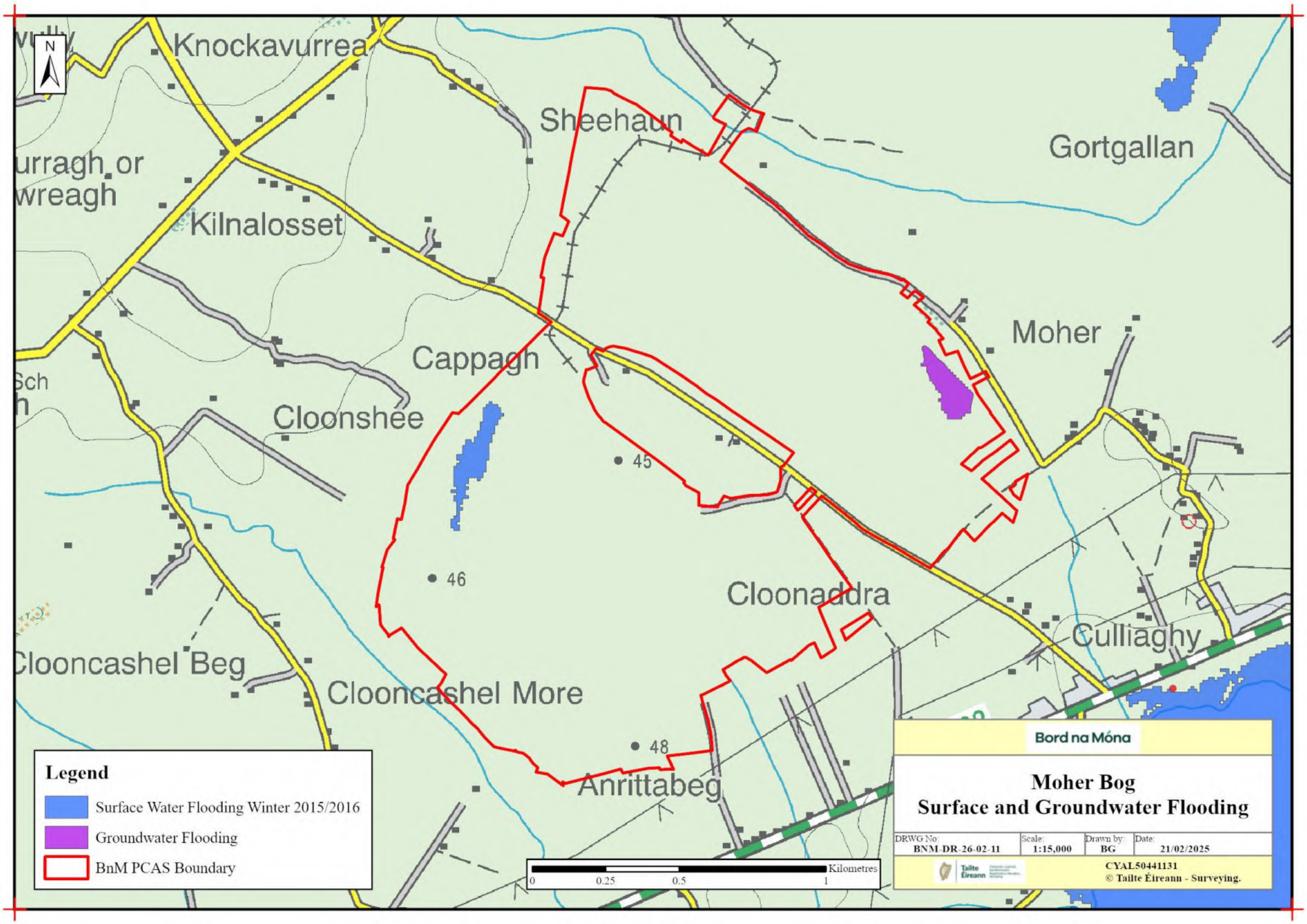

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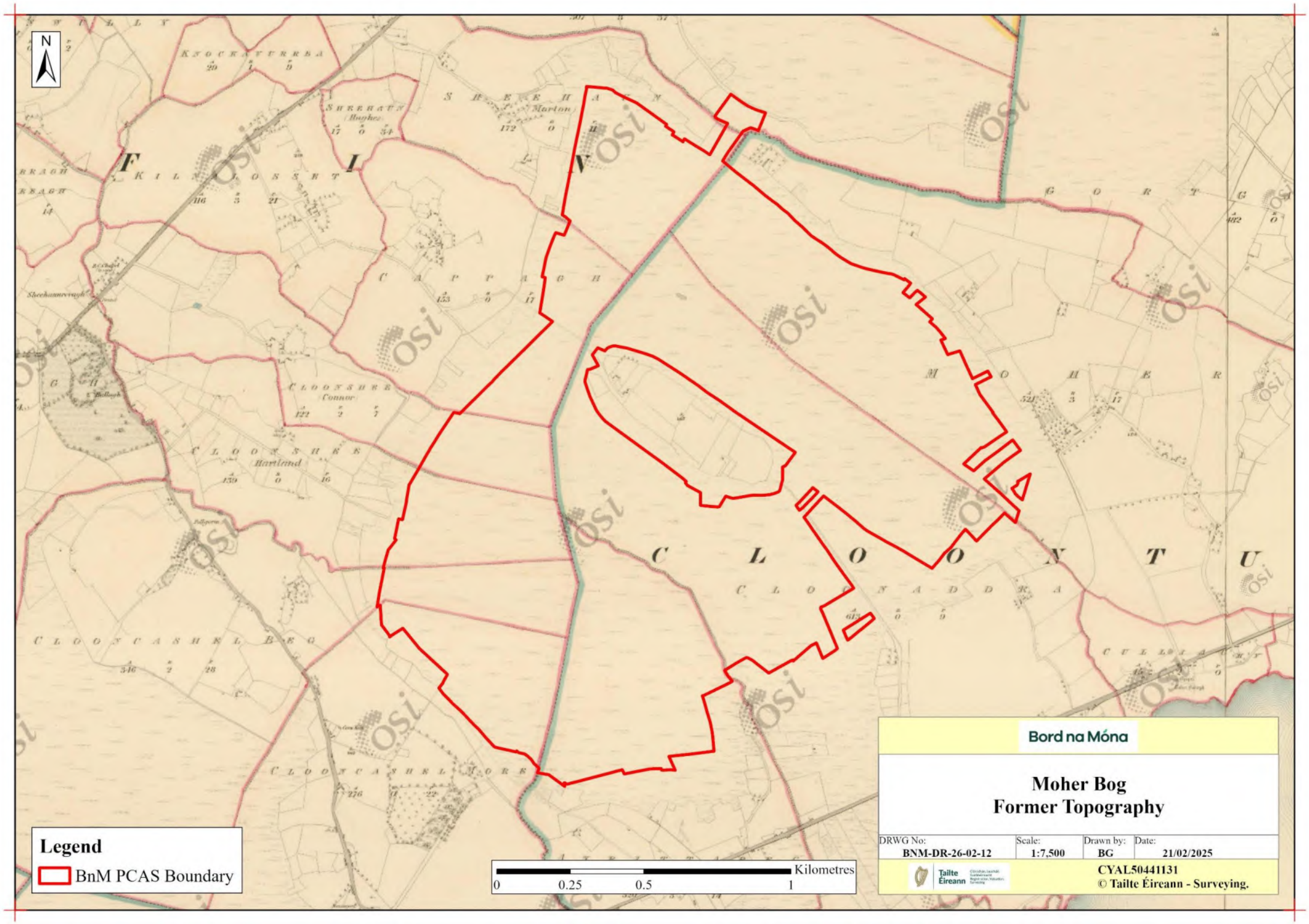

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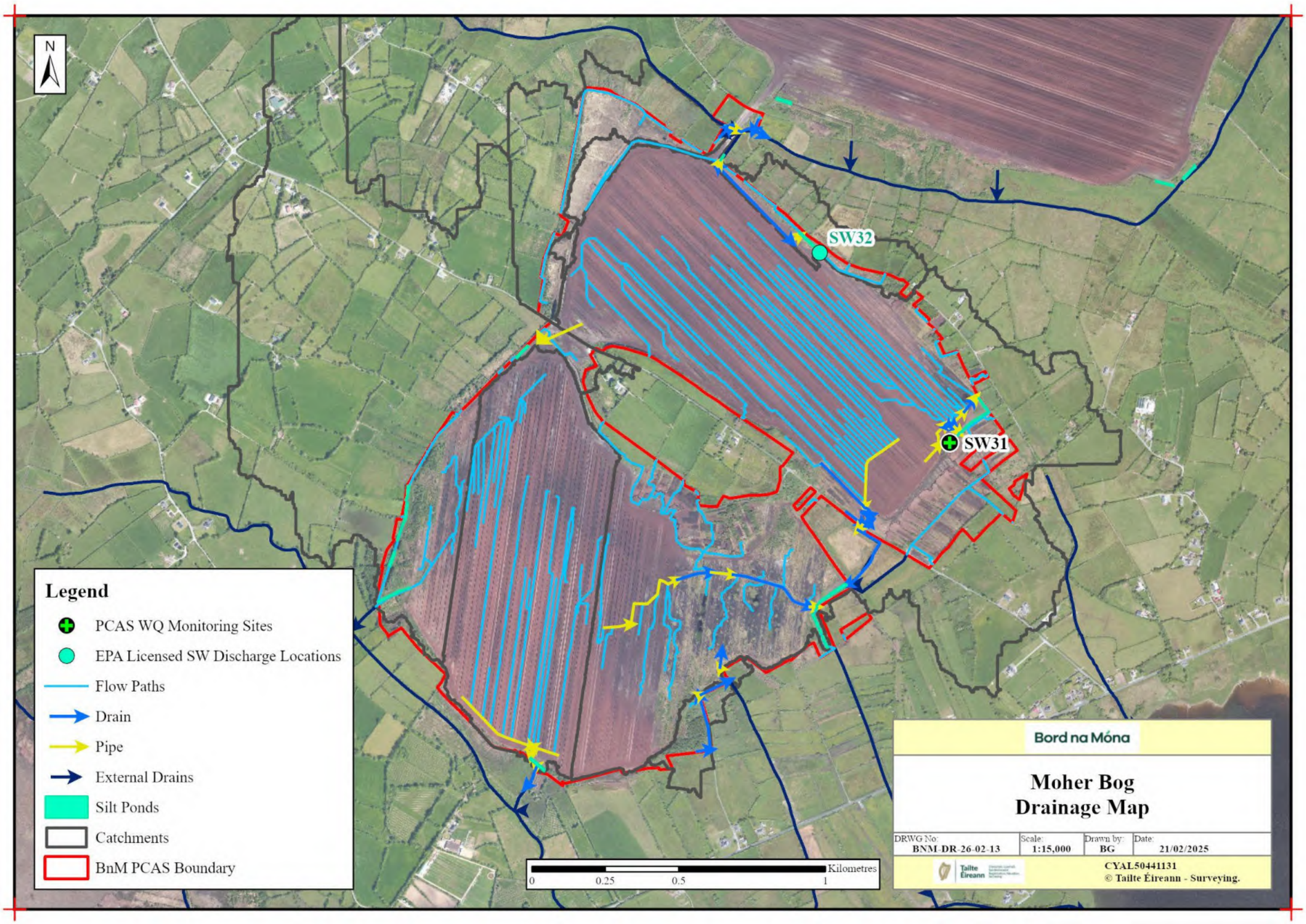

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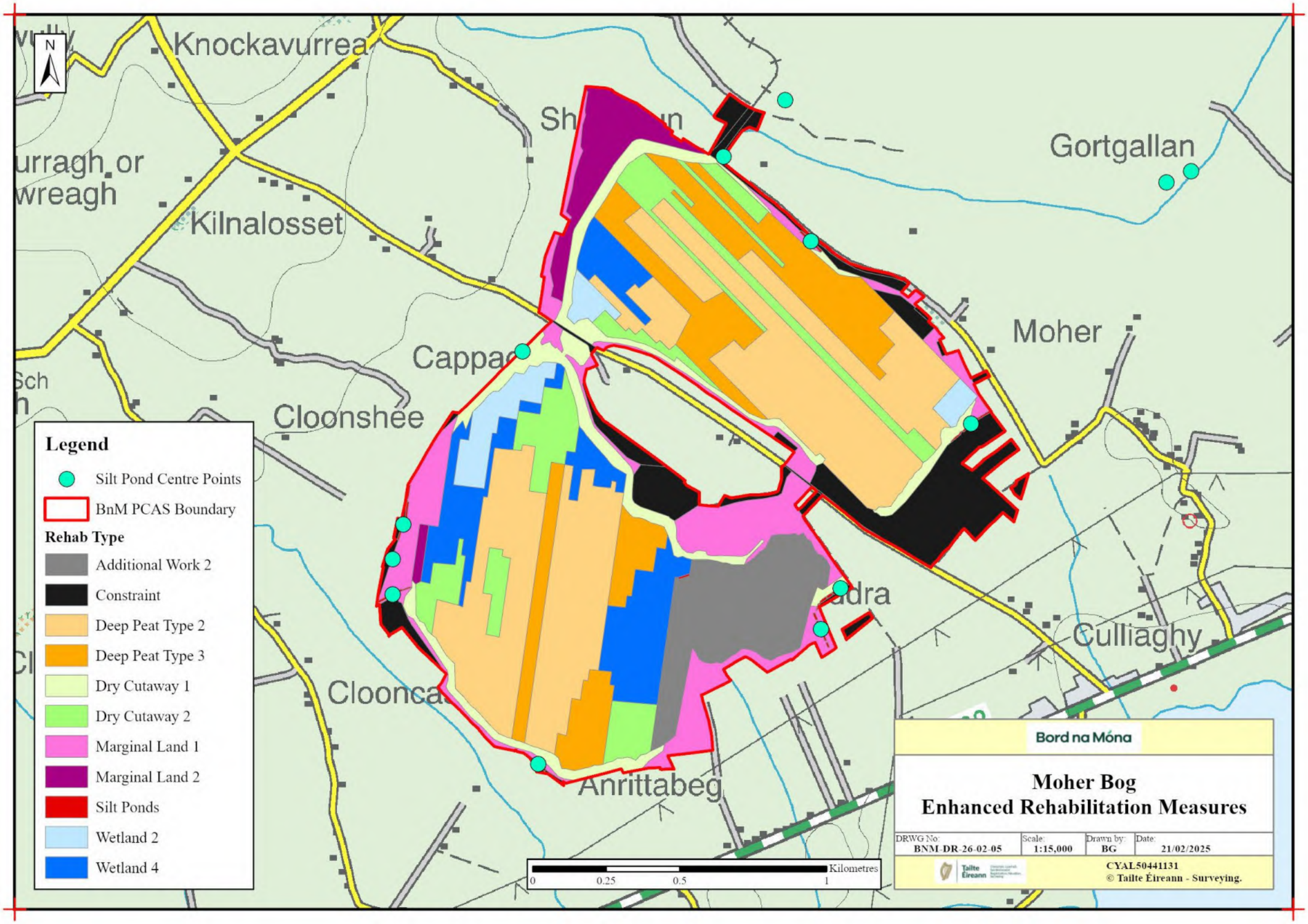
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BnM PCAS Boundary
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Constraint
Deep Peat Type 2
Deep Peat Type 3
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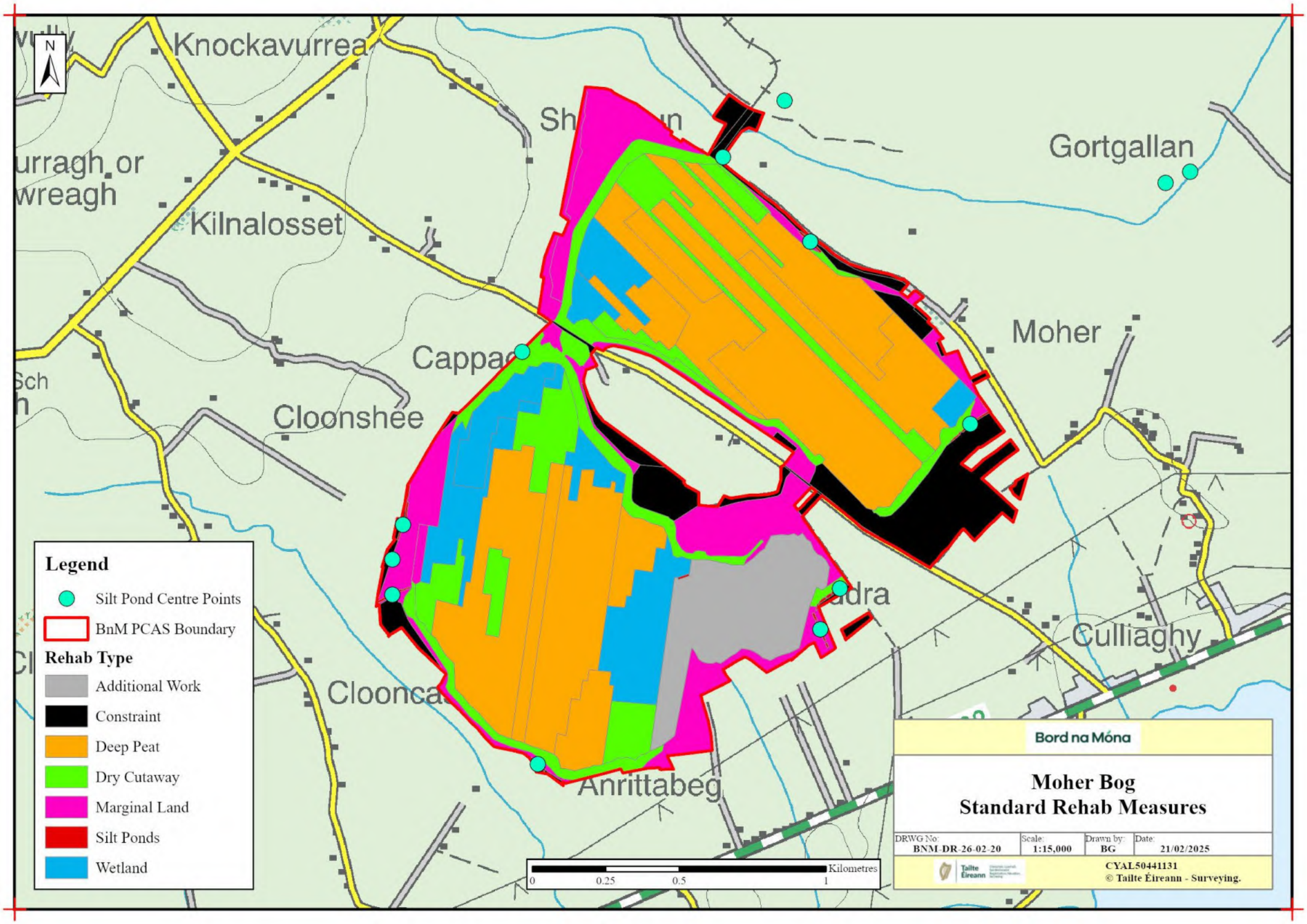
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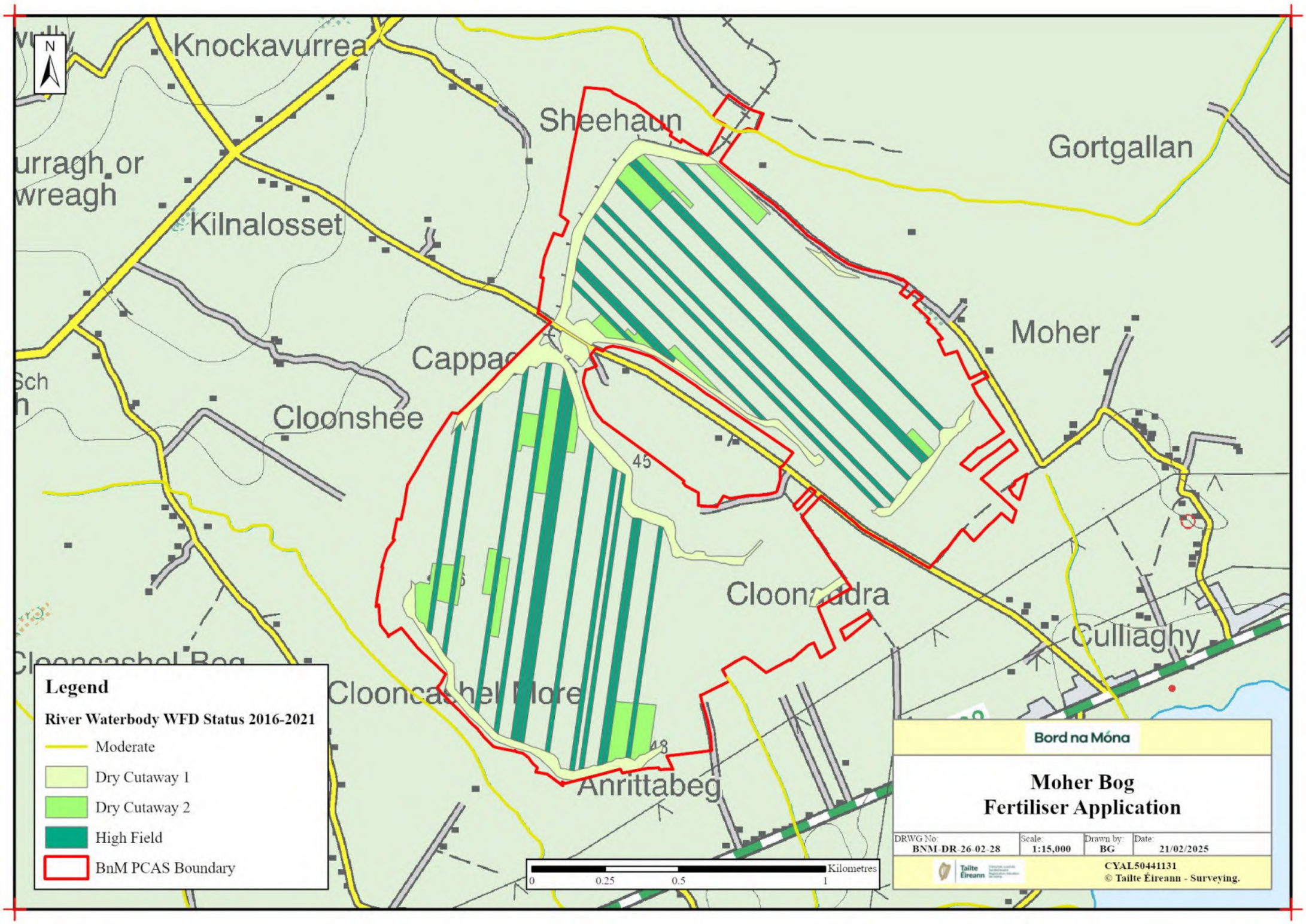

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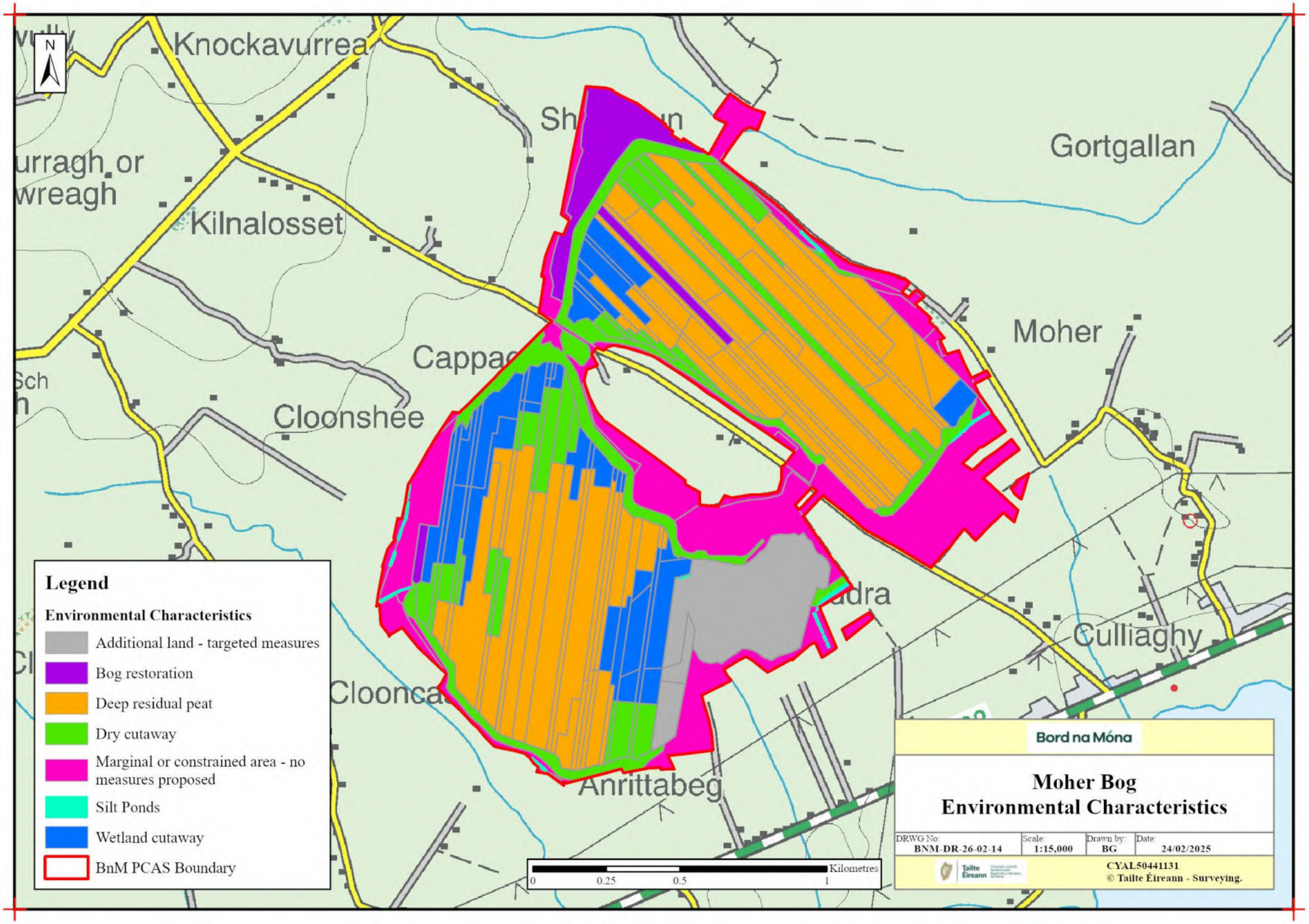

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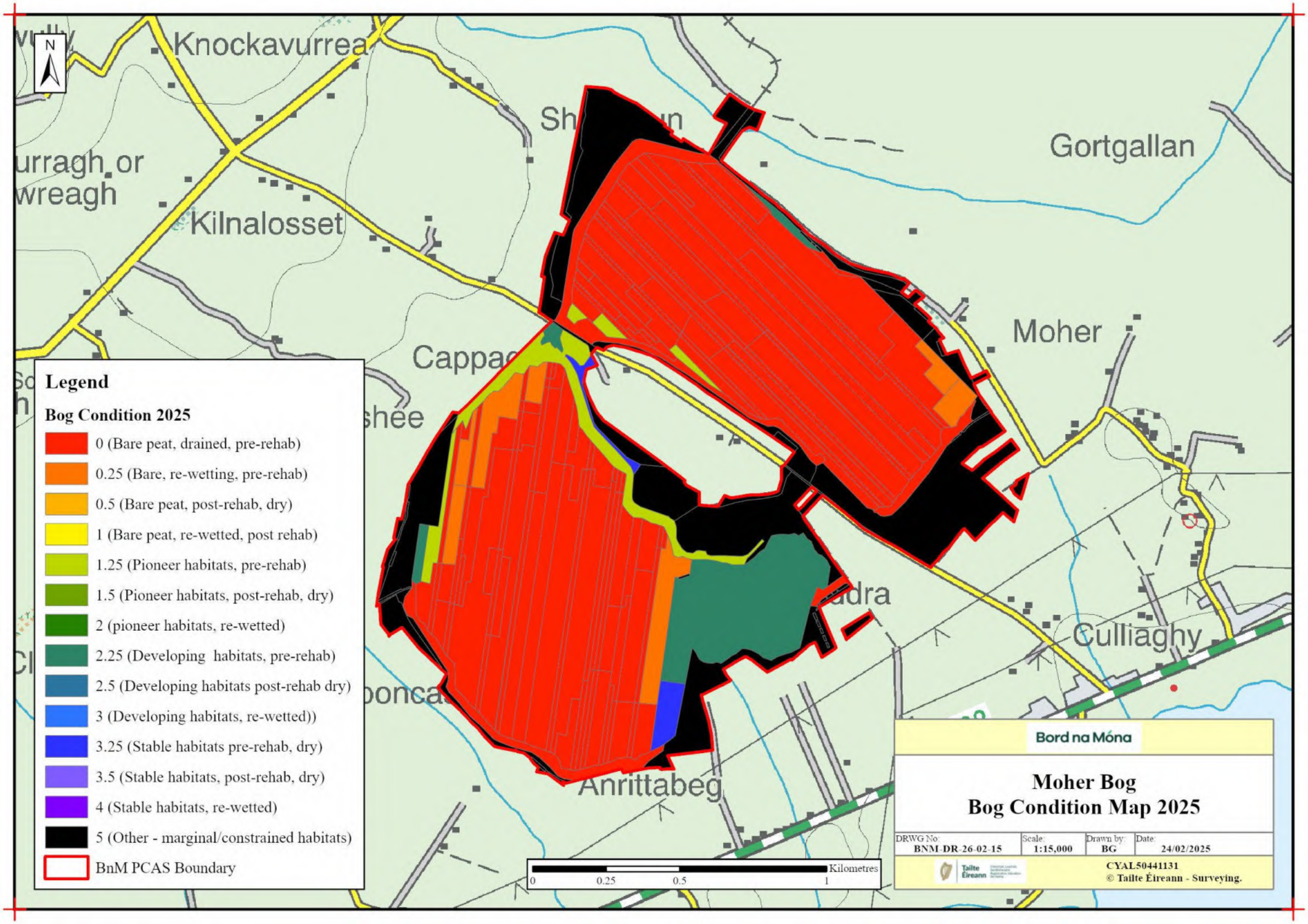

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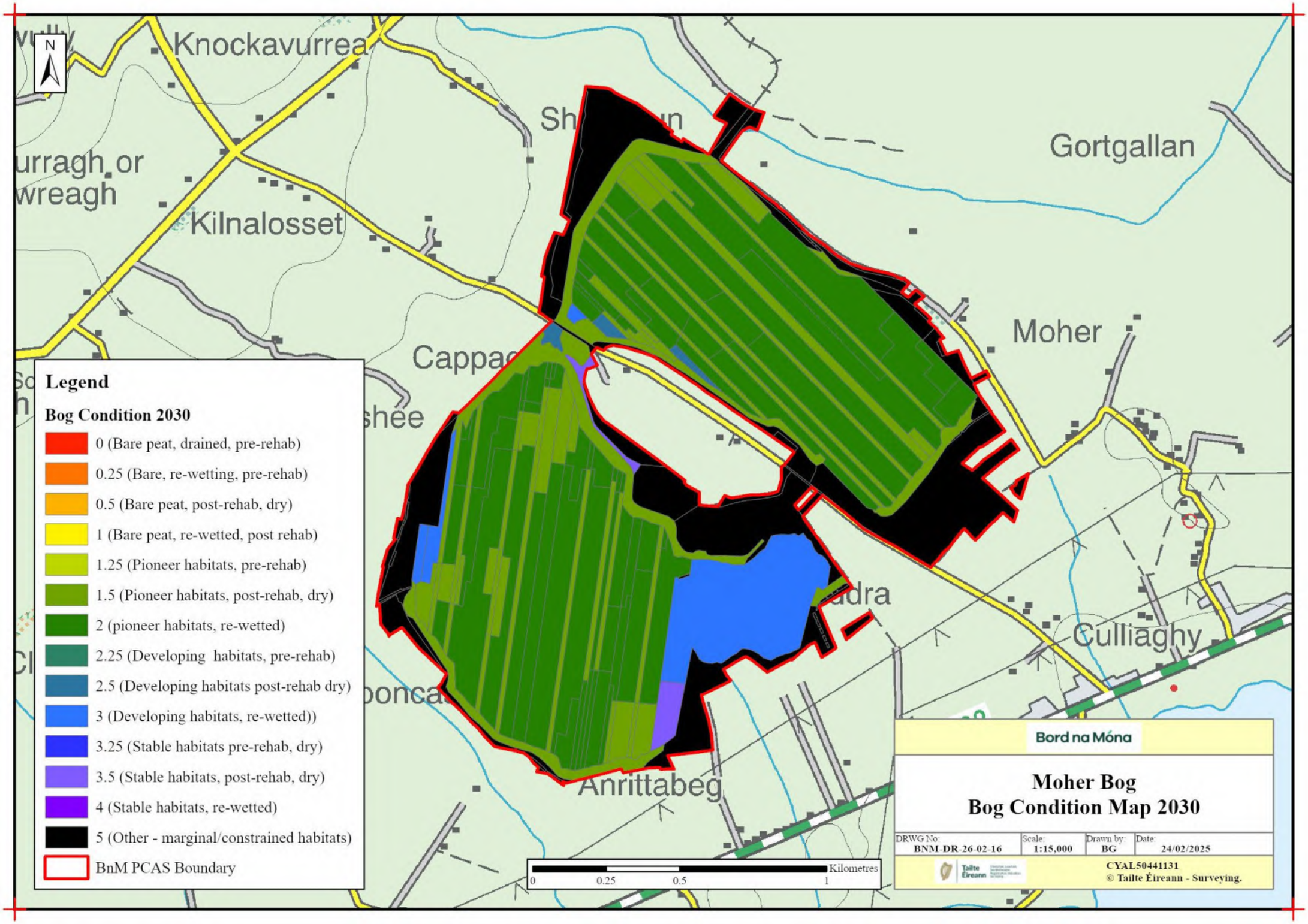

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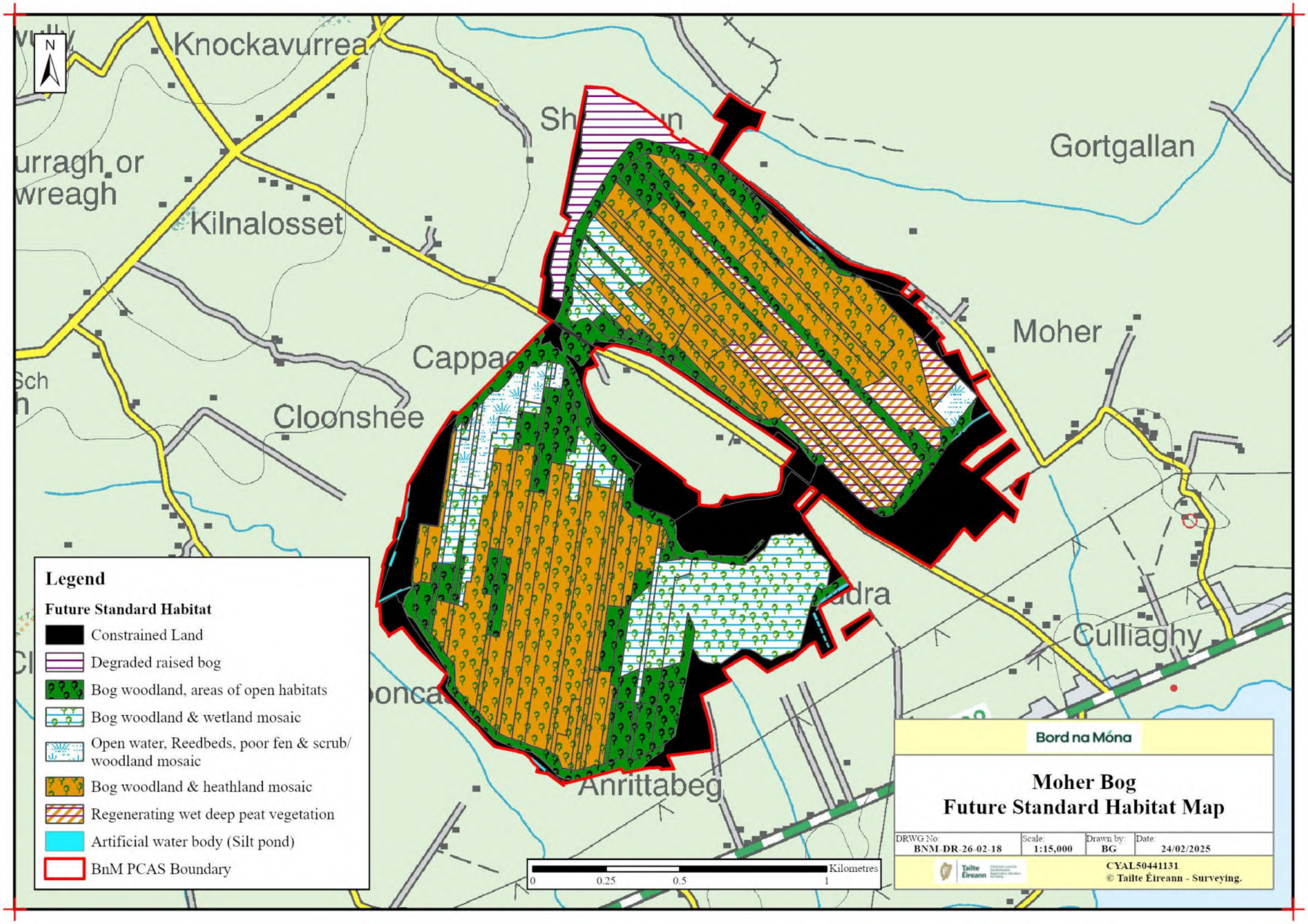

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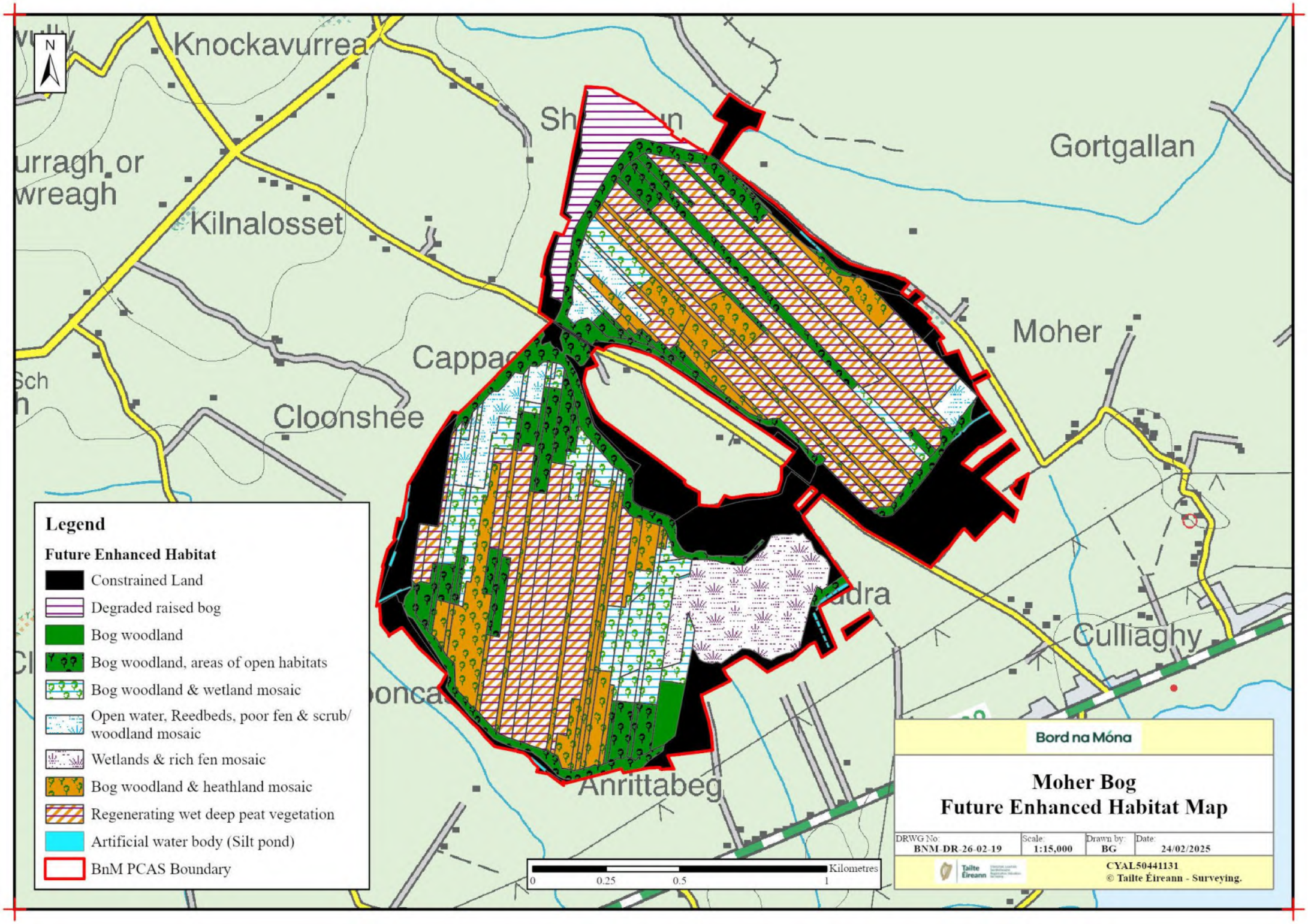

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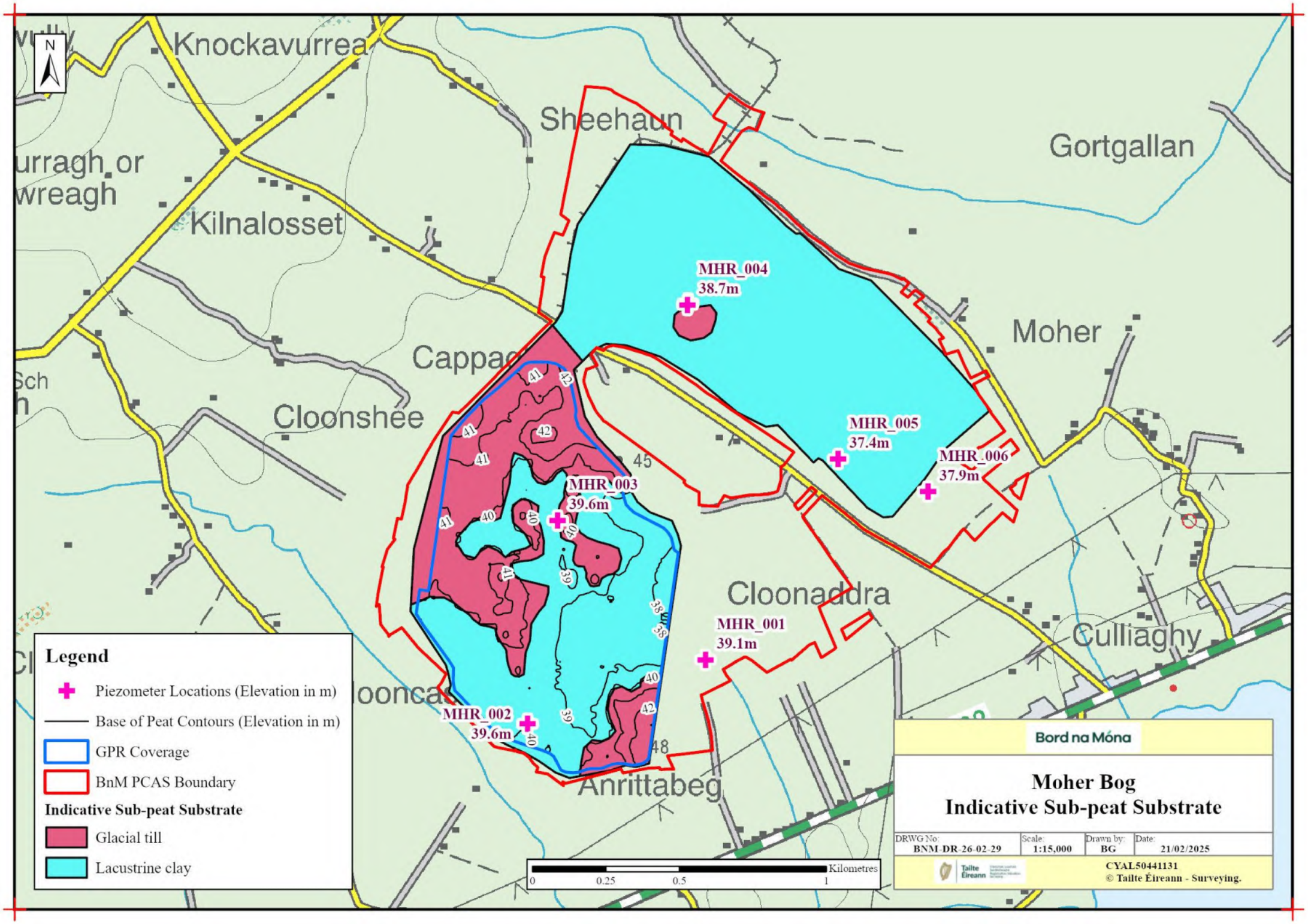

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RPS-DR-26-02-01: Topographic Map

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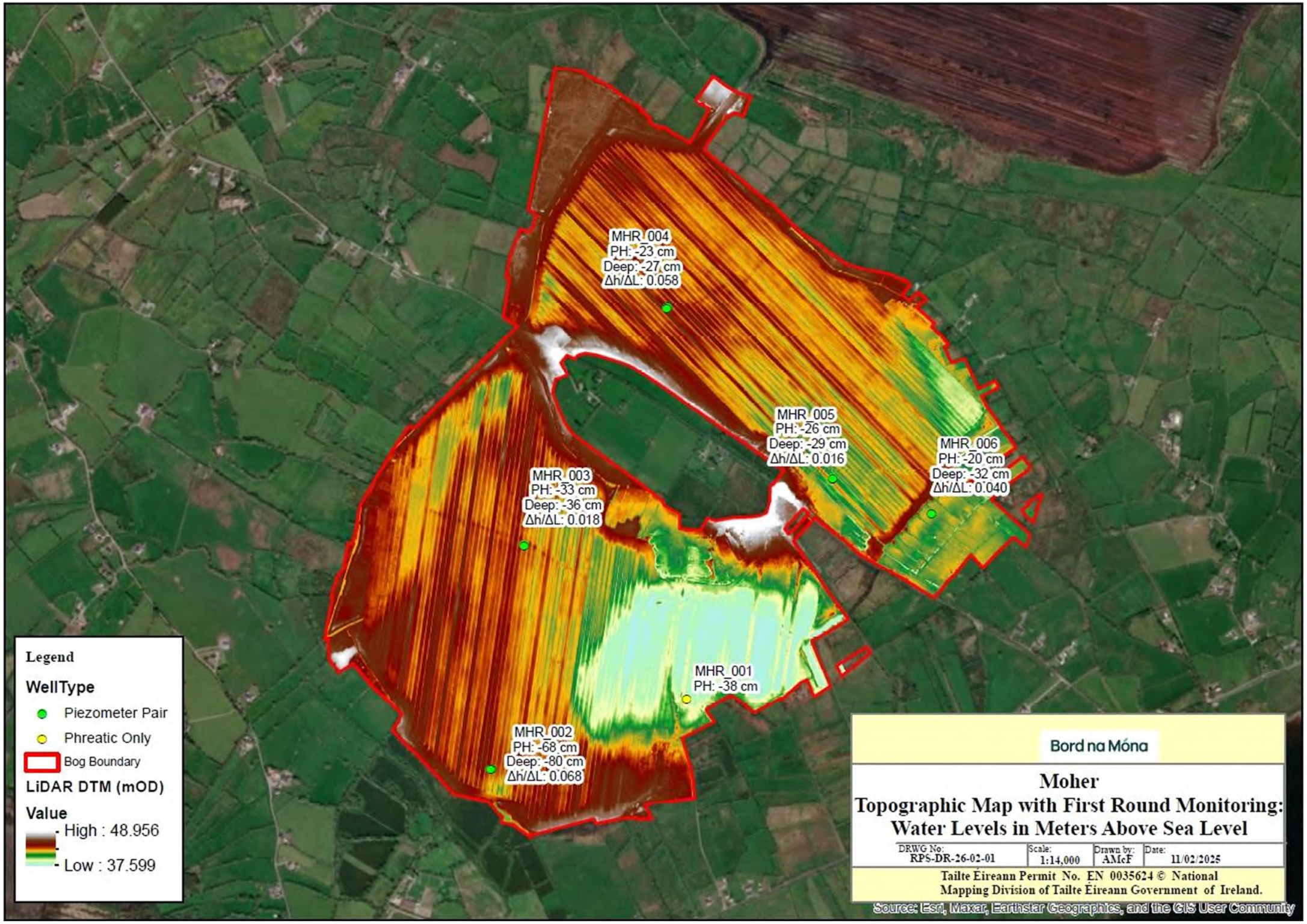

RPS-DR-26-02-02: Bedrock Aquifer Map

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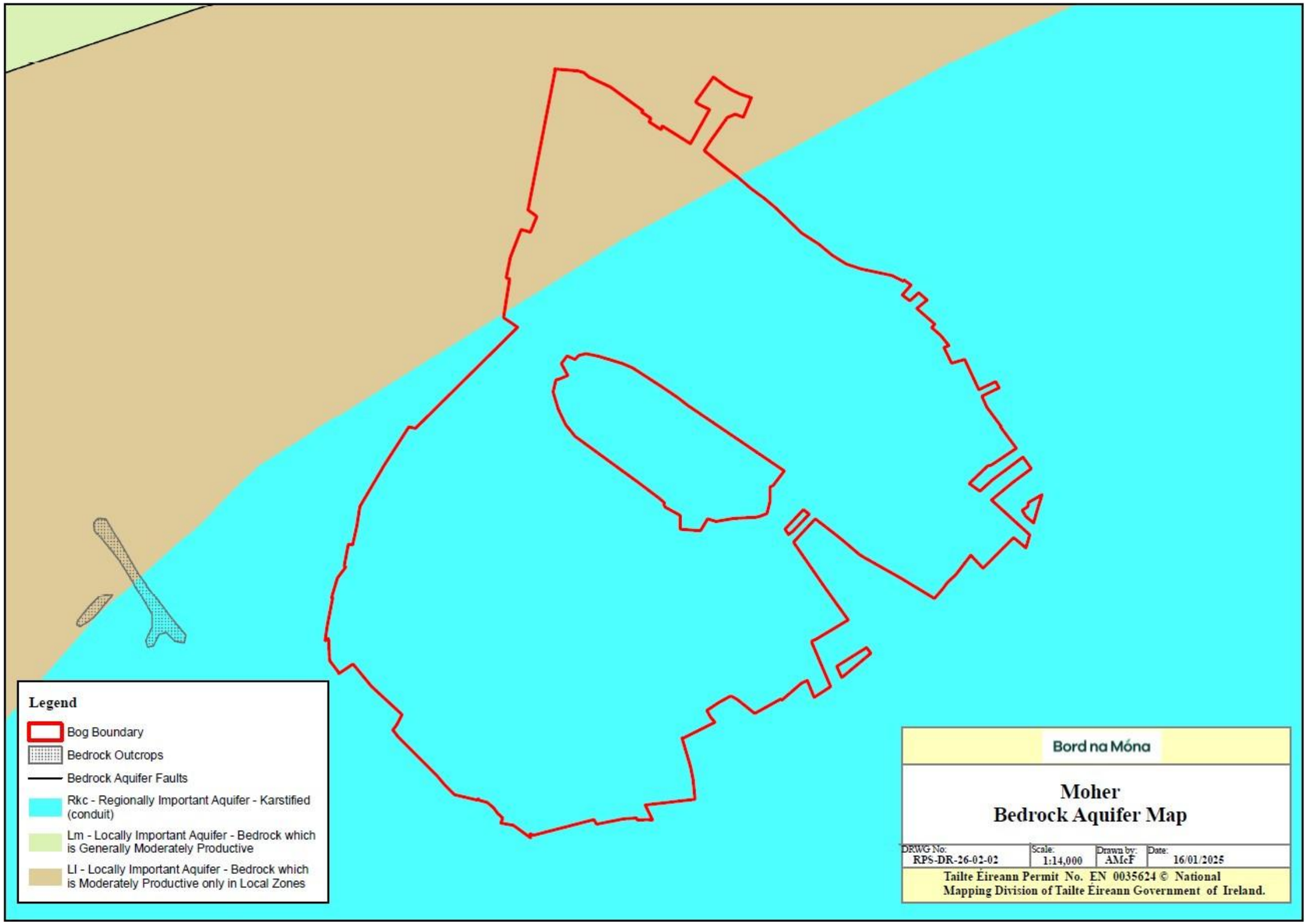

RPS-DR-26-02-03: Quaternary Geology Map

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RPS-DR-26-02-04: Groundwater Vulnerability Map

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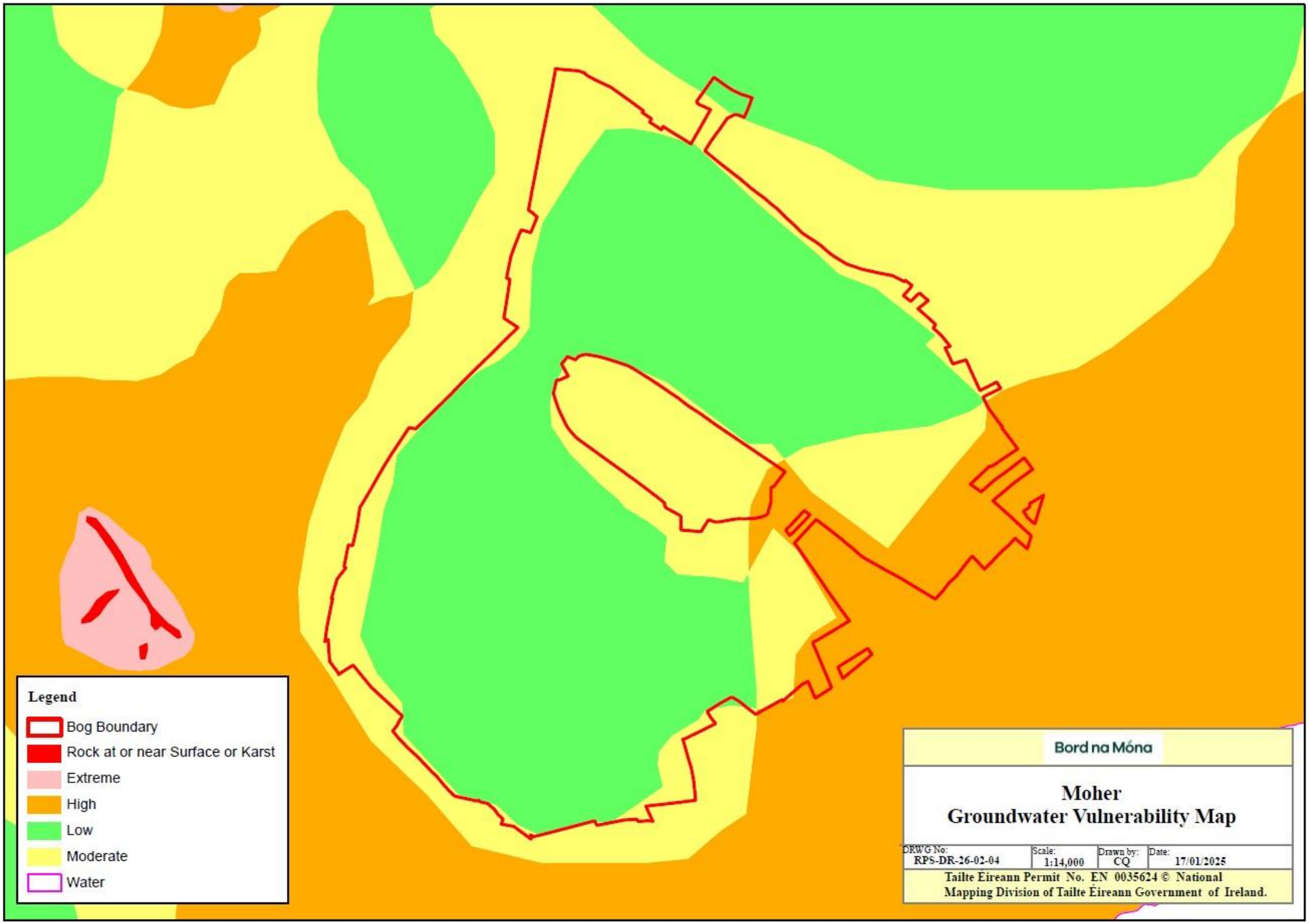

RPS-DR-26-02-05: Specific Electrical Conductance Map

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