Templetuohy Bog

Cutaway Bog Decommissioning and Rehabilitation Plan

2025

This document seeks to address the requirements of Condition 10.2 of IPC Licence Ref. P0-409-01:

> "*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 (now known as BnM) agree with the EPA the measures that will provide for rehabilitation, i.e., stabilisation of Templetuohy Bog upon cessation of peat production and complements 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 Templetuohy Bog.

In addition, to preparing this document to comply with Condition 10 of IPC Licence Ref. PO-409-01, 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 Templetuohy 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 developed a wind energy project at Templetuohy Bog (Bruckana Wind Farm). Rehabilitation has taken account of the wind farm infrastructure and current land-uses on site and will seek to integrate peatland re-wetting with the current infrastructure and land-uses.

Bord na Móna have defined the key rehabilitation outcome at Templetuohy 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 Templetuohy 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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Note: This finalised version of the Rehabilitation Plan has been updated to take account that several planning actions listed in Section 8.1 have been completed and have been incorporated into the plan. This includes an Appropriate Assessment of the rehabilitation plan. See Templetuohy Bog Decommissioning and Rehabilitation Plan – Addendum 1 for more details.

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NON-TECHNICAL SUMMARY

- Bord na Móna is updating its rehabilitation plan for Templetuohy Bog.
- Templetuohy Bog is part of the Littleton Bog Group (Ref: P0409-01) and is located towards the northern part of this bog group.
- The bog overlaps the county boundaries of Co. Laois, Co. Kilkenny and Co. Tipperary, with part of the bog lying in each of these counties.
- Templetuohy Bog was in industrial peat production from 1940s until 2017.
- Industrial peat harvesting has now finished at Templetuohy Bog.
- Bord na Móna constructed a 40MW wind farm with 14 turbines and road network on cutaway at Templetuohy bog called Bruckana Wind Farm. This wind farm has been operational since 2015.
- In 2017, Bord na Móna announced the closure of the Littleton Briquette factory and the cessation of industrial peat production in a number of cutaway bogs within the Littleton Bog Group, including Templetuohy.
- 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.
- An extensive drain-blocking programme was carried out by Bord na Móna between 2018-2021 (Phase 1).
- Much of the bog has been re-wetted. Pioneer cutaway vegetation has developed across the site. Parts of the site are still dominated by bare peat.
- Bord na Móna are proposing to carry out additional rehabilitation in 2025 (Phase 2) to enhance re-wetting across the site.
- 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. Templetuohy 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 some instances, where depressions retain deeper water, further optimisation of water levels to further facilitate revegetation may also be achievable.
- 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.
- Some small sections 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 at Templetuohy 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.

- Templetuohy bog is a partially pumped drainage regime.
- Measures proposed for Templetuohy Bog include optimisation of water levels within existing waterbodies and some drain blocking. Some fertiliser will be spread on headlands and other areas (a small part of the overall area) to encourage vegetation growth.
- 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.
- It will take some time for vegetation and habitats to fully develop at the most recently peat harvested areas of Templetuohy, and a wetland/peatland ecosystem to developed. 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.
- Templetuohy partially overlaps the Tipperary Decarbonising Zone. A Decarbonising Zone (DZ) is a spatial area, identified by each local authority in Ireland, in which a range of climate change mitigation measures are identified, whilst enhancing and embracing adaptation and biodiversity measures to contribute to reaching wider national climate action targets. DZs are a demonstration and testbed of what is possible for decarbonisation and climate action at a local and community level. Through a feedback loop of experimentation and evaluation, the DZ enables a flexible, incremental and community-driven approach to ensure that its objectives are delivered.

1. INTRODUCTION

Bord na Móna operates under IPC Licence issued and administered by the EPA to extract peat within the Littleton Bog Group (Ref. P0-409-01) (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. Templetuohy Bog is located approximately 10km east of Templemore, Co. Tipperary. Templetuohy Bog is part of the Littleton Bog group and is located towards the northern part of this bog group.

This document seeks to address the requirements of Condition 10.2 of IPC Licence Ref. P0-409-01:

> "*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.

Templetuohy Bog supplied the Littleton Brickette Factory. Bord na Móna made the decision to close this brickette factory in 2017 and to rehabilitate the Littleton Bog group. Templetuohy Bog was rehabilitated by Bord na Móna during 2018-2022 (Phase 1 rehabilitation).

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). The additional costs of the Scheme will be supported by Government through 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. 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.

This updated rehabilitation plan supersedes the previous rehabilitation plan prepared in 2018.

Templetuohy Bog is proposed to be part of this Scheme (PCAS), and this updated rehabilitation plan outlines the approach to be taken. Additional peatland rehabilitation (Phase 2 Rehabilitation) has been proposed for Templetuohy Bog with the objective of improving hydrological conditions across this site and targeting bare peat areas to speed up the trajectory of natural vegetation colonisation. Measures will include:

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

These measures are collectively designed to optimise hydrological conditions (ideally and where possible water-levels <10 cm) 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.

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.

1.1 Constraints and Limitations

This document covers the area of **Templetuohy Bog** shown in drawing number *BNM-DR-26-13-RP-01: Site Location Map.*

Bord na Móna constructed Bruckana Wind Farm, a 40MW wind farm with 14 turbines and road network on cutaway at Templetuohy bog in 2014. This wind farm has been operational since 2015. Rehabilitation was planned to integrate with the current wind farm infrastructure. Much of the cutaway between the wind farm infrastructure has been left to develop naturally functioning woodland, wetland and other cutaway peatland habitats. The wind farm infrastructure footprint has been mapped as a constrained area on rehabilitation maps.

There are known rights of way around the margins of Templetuohy Bog. Where a public right of way or similar burden exists on Bord na Móna property, consideration will be given to ensuring that this remains intact where possible. These rights of way will not be impacted by any measures proposed within this plan.

There is an area of active turf cutting (turbary) adjacent to the western boundary of Templetuohy bog, which has been mapped as constrained land. This area is ecologically and hydrologically linked to the area owned by Bord na Móna where rehabilitation is planned. For this reason, consideration has been given to the measures implemented adjacent to this area with a view to avoiding potential for impact.

Rehabilitation in other areas of the bog may also be constrained due to other property issues. Access roads, the works area and areas of agricultural grassland around the bog margins have been mapped as constraints. There are currently no archaeological features present at Templetuohy Bog.

Bord na Móna and Tipperary County Council carried out a feasibility study of the potential for amenity development across the Littleton Bog Group called Littleton Labyrinth. The first phase of this amenity has been completed, and a greenway has been constructed at Killeen Bog to Loch Doire Bhile. A further extension (Phase 2) is proposed at Ballybeg and Derryvilla Bog. There is potential for future extensions to this greenway network at Templetuohy Bog. The proposed rehabilitation measures will not impact on the delivery of any future amenity as a route is still available across the bog, and there is no constraint to rehabilitation.

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;
- BNM 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 Templetuohy 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.
- Barry, T.A. *et al*. (1973). A survey of cutover peats and underlying mineral soils. Soil Survey Bulletin No. 30. Dublin, Bord na Móna and An Foras Taluntais.
- Bonn *et al*. (2017). Peatland restoration and ecosystem services- science, policy and practice.
- Carroll *et al*. (2009). *Sphagnum* in the Peak District. Current Status and Potential for Restoration. Moors for the Future Report No 16.
- Clark & Rieley (2010). Strategy for responsible peatland management.
- Eades *et al*. (2003). The Wetland Restoration Manual.
- Farrell & Doyle (2003). Rehabilitation of Industrial Cutaway Atlantic Blanket Bog, NW Mayo, Ireland.
- Gann *et al*. (2019). International Principles and Standards for the practice of Ecological Restoration.
- Joosten & Clarke (2002). Wise Use of mires and peatlands – Background and Principles including a framework for Decision-making.
- Lindsay (2010). Peatbogs and Carbon: a Critical Synthesis to Inform Policy Development in Oceanic Peat Bog Conservation and Restoration in the Context of Climate Change.
- Mackin *et al*. (2017). Best practice in raised bog restoration in Ireland. Irish Wildlife Manuals, No. 99. National Parks and Wildlife Service,
- McBride *et al*. (2011). The Fen Management Handbook (2011), Scottish Natural Heritage.
- McDonagh (1996). Drain blocking by machines on Raised Bogs. Unpublished report for National Parks and Wildlife Service.
- NPWS (2017a). National Raised Bog Special Areas of Conservation management plan. Department of Arts, Heritage and the Gaeltacht.
- Pschenyckyj et al., (2021), Optimising Water Quality Returns from Peatland Management while Delivering Co-Benefits for Climate and Biodiversity. An Fóram Uisce.
- Regan*, et. al.* (2020). Ecohydrology, Greenhouse Gas Dynamics and Restoration Guidelines for Degraded Raised Bogs. EPA Research Report. Prepared for the Environmental Protection Agency by Trinity College Dublin.
- Renou-Wilson *et al*. (2011). BOGLAND - Sustainable Management of Peatlands in Ireland. STRIVE Report No 75 prepared for the Environmental Protection Agency.
- Schouten (2002). Conservation and Restoration of Raised Bogs: Geological, Hydrological and Ecological Studies. Dúchas - The Heritage Service of the Department of the Environment and Local Government, Ireland;
- Thom (2019). Conserving Bogs – Management Handbook.
- Wheeler & Shaw (1995). Restoration of Damaged Peatlands – with Particular Reference to Lowland Raised Bogs Affected by Peat Extraction.

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

- Littleton Integrated Pollution Control Licence;
- Littleton 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 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 2012-2018 and developed habitat maps. As part of this exercise, Templetuohy Bog was surveyed between 2010-2018. A survey also took place in December 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 (2000) Level 3 categories yet.

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

3. SITE DESCRIPTION

Templetuohy Bog is located approximately 10km east of Templemore, Co. Tipperary. The bog itself falls on the county boundaries of Co. Laois, Co. Kilkenny and Co. Tipperary, with part of the bog lying in each of these counties. Templetuohy Bog is part of the Littleton Bog group (ref: P0409-01) and is located towards the northern part of this bog group.

Templetuohy Bog was in peat production from the 1940s until 2017, originally as a sod-peat bog, then went into milled peat production, supplying the Littleton Brickette Factory. Bord na Móna made the decision to close this brickette factory in 2017 and to rehabilitate the Littleton Bog group.

Bruckana Wind Farm was commissioned in 2014 and consists of 14 turbines with a total installed capacity of 42MW, and a road network, located on cutaway at Templetuohy Bog. This wind farm has been operational since 2015.

Templetuohy Bog was rehabilitated by Bord na Móna during 2018-2022 (Phase 1 rehabilitation). Rehabilitation was planned to integrate with the current wind farm infrastructure. Much of the cutaway between the wind farm infrastructure has been left to develop naturally functioning woodland, wetland and other cutaway peatland habitats.

Templetuohy Bog has a partially-pumped drainage system. Part of the Bruckana Wind Farm infrastructure has pumped drainage, and these pumps will be required into the future as part of the wind farm development. Cutaway on the bog has been re-wetted as pumps only deal with surface water drainage. Three pumps are currently operational and one pump is non-operational.

The Rossestown stream (EPA Code: 16R01) arises in the west of the bog and flows in a southwestern direction. This stream is a tributary of the River Suir.

The majority of the Templetuohy Bog is dominated by bare peat that is developing pioneer vegetation. Areas that have been out of industrial peat production for longer, including the large central section, have well developed typical cutaway peatland habitats such as Birch scrub, Heather-dominated vegetation and wetland mosaics with poor fen (Rushes and sedges). Other habitats such as intact remnants of raised bog and cutover bog occur around the margins of the bog. A Bord na Móna workshop and yard is located at the southern end of the site.

The surrounding landscape is a mosaic primarily consist of low-lying agricultural land (pasture) interspersed with other cutover bogs, many of which have also been managed by Bord na Móna for peat production, with some areas utilised for domestic turf-cutting.

The total combined area under consideration is 732.5 ha.

See Drawing number *BNM-DR-26-13-RP-01: Site Location*, included in the accompanying Mapbook[1] , which illustrates the location of Templetuohy Bog in context to the surrounding area.

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

3.1 Status and Situation

3.1.1 Site history

Templetuohy Bog has a long history of industrial peat production and sod turf (fuel) was produced at this bog originally, before it went into milled peat production, supplying fuel peat to the Littleton Briquette Factory. The bog was in industrial peat production from 1940 to 2017. In 2017, Bord na Móna announced the closure of the Littleton Briquette factory and the cessation of industrial peat production in a number of cutaway bogs within the Littleton Bog Group, including Templetuohy.

3.1.2 Current land-use

Industrial peat extraction has now completely ceased. A network of former industrial railway is present in Templetuohy. This railway has been decommissioned.

Templetuohy Bog still has some remaining peat stockpiles. 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.

Bord na Móna constructed Bruckana Wind Farm, a 40MW wind farm with 14 turbines and road network on cutaway at Templetuohy bog in 2014. This wind farm has been operational since 2015. An EIS was prepared for the development of this wind farm and several mitigation measures to minimise the environmental and ecological impact of this development are listed in the planning conditions. These included avoiding development of several areas of higher ecological value, which were taken into consideration and avoided during the design phase. Since the completion of the wind farm construction, disturbed peat areas and peat berms along the wind farm infrastructure are re-vegetating naturally.

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.

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.

In 2017, Bord na Móna announced the closure of the Littleton Briquette factory and the cessation of industrial peat production in a number of cutaway bogs within the Littleton Bog Group, including Templetuohy.

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

The underlying geology[2] at Templetuohy Bog comprises Crosspatrick Formation (Pale-grey cherty crinoidal limestone) and Waulsortian Limestones (Dolomitised massive fine-grained limestone).

Quaternary Sediment maps show Templetuohy underlain by peat, yet surrounded by inorganic deposits, mainly till derived from limestone, with bedrock outcrop or subcrop, lacustrine sediments and gravels derived from limestones in the wider surroundings.

3.2.2 *Peat type and depths*

Peat depths have been mapped across the bog using GPR and are provided in figure *BNM-DR-26-13-RP-04: Peat depths*.

A significant portion of Templetuohy Bog has very shallow peat remaining (0-1m), with several areas where subsoil is exposed. Thicker deposits remain on raised bog remnants along the margins.

There are deeper areas of peat in the southwest, northwest and along the eastern margin where peat depths are typically 2-4m.

3.3 Key Biodiversity Features of Interest

The majority of Templetuohy Bog comprises a mosaic of pioneer cutaway habitats.

3.3.1 Current habitats

The most common vegetation communities/habitats[3] present in Templetuohy bog include:

- Bare peat (BP) (plate 3-1)
- Pioneer poor fen mainly dominated by Soft Rush (pJeff), with Bog Cotton (pEang) also present (plate 3-1)
- Wetland mosaics containing open water (OW) and emergent poor fen communities generally dominated by Bog Cotton (pEang) and Bottle Sedge (pRos) (plate 3-1, plate 3-2, plate 3-3, plate 3-5 & plate 3-9)
- Birch scrub (eBir, oBir and cBir)

[2] https://www.gsi.ie/en-ie/data-and-maps/Pages/Bedrock.aspx

[3] Codes refer BnM classification of pioneer habitats of production bog

- Purple Moorgrass-dominated vegetation (gMol)
- Heather-dominated vegetation (dHeather) (in mosaic with Soft Rush-dominated poor fen) (plate 3-5)
- Pioneer dry calcareous grassland (gCal)
- Riparian zones (Rip) (including dense scrub/Birch woodland that has developed along their banks, particularly in areas not recently in production).
- Works areas
- Access zones (former rail lines and access routes for machinery)
- Silt ponds (silt)
- Potential embryonic bog communities (PBA) (associated with some wetland zones)

The most common habitats[4] found around the bog margins include:

- Scrub (WS1)
- Birch woodland (WN7)
- Wet grassland (GS4)
- Remnant sections of raised bog along the edges of the site (PB1) (plate 2-5)
- Cutover bog (areas that have been used for sod peat for domestic use) (PB4)

See Drawing number *BNM-DR-26-04-RP-17: Current Habitat Map*, included in the accompanying Mapbook, which illustrates the habitats at Templetuohy Bog. See also Table 1 for photographic plates of habitats (taken in 2024).

[4] Codes refer to Heritage Council habitat classification, Fossitt 2000

Table 3-1 Photos of Habitats at Templetuohy Bog (November 2024).

Photos of habitats at Templetuohy Bog (2024)

Plate 3-1 Templetuohy Bog, view looking north. Wind farm infrastructure is located in the central section of the bog. The western part of the bog has been rewetted and is a mosaic of bare peat, open water and emergent poor fen communities dominated by Soft Rush (pJeff), Bog Cotton (pEang) and Bottle Sedge (pRos).

Plate 3-2 Rewetted part of the bog, in the west of the site, of bare peat, open water and emergent poor fen communities.

Photos of habitats at Templetuohy Bog (2024)

Plate 3-3 Wetland in the west of the bog (view looking east), with remnant raised bog in the background.

Plate 3-4 Wetland/poor fen developing in the northern section of the bog, in the central section in between the wind farm infrastructure.

Plate 3-5 Former rehab (contour bunding) with pioneer vegetation including dry Calluna dominated vegetation (dHeath) and pioneer Eriophorum angustifolium (pEang) in the central, northern section.

Photos of habitats at Templetuohy Bog (2024)

Plate 3-6 Bare peat with pioneer vegetation including pioneer Eriophorum angustifolium (pEang) in the central, northern section.

Plate 3-7 Bare peat with pioneer vegetation including pioneer Eriophorum angustifolium (pEang) in the central, northern section.

Plate 3-8 Wetland in east of bog.

3.3.2 Species of conservation interest

A number of species of conservation concern utilize the habitats available at Templetuohy Bog. The following is a summary of the records of these species available within both Bord na Móna and NBDC records.

- Multiple mammal species have been recorded on or in close proximity to the bog including Eurasian Badger (*Meles meles*), Eurasian Red Squirrel (*Sciurus vulgaris*), Red Fox (*Vulpes vulpes*), Irish Hare (*Lepus timidus hibernicus*) and Rabbit (*Oryctolagus cuniculus*).
- Bird species of conservation interest recorded from the bog include the BOCCI[5] Red listed species Common Kestrel (*Falco tinnunculus*), Common Snipe (*Gallinago gallinago*) and the Amber listed species Black-headed Gull (*Larus ridibundus*), Common Linnet (*Carduelis cannabina*), Mallard (*Anas platyrhynchos*), Skylark (*Alauda arvensis*), Eurasian Teal (*Anas crecca*), Willow Warbler (*Phylloscopus trochilus*), Swallow (*Hirundo rustica*) and Whooper Swan (*Cygnus cygnus*).
- Butterfly species previously recorded on the bog including Speckled Wood (*Pararge aegeria*), Orange-Tip (*Anthocharis cardamines*), Green-Veined White (*Pieris napi*), Peacock (*Aglais io*) and Small Copper (*Lycaena phlaeas*).

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.[6]

3.3.3 Invasive species

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

Records of other high-level invasive species associated with Templetuohy Bog are available from the NBDC database including Eastern Grey Squirrel (*Sciurus carolinensis*) and Brown Rat (*Rattus norvegicus*).

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 extent 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 no European Sites in close proximity to Templetuohy. There are a number of European Sites in the wider area (i.e. within a 15km radius) to Templetuohy Bog, including:

- Galmoy Fen SAC - Site code: 001858 - Distance: 6 km
- The Loughans SAC - Site code: 000407 - Distance: 9 km
- Spahill and Clomantagh Hill SAC - Site code: 00849 - Distance: 9 km
- Cullahill Mountain SAC - Site code: 00831 - Distance: 11.1 km
- River Barrow and River Nore SAC - Site code: 002162 - Distance: 14.2 km
- Lower River Suir SAC - Site code: 002137 - Distance: 15 km
- River Nore SPA - Site code: 004233 - Distance: 15.2 km

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

[6] 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 15km of Templetuohy Bog including:

- The Loughans pNHA - Distance: 9 km
- Galmoy Fen pNHA – Distance: 7.4 km
- Nore Valley Bogs NHA – Distance: 11.5 km
- Spahill and Clomantagh Hill pNHA - Distance: 11.6 km
- Templemore Wood pNHA – Distance: 11.8 km
- Cullahill Mountain pNHA - Distance: 11.8 km
- The Curragh And Goul River Marsh pNHA – Distance: 13.1 km
- Cabragh Wetlands pNHA – Distance: 13.9 km
- Kilcooly Abbey Lake pNHA – Distance: 13.8 km
- Coolacurragh Wood pNHA – Distance: 14.3 km

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 Templetuohy Bog.

3.5 Hydrology and Hydrogeology

The majority of Templetuohy Bog forms part of the Suir Catchment (Catchment ID: 16) with a small northern section lying in the Nore catchment (Catchment ID: 15), as defined by the EPA under the Water Framework Directive (WFD). Templetuohy Bog is divided into three sub-catchments: Erkina_SC_010 to the north, Suir_SC_010 in the centre, and Suir_SC_040 to the south and southwest. The Erkina_SC_010 stream flows to the River Nore via the River Erkina, the Suir_SC_010 flows southwest to the River Suir via the Rossestown stream, and the Suir_SC_040 discharges into the River Suir to the southwest via the River Drish (EPA Code: 16D02).

Templetuohy Bog has a partially-pumped drainage system. Part of the Bruckana Wind Farm infrastructure has pumped drainage, and these pumps will be required into the future as part of the wind farm development. Cutaway on the bog has been re-wetted as pumps only deal with surface water drainage and protection in windfarm infrastructure. One pump has potential for decommissioning.

The bog contains several drainage pathways and discharge locations, with most of the bog discharging to streams via silt ponds.

Hydrological modelling (*BNM-DR-26-13-RP-09: Depression analysis*) indicates that large parts of the bog are in natural basins with significant potential for re-wetting. 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 Templetuohy Bog receives average precipitation of 867mm/yr (1981-2010), with an estimated annual effective rainfall rate of 433.4mm/yr based on GSI data. The GSI also estimate an annual average recharge rate of 17.34mm/year for Templetuohy Bog.

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 50-100mm/yr would be considered a reasonable estimate, with a higher recharge rate expected where peat is shallow (<1m) (this is a conservative assumption based on experience from other sites where increased rates of vertical infiltration have been measured).

GSI bedrock geology data indicates that Templetuohy Bog is underlain by two primary bedrock units: Waulsortian Limestone and the Crosspatrick Formation of limestone. These units are further subdivided by fault lines that extend across certain areas of the site, separating bedrock of varying descriptions. The Waulsortian Limestone comprises four distinct segments: massive unbedded lime-mudstone towards the northern boundary, and dolomitised massive fine-grained limestone found in the northern-central zone, along the southern boundary, and in a small segment on the eastern boundary. The Crosspatrick Formation, characterised by pale-grey cherty crinoidal limestone, underlies the remainder of the bog, including the centre, west and majority of the east.

The Waulsortian Limestone units vary in significance; the northern segment is classified as a locally important aquifer, as the bedrock is moderately productive only in local zones. The Crosspatrick Formation of unbedded lime-mudstone is also considered a locally important aquifer as it is generally moderately productive. In contrast, the Crosspatrick Formation of fine-grained limestone is classified as a regionally important aquifer because it is karstified.

Quaternary sediment maps show Templetuohy Bog almost entirely underlain by peat, yet surrounded by inorganic deposits, predominantly limestone till and small pockets of lacustrine sediments.

Groundwater vulnerability is classified as low for the majority of the bog, with narrow strips of moderate vulnerability present at the boundary. This classification shifts directly from low to high at the northeastern and eastern boundaries, where two instances of rock at or near the surface, or karst features, are located within 250m east of the boundary. Additionally, there is a third area of rock at or near the surface or karst immediately beyond the southern boundary. This feature increases groundwater vulnerability to moderate, high, and extreme levels as it approaches the boundary in that location.

Subsoil permeability across the bog is mapped as being low to moderate by the GSI with an estimated recharge rate of 17.34mm/year across the bog.

The Crosspatrick Formation underlies the central section of the bog and is classified a as Locally important aquifer (LI) as it is moderately productive only in local zones. Waulsortian Limestone underlies part of the northern and southern part of the bog and is classified as a regionally important aquifer (RKc) as it is subject to karstification (conduit).

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.

The former production area of the bog is located in an area mapped by GSI as of low groundwater vulnerability (GSI Mapviewer). Groundwater vulnerability for the surrounding margins of the bog has been mapped as moderate vulnerability and high vulnerability. Groundwater Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. 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

Templetuohy Bog has 3 treated surface water outlets (SW24a, SW29, and SW30) from previously active peat extraction catchments, which discharge to the Rossestown Rivers (IE_SE_16R010040 Rossestown_010), (IE_SE_16R010150 Rossestown_020) and the Drish River (IE_SE_16D020070 DRISH_030). Both the Rossestown River and the Drish River are classed as Poor water quality 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-26-13-RP-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).

The main emission limit value (ELV) associated with these bogs is 35mg/l suspended solids, with trigger levels for ammonia of 3.6 mg/l and COD 100mg/l.

An analysis of the results over a number of years of the IPC licence environmental monitoring of some of the discharges from these bogs indicates that results were under the Emission Limit Value for Suspended Solids 99% of this period, with a similar level of compliance for COD and under the trigger level for Ammonia.

Ammonia averaged 1.0492mg/l and ranged from <0.038 to 2.14mg/l with Suspended Solids ranging from <2 to 85 mg/l and averaging 16.692mg/l.

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*. 2017). 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 draft National River Basin Management Plan (NRBMP) 2022-2027 (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 Templetuohy Bog has been completed. This discharge will have improving 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.

Table 3-2 Water quality monitoring results at Templetuohy Bog

SW	Monitoring	pH	SS	TS	Ammonia	TP	COD	Colour
SW-30	Q3 13	8.1	85	486	2.1	0.11	52	35
SW-30	Q1 14	7.3	5	354	1.7	<0.05	47	141
SW 29	Q3 16	7.6	5	217	1.8	<0.05	91	184
SW 30	Q4 16	7.5	8	268	1.9	0.05	50	106
SW-29	Q4 17	7.4	5	266	0.98	0.05	64	223
SW-30	Q4 17	7.5	5	279	0.91	0.05	69	212
SW-30	Q3 20	7.5	<2	371	0.422	<0.01	61	175
SW-30	Q4 20	8	<2	177	0.296	<0.01	58	196
SW-30	Q1 21	7.7	<2	163	0.056	0.012	18	177
SW-30	Q2 21	8.5	<2	336	0.083	<0.05	37	77.2
SW-30	Q3 21	8	2	341	0	<0.05	27	99
SW-30	Q1 22	8	<2	100	0	<0.05	55	192
SW-30	Q3 23	7.5	5	279	1.06	<0.05	78	350
SW-30	Q4 23	7.4	2	236	0.996	<0.05	64	288
SW-30	QI 24	7.2	4	165	0.77	<0.05	64	267

SW-30	Q2 24	7.3	<2	276	0.431	<0.05	94	394
SW-30	Q3 24	7.7	4	341	1.71	<0.05	28	134
SW-30	Q4 24	12.2	Q	336	2.14	<0.05	37	112

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 July 2023 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.

Initial quarterly results are included in Appendix XIII, for Templetuohy. These results cover the period from July 2023 to December 2024 and are from some of the surface water outlets from the sections of bog to be rehabilitated in 2025. Peat extraction ceased in these bogs in 2017 and as expected some of the key water quality parameters that can impact water quality from peat extraction activities, remain on a relatively static trajectory, with suspended solids indicating a level trend from all outlets during the period, all well below any limits of concern. During this same period there was a slight downward trend in Ammonia for emission points, with all other parameters fluctuating slightly, most likely influenced by normal weather patterns, including rainfall.

Monthly Ammonia concentrations for this period averaged 1.2094mg/l and ranged from 0.431 to 2.14mg/l, with Suspended Solids ranging from <2 to 5 mg/l and averaging 3.75mg/l.

In the preparation of this monitoring programme, Bord na Móna have been providing the Local Authority Water Programme (LAWPRO) with details of the surface water emissions points associated with this bog and will be amending some of the proposed monitoring locations on foot of this engagement. LAWPRO have in turn provided details of their monitoring programme and these are included in the Water Quality Map.

This is necessary to ensure that there is alignment with the WFD monitoring programme and that where possible, the monitoring programme will enable any improvements in water quality or establishing trends to be quantified against any available WFD monitoring data. It will also enable the periodic sharing of data which will inform the monitoring reports, success criteria and enable LAWPRO under the Water Framework Directive to track any changes in pressures and be aware of changes in water chemistry.

Monitoring results will be maintained, trended every six months and reported on each year and as required, as part of the requirement to report on Condition 10.1 of the IPC Licence on Bog Rehabilitation in the Annual Environmental Report, and will be provided to LAWPRO and the EPA as required to inform progress and national monitoring requirements under the WFD.

These results will also be available in April each year as a requirement of the Annual Environmental Report at www.epa.ie.

The parameters to include as per condition 6.2 of the IPC Licence include monthly monitoring for pH, Flow, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour & COD. In addition, DOC has been included as a parameter to try and identify any changes in carbon in the surface water, and where required by LAWPRO, to assist in investigating other changes in water chemistry, the series of parameters can be reviewed and amended.

Success criteria:

The key water quality success criteria associated with this enhanced rehabilitation are as follows:

- 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 Templetuohy 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 Templetuohy 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 wetland habitats on shallow peat with open water, reed swamp and fen habitats with alkaline emission factors

and a smaller proportion will develop as regenerating wet deep peat vegetation on deep peat areas. 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 managed for industrial peat production. Some pioneer and semi-natural habitats such as raised bog, scrub and poor fen are rated higher and are 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 Littleton bog group, including Templetuohy 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;
- Open consultation with range of stakeholders at annual BAP review days 2010-2018;
- Consultation with the North Tipperary Heritage Forum during the period 2010-2015;
- General consultation at a local community event in Littleton in Dec 2016;
- General consultation with Tipperary County Council and other stakeholders in relation to the Littleton Labyrinth Project Feasibility Study;
- Ongoing engagement with Lisheen Mine;
- Archaeological Liaison Committee (National Museum of Ireland & Dept of Culture Heritage and the Gaeltacht);
- Midlands & East Regional WFD Operational Committee (River Basin Management Plans);
- Ongoing consultation with Coillte – proposed Coillte/BnM Midlands Native Woodland Project;
- Consultation with Tipperary Climate Action Officer and Biodiversity Officer during Baunmore site visit (April 2024).

There was specific consultation and engagement about rehabilitation of the Littleton Bog group, including Templetuohy Bog, with various stakeholders during the period 2018-2021:

- Lisheen Mine;
- Irish Peatland Conservation Council;
- NPWS (site visits);
- Tipperary County Council (2018);
- Tipperary Heritage Forum;
- Kilkenny County Council;
- Consultation with members of the local community;
- Consultation with local community groups;
- Slieve Ardagh Rural Development;
- National University of Galway;
- Limerick Institute of Technology;
- Irish Wildlife Trust;
- Environmental Projection Agency;
- Birdwatch Ireland;
- Birdwatch Ireland Tipperary Branch;

- Forest Service;
- Coillte.

Specific consultation relating to the wind farm development is not listed here, although there has been detailed consultation with stakeholders in relation to these issues and overlap with rehabilitation and biodiversity. There was extensive consultation between Bord na Mona and the local community prior to the development and opening of the Bruckana Wind Farm (Bord na Móna Wind Farm | Bruckana Wind Farm). The wind farm supports various community initiatives via the wind farm Community Gain Scheme and also operates a Near-Neighbour Scheme for electricity bill payers living close to the wind farm.

To inform the original Plan (Phase 1 Rehabilitation), both national and local stakeholders, including neighbours whose land adjoins Templetuohy 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) were contacted. Any identified local interest groups were informed of the opportunity to engage with this rehabilitation plan and were invited to submit their comments or observations in relation to the proposed rehabilitation (Phase 1) at Templetuohy Bog or the programme in general (see Appendix XI).

All correspondence was acknowledged and reviewed and evaluated against the rehabilitation measures proposed.

4.2 Issues raised by Consultees

Some issues were raised by consultees during the consultation process for both the current and previous drafts of the rehabilitation plan for Templetuohy Bog and these are summarised below. A number of general submissions in respect of previous PCAS consultation are also referenced where applicable.

4.2.1 Consultation

During the initial commencement of PCAS, a number of consultees including: the Irish Farmers Association (IFA), the Irish Creamery Milk Suppliers Association (ICMSA) and Trinity College Dublin raised concerns regarding the duration and scope of consultation period. Stakeholders suggested that the consultation period should be extended to allow all potential stakeholders to make submissions where required.

4.2.2 Assessments of rehabilitation

Queries on pre-rehabilitation assessments were raised by NPWS and the National Museum of Ireland relating to the finalisation of several bog rehab plans in 2021 in relation to Appropriate Assessment, Environmental Impact Assessment and Strategic Environmental Assessment.

4.2.3 Restoration scope

NPWS welcomed the restoration and rehabilitation measures proposed for the Littleton Bog Group in 2018, particularly where could result in the development of Annex I active raised bog and would significantly aid Ireland in meeting its commitments under the EU Habitats Directive.

NPWS (pre-PCAS, 2018) suggested that BnM consider more fully the potential for forward-planning during production phases of its operation so that the topography of the commercial fields could be engineered so as to best facilitate rewetting of the sites. Consideration should be given to consideration is giving to reprofiling works within the Littleton Bog Group.

NPWS (pre-PCAS, 2018) highlighted the potential for more intensive rehabilitation during initial consultation and the potential for larger project opportunities focusing on GHG emission reduction creation of peat-forming habitats, biodiversity enhancement, other ecosystem services enhancement/restoration. The use of bunding at several sites was discussed.

Birdwatch Ireland (pre-PCAS, 2018) welcomed the proposed restoration/rehabilitation of the Littleton Bog Group and highlighted need to take consideration of bird nesting season when carrying out works, particularly for Lapwing and Curlew.

Tipperary County Council (pre-PCAS, 2018) also suggested that peatland water levels and flow regimes should be restored to as close to the natural reference conditions as possible.

The Irish Peatland Conservation Council (pre-PCAS, 2018) expressed concerns that *Sphagnum* inoculation was not part of the rehabilitation/restoration measures being applied at Ballysorrel Bog.

IPCC (pre-PCAS, 2018) requested clarity around the scope of sites included in the Littleton Rehabilitation Programme and recommended that priority be given to raised bog restoration, where possible. IPCC were concerned about the fact that milled peat extraction was projected to continue at Killeens Bog (in 2018, subsequently ceased in 2021). The IPCC were also unclear about the aims and objectives for sites with biodiversity interest. The IPCC recommended the use of contouring as a methodology to improve re-wetting outcomes.

Restoration/rehabilitation of marginal habitats was raised by the IPCC and Butterfly Conservation Ireland (BCI) relating to the finalisation of several bog rehab plans in 2021 and 2022 as worthy of consideration within the rehabilitation measures to support carbon sequestration and biodiversity objectives.

4.2.4 Monitoring

Further details on monitoring of ecological metrics, and how and where reporting on this monitoring would take place, was raised by the IPCC, University College Dublin and Trinity College researchers in their respective submissions relating to the finalisation of several bog rehab plans in 2021. Uisce Éireann (formerly Irish Water) reiterated the requirement of a strong monitoring program with respect to water quality during and post rehabilitation.

The IPCC (pre-PCAS, 2018) highlighted that monitoring of changes to water-levels as a result of rehabilitation could be improved using piezometers and queries the frequency of ecotope mapping.

NPWS (pre-PCAS, 2018) recommended that ongoing research into the interaction between rehabilitation measures and carbon emissions is prioritized so as to better inform future rehabilitation plans.

NPWS (pre-PCAS, 2018) had some difficulty interpreting maps due to their complexity and the size of the legend.

4.2.5 Flooding, drainage or other impacts on adjacent land.

The Irish Farmers Association (IFA), The Department of Agriculture Food and the Marine, individual local residents and ICMSA queried likely impacts relating to the finalisation of several bog rehabilitation plans in 2021 and 2022.

They raised concerns based on the proposed re-wetting in relation to flooding on adjoining lands and, specifically, with regards to the maintenance of drains. In previous submissions, the IFA also raised the issue of Health and Safety in relation to raising water levels as well as possible impacts on land and property prices.

Several individuals who owed adjacent land to bogs within the Littleton Bog Group expressed concerns about the potential impacts of re-wetted to their land (pre-PCAS, 2018).

4.2.6 Amenity

Several individuals and organisations expressed interest in the development of amenity and greenways through the Littleton Bog Group (pre-PCAS, 2018).

IPCC highlighted a bog area at the north of Littleton Bog that had been used for educational purposes in the past.

Several consultees including various politicians have requested information regarding the development of amenities on BnM bogs since the beginning of consultation by BnM relating to the Peatlands Climate Action Scheme.

4.2.7 Water Quality

A number of consultees have contacted BnM to express their concerns regarding the potential impact of PCAS related activities on water quality within waterbodies that are hydrologically connected to BnM bogs. *Uisce Eireann* have expressed their support for PCAS in general and have also requested information regarding the potential hydrological impacts of PCAS.

Tipperary County Council (Pre-PCAS, 2018) highlighted the need to avoid any unnecessary deterioration in the quality and quantity of ground and surface waters.

4.2.8 Future management

NPWS (Pre-PCAS, 2018) highlighted the potential for future nature conservation designations for several bogs in the Littleton Bog Group (Ballysorrell and Knockahaw). Queries about future nature conservation designations were also submitted by IPCC, discussed with IWT and with Birdwatch Ireland Tipperary Branch.

Birdwatch Ireland, Tipperary Branch (Pre-PCAS, 2018) suggested further management of sites for to improve habitat for breeding wetland birds.

The Irish Farmers Association (IFA) (2021-2022) expressed concerns regarding the future ownership of the BnM bogs subject to rehabilitation, in submissions made on earlier PCAS plans. They expressed a desire for contingency planning for potential future ownership of designated bogs so as to ensure no negative impacts arise on adjacent properties from any new ownership.

4.2.9 Other issues

Other issues (raised by IPCC) during the finalisation of several bog rehab plans in 2021, 2022 and in 2023 included after use of the bog and turf cutting on the margins of the bog (outside of the area owned by BnM). The IPCC

have also requested information regarding the resilience of rehabilitation measures to climate change induced climatic alterations.

Archaeological end of life survey of all the bogs were requested by National Museum of Ireland and National Monuments Unit during the early stages of PCAS. The National Museum of Ireland also requested that due diligence be taken during works to protect any archaeologically significant findings or areas. They also reiterated the importance of peatlands for the preservation of archaeology and requested they be consulted as part of any EIA undertaken.

A local landowner (pre-PCAS, 2017) with a holding adjacent to a Littleton Bog made some enquires about the return of land originally subject to CPO by Bord na Móna.

NUIG (pre-PCAS 2017) were interested in developing an INTEREG Project on peatland sites and were discussing the inclusion of several BnM sites in this proposed project. (This subsequently became the CarePeat INTEREG Project and Cavemount Bog Co. Offaly was included in the project, which is now completed).

LIT were interested in developing a project on peatlands and paludiculture and were discussing the potential availability of land within the Littleton Bog Group. This proposal ultimately did not develop into a project on BnM lands.

An individual highlighted the presence of several rare Bee Orchid varieties along the BnM railway at Longfordpass.

For a complete summary of submissions received and replies, see Appendix XI.

4.3 Bord na Móna response to issues raised during consultation

4.3.1 Consultation

BnM carried out extensive consultation and engagement with all interested parties during 2018-2021. BnM are carrying out additional consultation as part of the process of updating this rehabilitation plan for Templetuohy Bog. This is ongoing with a dedicated Community Liaison Officer communicating with affected and interested parties. A website has been developed to make information available. This will be continually updated. Some PCAS Bogs have been used as demonstration sites so that interested stakeholders can come to organised visits and observe the measures on the ground.

4.3.2 Assessments of rehabilitation

Appropriate Assessment screening will be undertaken on all the bogs as part of PCAS. This will be undertaken by external consultants for Templetuohy Bog.

Implementation of rehabilitation measures including machine access across the bog will be carried out in conjunction with BnM Ecology Department. Seasonal and other restrictions will be put in place to mitigate against any impacts on biodiversity.

An Archaeological Impact Assessment (AIA) has been undertaken on Templetuohy Bog (Appendix XII). The aim for known archaeology on these bogs is to accomplish preservation in situ and we are taking steps to identify and avoid all known archaeology. BnM aim to achieve this through including all known archaeology in the planning process of rehabilitation works and implementing and exclusion or buffer zone around these features. These measures should sufficiently protect any archaeology in these areas, during any ground works in the final plan. It

is anticipated that any archaeology will benefit from the ultimate remit of the rehabilitation, in that water tables will be raised thereby preserving in-situ. There is also an identified procedure for managing reports of stray finds that may arise during rehabilitation. There is continuing consultation and engagement with the National Museum of Ireland and the National Monuments Unit.

4.3.3 Restoration scope

Consultees during the Phase 1 rehabilitation (2018-2021) including NPWS and the IPCC suggested the use of more intensive rehabilitation measures such as contouring and bounding. These ultimately were beyond the scope of the rehabilitation budget allocated to these sites by BnM at the time (2018-2021). The PCAS is an opportunity to carry out some of these suggested measures (e.g. bunding, recontouring) through the Littleton Bog Group as part of Phase 2 rehabilitation.

As part of PCAS, all restoration/rehabilitation options have been developed to support climate action and biodiversity objectives. Other issues such as existing amenity, social impacts, industrial history, archaeology were not part of the direct scope of PCAS but were considered when developing the rehabilitation plan. After-use of the bog is outside the scope of PCAS. Rehabilitation will lead to the development of a stable diverse re-wetted cutaway landscape that will have added benefits for amenity in the future but will not rule out other after-uses such as amenity.

Sphagnum inoculation is one measure that was initially suggested by IPCC (in 2018) for use at Ballysorrel to support raised bog restoration. This measure was ruled out initially by Bord na Móna due to its relatively high cost, lack of resources and other logistical issues such as lack of suitable local *Sphagnum* donor sites. Since then, BnM has developed the Peatlands and People LIFE Project (Home | Ireland's Climate Action Catalyst | Peatlands & People) and one of the main objectives of this project on BnM land is to inoculate approx. 800 ha of suitable residual deep peat with *Sphagnum* plugs to speed up the trajectory of development of *Sphagnum*-rich embryonic bog vegetation. So far, 250 ha has been inoculated across midlands bogs. The future selection of sites within the Littleton Bog Group for *Sphagnum* inoculation will be dependent on availability of resources for planting. Site visits to Ballysorrell (2021-2023) has also shown that *Sphagnum* present on site is recolonising and spreading quickly in response to the re-wetting in 2018.

4.3.4 Monitoring

As part of the PCAS, a monitoring and verification plan has been developed to support climate action and biodiversity objectives. This will include stratified monitoring of bog condition, habitats and biodiversity at several different scales. It is proposed to monitor the improvement of some biodiversity ecosystem services. The appearance of key species such as *Sphagnum* moss will be monitored during walk-over surveys and general monitoring visits. It is not proposed to carry out any additional monitoring of biodiversity ecosystem services at this site. Biodiversity monitoring for PCAS planned for a stratified approach with different targeted monitoring at different sites based on the site characteristics.

It is the expectation of BnM that rehabilitation measures should positively impact the water quality in receiving water bodies through enhancing the water attenuation across rehabilitated sites. The robust water monitoring programme implemented as part of PCAS will be used to assess water quality leaving rehabilitated sites at designated points.

An overview of the Water Quality Monitoring plan was provided to Uisce Eireann, and confirmation given that water flow and dissolved organic carbon (DOC) is being monitored.

BnM also advised that decommissioning of silt ponds will only be carried out when the EPA are satisfied that adequate stabilisation of the bog has been achieved and silt ponds are no longer required. This decommissioning will be determined by water quality results and EPA approval.

It was also confirmed that rehabilitation of bogs in the same catchment is likely to result in beneficial impacts on water quality in the catchment. This will be captured by the results from EPA monitoring stations in the vicinity of the bogs.

4.3.5 Flooding, drainage or other impacts on adjacent land.

During Phase 1 of the rehabilitation across Littleton Bogs, individual landowners who expressed concerns were met on site. No boundary drains were blocked and, in several instances, (Baunmore and Ballybeg) some internal drainage was modified to allow water draining from external lands to flow through these sites unhindered.

It is the intention of BnM that the re-wetting of the bogs will be carried out in such a manner that does not impact on third party lands. Where it is deemed that blocking of a shared drain would cause any adjoining lands to be adversely affected, this will be avoided, and alterations made to the rehabilitation plan. In general, drains around the margins of the bog will not be blocked.

External consultants have been appointed to carry a hydrological assessment to identify any potential impacts to neighbouring lands and to mitigate against any such impacts. There is no potential for direct impacts on arterial drainage downstream.

It is intended that rehabilitation measures will not significantly alter the existing topographical catchments and that the spine of the drainage networks, those which the upstream catchments drain through, will be retained by BnM.

4.3.6 Amenity

Bord na Móna and Tipperary County Council carried out a feasibility study of the potential for amenity development across the Littleton Bog Group called Littleton Labyrinth in 2018-2020. The first phase of this amenity has been completed, and a greenway has been constructed at Killeen Bog to Loch Doire Bhile. A further extension (Phase 2) is proposed at Ballybeg and Derryvilla Bog. There is potential for future extensions to this greenway network at Templetuohy Bog in the future. The proposed rehabilitation measures will not constrain any future greenway development.

Creating amenity developments such as walking tracks is not included within the direct scope of PCAS. However, PCAS rehabilitation will enable and support potential amenity future amenity developments.

4.3.7 Water Quality

PCAS rehabilitation is expected to positively impact the water quality of surrounding water bodies through enhancing water attenuation across rehabilitated sites. The robust water quality monitoring programme implemented as part of PCAS will be used to assess the water quality leaving rehabilitated sites at designated points.

4.3.8 Future management

This rehabilitation plan is not intended to plan out future management of these sites. Known or planned after-use (renewable energy, way-leave, Littleton Labyrinth greenway feasibility) has been incorporated, where possible, in the rehabilitation plan. Peatland rehabilitation is not intended to constrain future land-uses, where they are compatible with this environment.

BnM will continue to manage their land bank into the future. As industrial peat production has now ceased on BnM lands and rehabilitation measures carried out, a regular drainage maintenance programme will not be required or carried out as would have been the case in the past. However, if issues arise with the BnM internal drainage system that affects upstream or downstream landowners, then these issues will be addressed by BnM.

BnM considers issues regarding estate security, fire risk, invasive species and water pollution of utmost importance. BnM intends to maintain security and manage fire risk over the entirety of the estate. In this regard, PCAS activities, should have no detrimental impact on these issues. Regarding water pollution, BnM is regulated by the EPA and as such adheres to the strict water pollution measures laid out by the same.

The formal designation of sites for conservation is a matter for NPWS. BnM are happy to continue engaging on issues of conservation designations as part of the National Peatland Strategy and other initiatives.

4.3.9 Other issues

The National Museum of Ireland (NMI) and the National Monuments Service (NMS) were included in the stakeholder consultation process. Where available at the time of the submission of the rehabilitation packages to NPWS, the Archaeological Impact Assessment (AIA) was included. Where it was still in preparation, it was subsequently provided. Both bodies acknowledge the AIA desk-based process and associated outputs designed to ensure any known archaeology was identified and protected during the implementation process, and the Project Archaeologist's recommendations regarding buffering and ongoing vigilance and reporting of any stray finds to NMI. NMS requested that the AIA be supplemented with walking field surveys and that monitoring of rehabilitation measures was undertaken when the work commences. Subsequent to this, NMI commissioned initial surveys of some of the high priority peatlands, and on foot of the findings of these reports, have commissioned full field surveys to be undertaken on some of these bogs. NMS's contracted archaeologists have since applied for surveys licences and it is expected that once issued, these surveys will be commenced.

It is the intention of BnM to keep secure the estate and ensure that any anti-social behaviour that occurs within the estate is reported and dealt with by the appropriate authorities.

4.3.10 Concluding statement

No specific issues were raised during consultation that required significant changes to the substance of the rehabilitation plan.

The PCAS has the potential to deliver some of the rehabilitation measures initially suggested by stakeholders but not included within Phase 1 rehabilitation.

Marginal drains will not be blocked to avoid impacts on adjacent lands or lands under the ownership of third parties or turf-banks. This does not change the overall rehabilitation goals and outcomes and can be integrated with the other rehabilitation measures to allow cutaway re-wetting.

BnM intend to continue management of this site into the future and issues such as security and trespass will be addressed on an ongoing basis in association with other stakeholders.

BnM intends to maintain a “No Shooting” policy on Templetuohy Bog.

5. REHABILITATION GOALS AND OUTCOMES

The rehabilitation goals and outcomes outline what Bord na Móna want to achieve by implementing the rehabilitation (Phase 1 and Phase 2). 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.
- The site has already developed a mosaic of pioneer cutaway habitats, notably wetland, Birch woodland, and other cutaway habitats and is largely stabilised (wind farm footprint). These areas will be assessed for potential for targeted actions to enhance existing wetland habitats and to create small wetland features.
- 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, where present.
- Supporting ongoing renewable energy land-use. Integrating rehabilitation measures with current renewable energy infrastructure on site. It is not proposed to carry out any rehabilitation actions to change or negatively affect any infrastructure.
- 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.

- Bord na Móna have carried out rehabilitation at Templetuohy Bog between 2018-2021 (Phase 1 rehabilitation). Significant drain-blocking and re-wetting was carried out during this phase.
- It will take some time for stable naturally-functioning habitats to fully develop in areas recently in industrial peat extraction at Templetuohy 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). Furthermore, the majority of the bog is shallow peat and only a small proportion of the bog 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.
- 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 Templetuohy 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 rehabilitation plan (Phase 1 and Phase 2) is to rehabilitate the bog. This is defined by:

- The area of Templetuohy Bog within the PCAS rehabilitation footprint.
- EPA IPC Licence - Ref. P0-409-01. 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 Templetuohy 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.
- The majority of the cutaway area has shallow peat remaining, with some pockets of deeper peat. The local environmental conditions of Templetuohy Bog mean that a combination of dry cutaway measures, targeted drain blocking, wetland outfall management and wetland creation are the most suitable rehabilitation approach for shallow peat areas. Given the small areas of residual deep peat within the bog (restricted to high fields and headlands), limited deep peat measures will be applied to areas of deeper peat.
- Bord na Móna have defined the key goal and outcome of rehabilitation at Templetuohy as **environmental stabilisation** of the site via **optimising climate action benefits, where possible**, while also supporting the renewable energy infrastructure. The re-wetting of residual peat in the cutaway will be optimised, **setting the site on a trajectory towards the development of wetlands/Reed Swamp and fen on shallow more alkaline peat and other subsoils, and the development of peat-forming communities on the small areas of residual deep peat, where possible.**
- Integrating rehabilitation measures with current renewable energy infrastructure on site. It is not proposed to carry out any rehabilitation actions to change or negatively affect any infrastructure.
- Rehabilitation of Templetuohy Bog will support multiple national strategies of climate action, biodiversity action and other key environmental strategies such was the Water Framework Directive.
- Rehabilitation of Templetouhy Bog was also support and align with the goals and objectives of the Tipperary Decarbonizing Zone.
- 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, such as Templetuohy, 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 Templetuohy is cutaway with a mosaic of residual peat depths and a partially pumped-drainage regime. Wetland habitats (fen, wetland, reedswamp) and dry cutaway habitats (birch woodland, scrub and Heather) are already developing across the site in response to previous re-wetting. There are

small areas of residual deeper peat remaining, which are likely to develop more typical bog vegetation communities in time. *Sphagnum*-dominated embryonic bog communities are already developing in places throughout the site.

- **Wind Farm.** Templetuohy Bog contains an operational wind farm. Rehabilitation has been integrated with this infrastructure and with this land-use. There will be a setback distance applied to avoid negative impacts on the wind farm infrastructure.
- **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, Lisheen Mine and Bruckana Wind Farm infrastructure. 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**. 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 Templetuohy 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 Templetuohy 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. The location and extent of the rights of way around the margins of Templetuohy Bog will not change or constrain the rehabilitation plan for Templetuohy bog and there are no plans for alteration to the existing access.
- **Turf-cutting.** There is an area of active turf cutting (turbary) adjacent to the western boundary of Templetuohy bog. This area is ecologically and hydrologically linked to the area owned by Bord na Móna where rehabilitation is planned. For this reason, consideration has been given to the measures implemented adjacent to this area with a view to avoiding potential for impact.
- **Potential Future Amenity development.** Bord na Móna and Tipperary County Council carried out a feasibility study of the potential for amenity development across the Littleton Bog Group called Littleton Labyrinth. There is potential for future extensions to this greenway network at Templetuohy Bog. The proposed rehabilitation measures will not impact on the delivery of any future amenity as a route is still available across the bog, and there is no constraint to rehabilitation.
- **Tipperary Decarbonising Zone.** Templetuohy partially overlaps the Tipperary Decarbonising Zone. A Decarbonising Zone (DZ) is a spatial area, identified by each local authority in Ireland, in which a range of climate change mitigation measures are identified, whilst enhancing and embracing adaptation and biodiversity measures to contribute to reaching wider national climate action targets. DZs are a demonstration and testbed of what is possible for decarbonisation and climate action at a local and community level. Through a feedback loop of experimentation and evaluation, the DZ enables a flexible, incremental and community-driven approach to ensure that its objectives are delivered. The TDZ is not 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:

- Bruckana Wind Farm infrastructure.
- Areas subject to turf cutting (turbary) are excluded.
- The longer-term development of stable naturally functioning habitats at Templetuohy 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 Templetuohy 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.

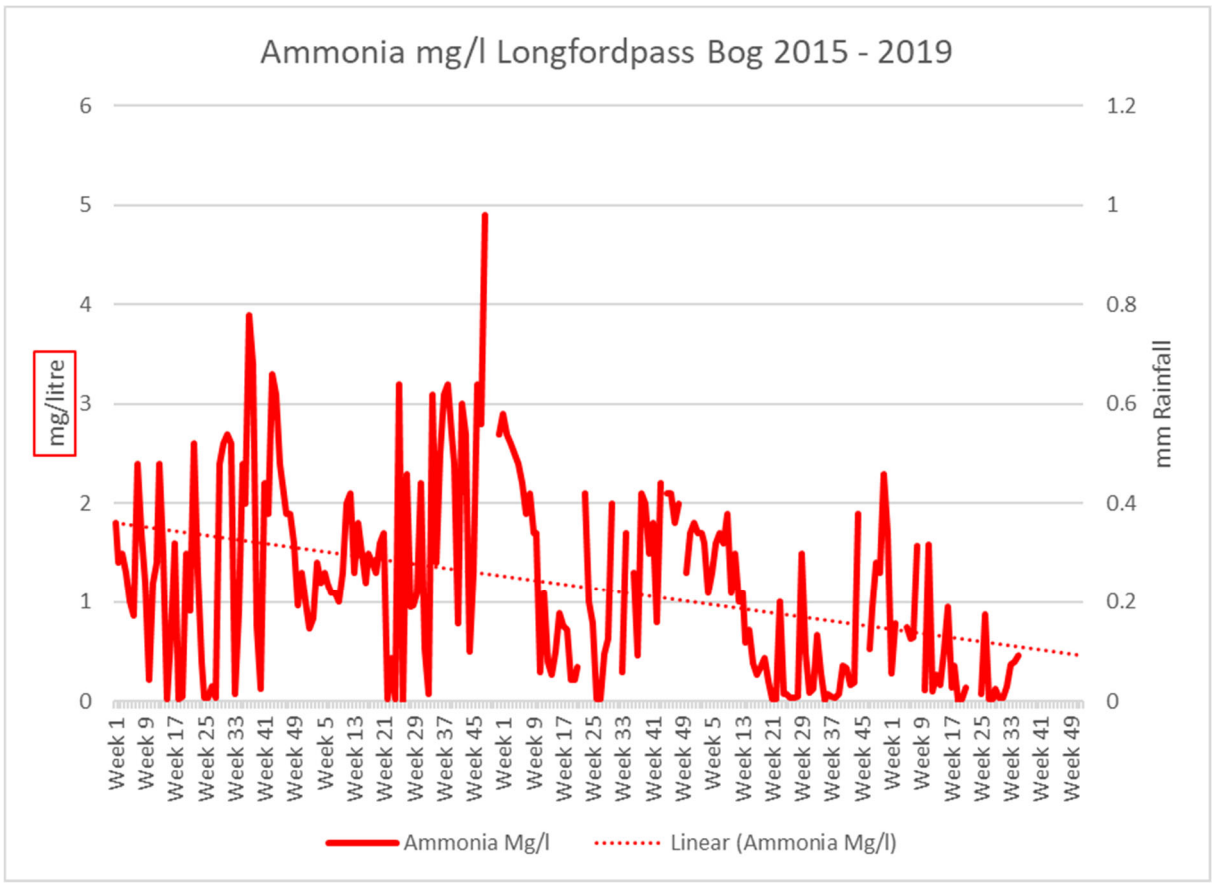
7.1 Criteria for successful rehabilitation to meet EPA IPC licence conditions:

- 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 indicate a downward trend in Ammonia concentrations (Figure 7.1).

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

As the monthly monitoring program at Templetuohy Bog continues in 2025 and during the rehabilitation measures planned for 2025, and data from the 2024 monitoring program is compiled, further analysis will be completed to identify any ongoing trends.



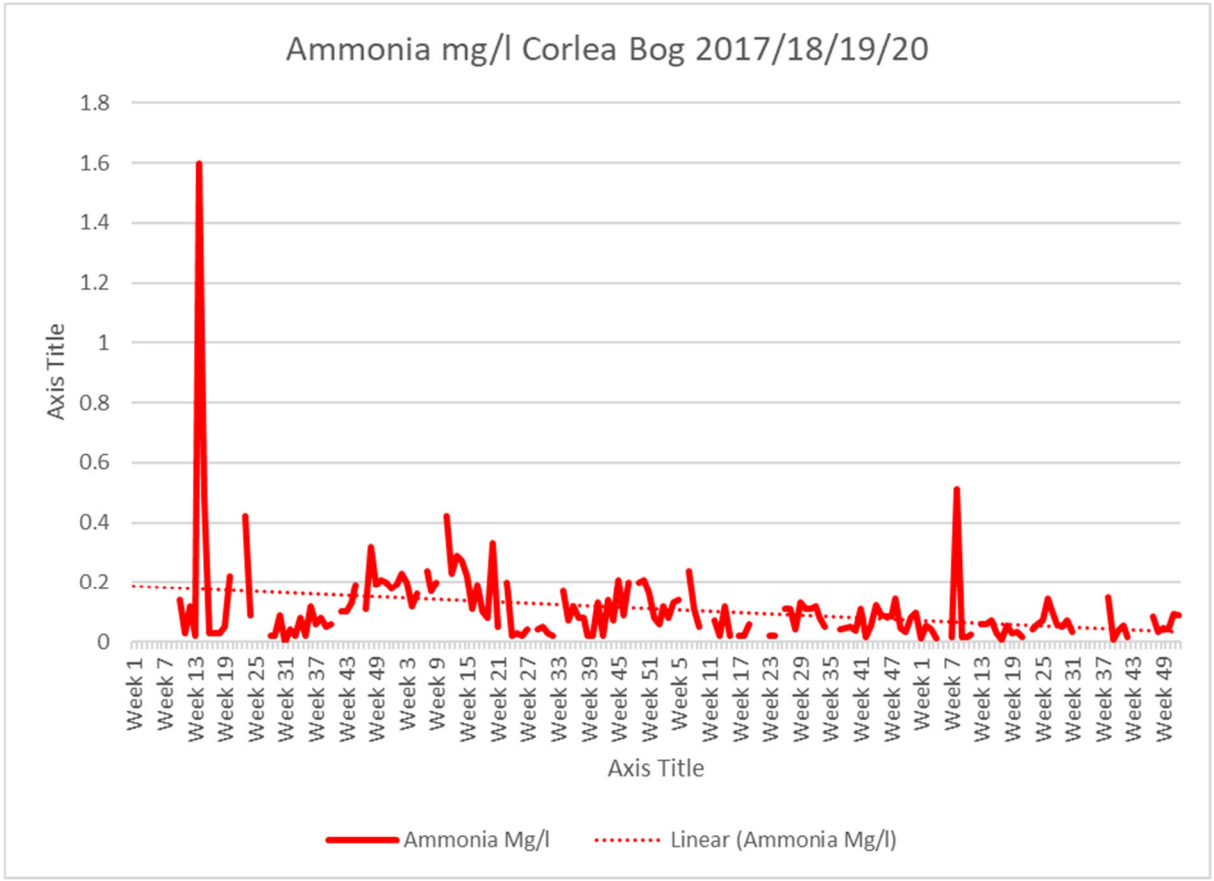


Figure 7.1. Ammonia levels over the period 2015-2019 at Longfordpass and the period 2017-2020 at Corlea.

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, heath, scrub, poor fen, and birch woodland, where conditions are suitable. Some of these habitats have already in part established as pioneer vegetation/wetlands. It will take some time for stable naturally functioning habitats to fully develop at Templetuohy 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. 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 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 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-26-13-RP-22: Aerial Imagery 2021

BNM-DR-26-13-RP-04: Peat Depths

BNM-DR-26-13-RP-03: LiDAR Map

BNM-DR-26-13-RP-09: 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-26-13-RP-05: Enhanced 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.)

Extensive drain-blocking was already carried out as part of **Phase 1** rehabilitation between 2018-2022.

Proposed **Phase 2** rehabilitation measures for Templetuohy will include (see Table 8.1):

- Re-assessment of the pumping regime and removing pumps if this is desired and has no significant external impact. Three pumps are required to maintain windfarm infrastructure across the site. One pump will be assessed and decommissioned if possible. 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 flooding regime will develop, with water-levels fluctuating in association with levels in the wider catchment.
- Targeted additional drain blocking, where needed (Additional Works AW2)
- Initial hydrological modelling indicates low lying parts of the site will develop a mosaic of wetland habitats with the potential for some 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 small 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 along with high field taps.

- 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 in suitable areas including more intensive drain blocking (max 7/100 m) and management of water levels with overflow taps.

Table 8.1: Types of and areas for enhanced rehabilitation measures at Templetuohy 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	DCT2	Regular drain blocking (3/100m), modifying outfalls and managing water levels with overflow pipes and targeted fertiliser treatment.	31.1
Wetland	WLT2	Turn off or reduce pumping to re-wet cutaway, blocking outfalls and managing water levels with overflow pipes and targeted blocking of outfalls within a site.	41.8
Deep Peat	DPT2	More intensive drain blocking (max 7/100 m) and modifying outfalls and managing overflows	22.2
	DPT7	More intensive drain blocking (max 7/100 m), + field reprofiling, creation of shallow depressions on elevated deep peat + blocking outfalls and managing overflows.	5.7
Marginal land	MLT1	No work required.	19.8
Additional Work	AW2	Targeted Drain Blocking	385
Silt ponds	Silt pond	Silt ponds.	1.0
Constraint	Constraint	Other Constraints (Rights of Way, Bruckana Wind Farm, turbary/turfcutting areas, marginal agricultural grassland).	225.8
Total			732.5

8.1 Completed and ongoing

- A rehabilitation programme was carried out in Templetuohy in 2018-2021 (Phase 1 rehabilitation). Measures included wide-spread drain-blocking. Rehabilitation was planned to integrate with the current Bruckana Wind Farm infrastructure. Much of the cutaway between the wind farm infrastructure has been left to develop naturally functioning woodland, wetland and other cutaway peatland habitats.
- A significant part of the site has already re-vegetated, with significant cover of pioneer vegetation developing a mosaic of typical cutaway peatland and wetland habitats. The1996 aerial photo shows that the majority of the site was in industrial peat extraction, with some emerging gravel mounds and ridges. By 2006 some areas were cutaway and peat extraction had stopped on a phased basis, particularly in the central section. Now there is a mosaic of pioneer habitats through the centre of the site and this area has also been re-wetted, with wetlands developing in basins. Some embryonic *Sphagnum* rich vegetation is already developing on the site.

- The outer sections of the site were in industrial peat extraction in 2000. This continued until 2017, and the areas were mostly bare peat.
- 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 will be applied to Templetuohy 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 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, turf cutting 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 implementation 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 drain blocking and bunding, along with 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.
- 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 (BnM) 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. 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. BnM 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.

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ADDENDUM 1- APPROPRIATE ASSESSMENT REPORT FINDINGS

Bord na Móna operates under IPC Licence issued and administered by the EPA to extract peat within the Littleton bog group (Ref. P0409-01). 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. Templetuohy Bog is located approximately 10km east of Templemore, Co. Tipperary. Templetuohy Bog overlaps the county boundaries of Co. Laois, Co. Kilkenny and Co. Tipperary, with part of the bog lying in each of these counties. This addendum outlines the findings of the Appropriate Assessment reporting carried out in respect of proposed PCAS activities at Templetuohy Bog.

An Appropriate Assessment Report[7] was commissioned by Bord na Móna to inform whether the proposed PCAS activities at Templetuohy Bog had the potential to result in Likely Significant Effects on European Sites.

The concluding statement of this report reads as follows:

> '*In light of this conclusion, it is the considered opinion of ROD, as the author of this AA Screening Report, that the competent authority, BnM, may find in completing its AA Screening in respect of the Templetuohy Bog Decommissioning and Rehabilitation Plan, that the project, either individually or in combination with other plans and projects, is not likely to have a significant effect on any European site, in view of best scientific knowledge and the Conservation Objectives of the sites concerned. Therefore, it is the recommendation of the author of this AA Screening Report that the competent authority may determine that AA is not required in respect of the project*'.

Therefore, following screening, Appropriate Assessment is not required for the project as it is not directly connected with or necessary to the management of any European Site(s) and as it can be concluded, on the basis of objective information, that the project, individually or in combination with other plans or projects is not likely to have a significant effect on any European Site(s).

[7] ROD (2025). Templetuohy Bog Decommissioning and Rehabilitation Plan 2025, Screening for Appropriate Assessment.

APPENDIX I: STANDARD PEATLAND REHABILITATION THAT HAS ALREADY BEEN COMPLETED TO MEET CONDITIONS OF THE IPC LICENCE

Bord na Móna operates under IPC Licence issued and administered by the EPA to extract peat within the Littleton Bog Group (Ref. PO-409-01). 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. Templetuohy Bog is located on the borders of both Counties Kilkenny and Tipperary and is 4 km east from Templetuohy.

This document seeks to address the requirements of Condition 10.2 of IPC Licence Ref. PO-409-01:

> "*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.*"

Templetuohy Bog is part of the Littleton Bog Group and supplied the Littleton Brickette Factory. Bord na Móna made the decision to close this brickette factory in 2017 and to rehabilitate the Littleton Bog group. Templetuohy Bog was rehabilitated by Bord na Móna during 2018-2024. This standard peatland rehabilitation plan is outlined here to **estimate costs** and to **demonstrate rehabilitation that was completed** between 2018-2021.

Bord na Móna is expected to cover the costs that 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 (EDRRS/PCAS) proposed for 2025 and the benefits that flow from these measures and interventions/improvements will be eligible for funding by the EU through Ireland's National Recovery and Resilience Plan.

Scope of rehabilitation

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

- The area of Templetuohy Bog.
- EPA IPC Licence - Ref. P0-409-01. 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. Templetuohy Bog is part of the Littleton Bog Group.
- The environmental condition of Templetuohy Bog.
- The key objective of rehabilitation, as defined by this licence, is **environmental stabilisation** of the bog.
- Bruckana Wind Farm infrastructure. Some pumps and drainage are maintained to facilitate the wind farm infrastructure.
- To minimise potential impacts on neighbouring land. Boundary drains around Templetuohy 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 Templetuohy Bog was environmental stabilisation of the site via wetland creation. This is defined as:

- Carrying out drain blocking to re-wet peat and slow runoff across the cutaway around the wind farm.

- 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 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, where needed.
- 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:

- 2018-2021. 1st phase of rehabilitation. Removal of milled peat stock.

- 2018-2021. 1st phase of rehabilitation. Field drain blocking across the bog.
- > 2027. 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	31.1
Deep peat	DPT1	Regular drain blocking (3/100 m) + blocking outfalls and managing water levels with overflow pipes	27.9
Wetland	WLT1	Turn off or reduce pumping to re-wet cutaway + blocking outfalls and managing water levels with overflow pipes	41.8
Marginal Land	MLT1	No work required	19.8
Additional Works	AW1	Targeted drain blocking	385.0
Other	Silt Pond	Silt ponds	1.0
Other	Constraint	Rights of Way, Bruckana Wind Farm, turbary/turfcutting areas, marginal agricultural grassland.	225.8
Total			**732.5**

See Drawing number *BNM-DR-26-13-RP-20: Standard Rehabilitation 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.

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

APPENDIX II: BOG GROUP CONTEXT

The Littleton Bog Group IPC Licenced area was in industrial peat production for several decades until 2017. There are 11 defined bog units covering a total area of 4,421 ha. 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 briquettes (Littleton Brickette Factory), horticulture and commercial turf for domestic use.

Industrial peat extraction across the majority of the Littleton Bog Group ceased in 2017. (Killeen extended to 2021). Littleton Brickette Factory finally ceased production in 2021. All licences for sod turf production also ceased during this period.

The Littleton Rehabilitation Programme started in 2018. Rehabilitation was planned and implemented across all of the Littleton Bogs. A range of different strategies was implemented across different sites, which reflect variable underlying environmental conditions and land-uses and potential future land-uses at the time.

Drain-blocking was carried out at Ballysorrel Bog and Knockahaw Bogs with the objective of raised bog restoration. These bogs had not had significant peat extraction and retained raised bog restoration potential. Rehabilitation measures at Templetuohy took account of the Bruckana Wind Farm, which was is operational since 2015. Bawnmore, Littleton, and Templetuohy were developing cutaway habitats already as scrub and wetland, and targeted measures were carried out through these sites to enhance these developing habitats. More intensive drain-blocking was carried out across Carrickhill, Inch, Ballybeg, Derryvilla, Longfordpass and Killeen Bogs, particularly where there was recent industrial peat extraction and there were functional drains and bare peat dominated. Pumping ceased at Carrickhill, Inch and Baunmore. Some pumping continued for various periods at Derryville, Longfordpass and Littleton, due to operational issues. Some fertiliser treatments were carried out at Carrickhill and Derryvilla in 2020 as a pilot rehabilitation project.

A project called the BnM/Coillte Midlands Midlands Native Woodland Project was developed over the same period (Midlands Native Woodland - Coillte). It was proposed to be funded and administered by the Forest Service. The main objective of this proposed project is to develop and enhance native woodland in areas of cutaway that would remain naturally dry, developing woodland habitat that would naturally complement wetland and peatland habitats already developing across these sites. An initial feasibility study was carried out in 2018 and a project was developed across the Littleton bogs, which finally identified 225 ha of cutaway to be developed as woodland. This project has piloted alternative methods to establish native woodland, including seeding, and these trials were carried out at Baunmore. This proposed project has not been approved by the Forest Service yet. Areas of cutaway at Carrickhill, Baunmore, Inch, Ballybeg, Lanespark and Killeen have been proposed as part of this project.

The Littleton Labyrinth is a proposed amenity project that was also developed during this period, in partnership with Tipperary County Council. Initially a feasibility study was carried out that looked at developing greenway amenity, and associated facilities across the Littleton Bogs, and potential links to existing infrastructure and local villages/towns. The first phase of this project was developed by Tipperary County Council in 2023/24, and a greenway was constructed on former BnM industrial railway though Killeen and Lanespark Bog to link with Loch Doire Bhile amenity, north of Lanespark. There are proposals to develop a Phase 2 shortly, with additional links being planned in Ballybeg and Derryvilla Bogs. This project is in pre-planning and is funded via Failte Ireland.

Bord na Móna and SSE are currently developing a renewable energy project called Littleton Wind Farm, which will overlap Littleton Bog and Lanespark Bogs and a small part of Longfordpass. This project is in pre-planning. (Bord na Móna Wind Farm | Littleton Wind Farm).

Rehabilitation measures so far has been very effective. The majority of the targeted areas have been re-wetted. Ballysorrel and Knockahaw Bogs are responding quite quickly to the new conditions with the development of Sphagnum and improvement in bog conditions. Areas at Templetuohy, Baunmore, Littleton and Derryvilla are changing quickly with the development of existing habitats and new pioneer vegetation where there was bare peat. Habitats at Killeen and Lanespark are developing and integrating with the new greenway amenity. Areas in Carrickhill, Inch and Killeen that where large areas of bare peat in 2018 have been slower to recolonise due to underlying environmental factors (deeper residual peat).

Bord na Móna are proposing to bring several bogs in the Littleton Bog Group into the Peatland Climate Action Scheme in 2025. The main objective of this proposed phase 2 rehabilitation is to look at enhancing re-wetting and development of pioneer vegetation to support climate action, where possible. Measures are likely to include targeted drain-blocking, use of fertiliser to encourage pioneer vegetation growth, water-level management (adjustment of outfalls and use of over-flows).

A breakdown of the component bog areas for the Littleton Bog Group IPC Licence Ref. P0-409-01 is outlined in Table Ap-2. Industrial peat production history varies across the Littleton bog group, so there is a wide range of peat depths at present.

Table Ap-2: Littleton Bog Group names, area and indicative status

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
Carrickhill	170 ha	Cutover Bog Industrial peat production started in the 1970's and ceased in 2017. There is residual deep peat across much of this site. Carrickhill had a partially pumped drainage system.	Carrickhill Bog formerly supplied peat to the Littleton briquette factory. Some areas of shallow peat cutaway on site are developing pioneer cutaway vegetation communities. The pump was decommissioned in 2018. Drain blocking was carried out in 2018. A fertiliser treatment on part of the headland was carried out in 2021. The majority of the site is still mostly bare peat. Carrickhill is proposed for the Coillte/BnM Midlands Native Woodland Project. 28 ha is proposed for planting at this site. This proposed project is currently being considered for consent by the Forest Service.	2017	Draft 2018 Phase 1 Rehab measures implemented 2018-2021 Updated 2025
Templetuohy	732.5 ha	Cutover Bog Industrial peat production commenced at Templetuohy Bog in 1940's. Areas began to develop as cutaway during the 1980s as peat extraction ceased on a phased basis. Industrial peat extraction finally ceased in 2017. This bog has a partially pumped drainage system.	Templetuohy Bog formerly was developed to supply fuel sod peat and also supplied peat to the Littleton briquette factory. Bord na Móna have constructed a 40MW Wind Farm with 14 turbines and road network on cutaway at Templetuohy bog called Bruckana Wind Farm. This windfarm is operational. Pumping is still operational across this site to support the windfarm infrastructure.	2017	Draft 2018 Phase 1 Rehab measures implemented 2018-2021 Updated 2025

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
		Part of the site has developed pioneer cutaway habitats. Areas re-developed for peat extraction in 2015-17 are now revegetating quickly. Areas that were used for peat extraction upto 2017 are a mosaic of re-wetted bare peat and pioneer communities.			
Derryville	250 ha	Cutover Bog Industrial peat production commenced at Derryville Bog in 1970's. Areas began to develop as cutaway during the 2000s as peat extraction ceased on a phased basis. Peat extraction finally ceased in 2017. This bog has a partially pumped drainage system.	Derryville Bog formerly supplied peat to the Littleton briquette factory. Part of the site has been developed for conifer forestry and is leased to Coillte. Part of the site was sold to Lisheen Mine and removed from the IPC Licence in the 2000s. Much of the former production area on site is developing pioneer cutaway vegetation communities, the remainder of the site is bare peat and developing wetland. Pumping continued at Derryville until 2022. Pumping has now ceased, and measures have been implemented in 2024 to manage water levels across the site and to decommission the pump.	2017	Updated 2025
Bawnmore	531 ha	Revegetating cutover bog. Industrial peat production commenced at Baunmore Bog in 1970's. Areas began to develop as cutaway during the 2000s as peat extraction ceased on a phased basis. Peat extraction finally ceased in 2017. Much of the site is now developing a mosaic of woodland, peatland and wetland habitats. Baunmore had a partially pumped drainage regime.	Bawnmore Bog formerly supplied peat to the Littleton briquette factory. Much of the site is developing pioneer cutaway habitats and the site has significant biodiversity value. Pumping ceased in 2018. Part of the access is used for log biomass storage (for Edenderry Power). Bawnmore is proposed for the Coillte/BnM Midlands Native Woodland Project. 39 ha is proposed for planting at this site. This proposed project is currently being considered for consent by the Forest Service.	2017	Updated 2025
Ballysorrel	196 ha	Drained raised bog – This site was initially drained for peat extraction. It was developed for peat production in the 1970s, but milled peat harvesting only occurred over a short 2 year timeframe. The site was then left as a peat reserve to be re-developed in the future. Restoration/drain blocking carried out in in 2018.	Much of the site was bare peat in the early 2000s. The site has since re-vegetated naturally (in a drier situation) since then and is now responding quickly to the recent re-wetting. Much of the high bog has re-colonised with Heather-dominated vegetation. Small hummocks of *Sphagnum* capillifolium and S. subnitens are present. *Sphagnum* spp. are also present in some low-lying areas that are permanently waterlogged and are spreading.	2017	Final 2019
Inch	120 ha	Cutover Bog Industrial peat production since 1970s. Finally ceased in 2017. Inch had a partially pumped drainage regime.	Inch Bog formerly supplied peat to the Littleton briquette factory. Some areas of shallow peat cutaway on site are developing pioneer cutaway vegetation communities with deep peat areas slow to colonise and remaining mostly bare peat.	2017	Updated 2025

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
			Pumping ceased in 2018. Inch is proposed for the Coillte/BnM Midlands Native Woodland Project. 19 ha is proposed for planting at this site. This proposed project is currently being considered for consent by the Forest Service.		
Longford Pass (Popes Bog)	214 ha	Cutaway Bog Peat production at Longfordpass bog commenced in the 1940's and finally ceased in 2017. Peat extraction ceased and cutaway habitats began to develop on a phased basis. Longfordpass has a partially pumped drainage system.	Longford Pass Bog initially was developed as a sod turf production site. It then formerly supplied peat to the Littleton briquette factory. The site was bisected by the construction of the N8 Motorway in 2000s. A small area between the new motorway and R639 (old main road) was leased and developed for farmland in 2018. Longford Pass is part of the proposed Littleton Windfarm Project. This project is currently in pre-planning. Some areas of shallow peat cutaway on site are developing pioneer cutaway vegetation communities with deep peat areas slower to colonise. Pumping continued at the site until 2022, when the pumping failed. Since then, measures have been carried out to manage water-levels.	2017	Draft 2018
Ballybeg, Lanespark and Derryvilla	474 ha	Cutaway Bog Industrial peat production since 1970s and finally ceased in 2017. Peat extraction ceased and cutaway habitats developed on a phased basis during this period. .	Ballybeg, Lanespark and Derryvilla initially were developed for sod turf production, and then formerly supplied peat to the Littleton briquette factory. Part of the site has been developed for conifer forestry and is leased to Coillte. Part of Lanespark/Derryvilla (Loch Doire Bhile) was developed as fishing lake and an amenity site in 1999-2002. This site is leased to Slieve Ardagh Rural Development. Lanespark is part of the proposed Littleton Windfarm Project. This project is currently in pre-planning. A greenway was constructed across the site as part of the Littleton Labyrinth Project in 2024, connecting the historical site of Derrynaflan to Loch Doire Bhile amenity, via Lanespark. Additional greenway is proposed to extend amenity through Derryvilla and Ballybeg as part of Failte Ireland. Midlands Trail project. This is currently in pre-planning. Ballybeg and Lanespark are proposed for the Coillte/BnM Midlands Native Woodland Project. 21 ha is proposed for planting at this site. This proposed project is currently being considered for consent by the Forest Service .	2017	Draft 2018 Ballybeg & Derryvella Updated 2025
Killeen	632 ha	Industrial peat production commenced at Killeen Bog in 1980s. Industrial peat extraction finally ceased in 2021.	Killeen bog formerly supplied peat to the Littleton briquette factory and the horticultural market.	2017	Draft 2018 Phase 1 Rehab measures

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
			Re-wetting was carried out across the site in 2021. Some areas of shallow peat cutaway on site are developing pioneer cutaway vegetation communities with deep peat areas slower to colonise since the site was re-wetted. A greenway was constructed across the site as part of the Littleton Labyrinth Project in 2024, connecting the historical site of Derrynaflan to Loch Doire Bhile amenity, via Lanespark. Killeen is proposed for the Coillte/BnM Midlands Native Woodland Project. 31 ha is proposed for planting at this site. This proposed project is currently being considered for consent by the Forest Service .		implemented 2018-2021 Updated 2025
Littleton	1,020 ha	Cutaway Bog Littleton is a relatively old industrial peat production bog. Large-scale industrial peat production began in the 1940's where sod peat was produced for fuel. Sod peat production was mechanised during the 1950's. Milled peat production began in the 1970's and milled peat was supplied to the Briquette factory (constructed in 1981) at Lanespark. Peat extraction ceased and cutaway habitats developed on a phased basis since the 1890s and some well-established cutaway habitats have developed. Industrial peat extraction finally ceased in 2018. Littleton has a partially pumped drainage system.	Littleton Bog formerly supplied sod peat before supplying peat to the Littleton briquette factory. Older cutaway has already extensively colonised with pioneer cutaway, wetland and scrub habitats. Part of the site has been developed for conifer forestry and is leased to Coillte. A small area (10 ha) was used as a pilot biomass project and Eucalyptus was planted in 2018. Littleton is part of the proposed Littleton Windfarm Project. This project is currently in pre-planning. Some pumps in Littleton Bog have been decommissioned and some have been retained and are still operational.	2017	Draft 2018

See Drawing number *BNM-DR-26-13-RP-24:* ***Bog Group***, included in the accompanying Mapbook which illustrates the location of Templetuohy Bog and the Littleton Bog Group in context to the surrounding area.

APPENDIX III: ECOLOGICAL SURVEY REPORT

Ecological Survey Report

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:	**Templetuohy**	**Area (ha):**	732.5 ha
Works Name:	Littleton	**County:**	Tipperary/Kilkenny/Laois
Recorder(s):	MMC & B'OL	**Survey Date(s):**	2/07/2012 & 28/11/2017

Habitats present (in order of dominance)

The most common pioneer habitats present in the former industrial production areas include:

- Bare peat (BP) (including haku piles) (Codes refer BnM classification of pioneer habitats of production bog. See Appendix II).
- Dry pioneer poor fen mainly dominated by Soft Rush (pJeff), but also containing Bog Cotton (pEang). This community is frequently in mosaic with dry heath (dHeath) and Heather is frequently a part of this community
- Wetland mosaics containing open water (OW) and emergent poor fen communities generally dominated by Bog Cotton (pEang) and Bottle Sedge (pRos).
- Birch scrub (eBir, oBir and cBir)
- Purple Moorgrass-dominated vegetation (gMol)
- Dry heath (dHeath) (in mosaic with Soft Rush-dominated poor fen)
- Pioneer dry calcareous grassland (gCal) (with emergent Birch scrub and poor fen on some mounds)
- Riparian zones (Rip) (including dense scrub/Birch woodland that has developed along their banks, particularly in areas not recently in production).
- Works areas (including some minor conifer tree-lines)
- Access zones (rail lines and access routes for machinery)
- Silt ponds (silt)
- Potential embryonic bog communities (PBA) (associated with some wetland zones)

The most common habitats found around the margins of the production bog include:

- Scrub (WS1) (Codes refer to Heritage Council habitat classification, Fossitt 2000), See Appendix II)
- Birch woodland (WN7)
- Wet grassland (GS4)
- Remnant sections of raised bog along the edges of the site (PB1)
- Cutover bog (areas that have been used for sod peat for domestic use) (PB4)

Description of site

Templetuohy Bog is located near to Templetuohy Village in north Tipperary. The bog itself falls between the boundaries of Co. Laois, Co. Kilkenny and Co. Tipperary with part of the site falling in each of these counties. Templetuohy Bog is part of the Littleton Bog group and is located towards the northern part of this bog group. There are rail linkages from Templetuohy to Littleton and to the former operational briquette factory at Lanespark. The general landscape in the area is that of rolling fertile farmland on mineral soil. Some raised bogs have developed in depressions in the landscape in this area where drainage was much poorer.

Templetuohy Bog is elongated in a general NNW-SSE direction. The drainage network and the former milled peat production fields have also been orientated in this direction. Milled-peat production is no longer carried out at the bog

and there are some sections of bare peat that do not have the typical Peco layout. These sections had been used for sod-peat. The bog has a quite variable topography with some sections within deeper depressions and some areas with higher ground over mounds and ridges of glacial gravel. This is particularly evident in the large area along the centre of the site that is not currently in production. There are a series (6) of large deep drains that form the main drainage network that or also orientated in this direction. These deep drains are lined with high fields that are now overgrown in places with Birch scrub/woodland. There are several pumps located along this drainage network. There are also some access zones with travel paths or railways along these high fields adjacent to the deep drains. The site can be divided into several sub-sections according to the local topography and the current land-use.

South-west section – Production area Up until recently, this area of the site was managed for active milled peat production. This section has some of the deepest peat left on the site. Several series of bare peat fields are divided by riparian zones that contain a deep main deep lined with high bog or high fields. This high bog is now degraded and developing into scrub or contains dry heath dominated by Heather. There were frequent signs of disturbance along the drains where cleaning operations were once carried out. The former production area is surrounded by intact high bog along with Birch scrub and dry heath that have developed on old cutover bog areas. South-east section – marginal section containing woodland This section also contains the works area at the southern end of Templetuohy. It is bordered by a railway that follows the edge of the former production bog. The main features of this area include one larger woodland and several smaller woodland patches, a large area of intact (but degraded) high bog (PB1) and associated poor fen (PF2) and other more disturbed areas developing typical cutover bog habitats including areas dominated by heather and Birch scrub. The main woodland component is found on a mound. It is interesting to note that there was no woodland development mapped on the 2nd edition OSI 6 inch maps (drawn earlier in the 20th century) and the whole area was mapped as bog. The majority of the woodland can be classified as dry Birch woodland (WN7) as the canopy is dominated by Birch and the ground cover is dominated by Brambles with several other typical Birch woodland indicators present including Broad Buckler Fern and some sections dominated by Bilberry and Great Wood-rush. Some Willow is also present in the canopy. There is a small wetter area towards the south-east corner where Willow is predominant and the ground cover is dominated by Purple Moorgrass with several indicators of wetter type woodland such as Meadowsweet, Creeping Bentgrass, Angelica, Marsh Bedstraw and Marsh Pennywort. There is also some Bog Myrtle and hummocks of Sphagnum palustre. There is also a small area dominated by Hazel towards the centre of the woodland. This woodland type (WN2) has developed on mineral soil and the ground flora is completely different with species like Wood Anemone dominant and other species like Bluebell, Primrose, Blackthorn, and Pignut present. Some species typical of WN2 type woodland such as Hawthorn, Hazel and Guelder Rose can be found within the Birch woodland habitat and along the margins of this woodland. Further east there is another small clump of similar woodland habitat that is dominated by Hazel with a ground cover dominated by Wood Anemone. This woodland is also perched on a mound and is surrounded by more typical Birch-Willow scrub of peatland habitats. Some Oak is present in this section. Further south there are two small sections of Birch woodland (WN7) that have a travel path running through it. This Birch woodland is welldeveloped and a shrub layer dominated by Bilberry is present in sections. The area to the east of the main woodland is largely comprised of intact (but disturbed) high bog (PB1) and poor fen (PF2). This area has been disturbed somewhat by travel paths and by Bord na Móna activity. However, it was never drained. The most interesting feature is the poor fen (PF2), which is an old flush that existed on the original bog. This habitat is dominated by Purple Moor-grass with scattered Heather and Cross-leaved Heath, and contains typical flush like features such as large hummocks of Sphagnum palustre, S. subnitens and Leucobryum glaucum. Species such as Bog Rosemary, Cranberry and Crowberry are also present on some of these large hummocks. Scrubby Birch and Willow are scattered through the flush and is some sections seem to be standing dead, although there is no sign of recent burning. The area between the main woodland and the Works area is more disturbed. This section is typical of high bog or cutover bog that is being disturbed by constant traffic. The vegetation is mainly dominated by Heather and Purple Moor-grass with Birch and Gorse scrub scattered through it. This area has potential to attract Marsh Fritillary as Devil's Bit is a frequent component of the vegetation. Some scrub is developing on old cutover bog and the area is criss-crossed with travel paths. To the west of the main woodland there is a small section of high bog (PB1). This high bog is intact and has never been intensively drained. The Sphagnum cover is generally low. It is in poor condition and has been damaged by some drainage in the past. The vegetation is dominated by Heather with Purple Moor-grass and Bog Myrtle scattered through it, and the

majority of the high bog can be considered marginal ecotope in quality. There is a small hollow towards the centre that is wetter and has some better developed Sphagnum cover including S. magellanicum.

Central section – cutaway area This section incorporates the entire production-related cutaway that is found north of the main woodland and runs in a long strip to the northern end of the site. This section also includes the area to the east of the central production-related cutaway. The majority of this area was managed for milled peat production in the past. There is a strip of bog along the north-east corner of the site that is currently being used for sod-peat production. This section contains the best developed areas of typical cutaway habitats. These areas are largely characterised by some wetlands with open water in the largest hollows and with various stages of poor fen/dry heath/scrub development in the dry areas. The habitat development is significantly influenced by the local topography and the underlying glacial material. The LIDAR map indicates that this zone is particularly variable with frequent ridges, mounds and depressions. Some of the gravel is exposed in places on mounds. The former production history of this bog as a sod-peat bog also seems to have influenced that development of pioneer cutaway habitats with dry heath and scattered Heather being a much more frequent component of the pioneer vegetation. This may be due to the fact that milled peat production was not very intensive in parts of this zone and that as the peat overlaying some of the mounds was relatively thin (and out of the former minerotrophic or fen peat zone), then remnant acidic peat was left on these mounds. This has also influenced the water chemistry and development of some of the wetlands with relatively extensive carpets of Sphagnum developing around the margins of some of the open water in association with Bog Cotton and Bottle Sedge. Some of the largest areas have been mapped as embryonic peat forming communities. The drier areas are generally developing a mosaic of poor fen dominated by Soft Rush, dry heath with scattered Heather and Birch scrub. Old sod-peat facebanks are still present in this area and these long linear strips are mainly vegetated with Heather in association with Birch scrub. Much of the dry heath is quite scattered and forms mosaics with bare peat. There are some depressions that are somewhat damper and are dominated by Bog Cotton but may not have open water. Other typical raised bog species are also present that are generally not found on typical midlands cutaway. These include Hare's-tail Bog Cotton, White Beak-Sedge, Deer-grass and rare hummocks of S. capillifolium. Some of the mounds where gravel may be exposed may be vegetated either with scattered Heather and or extensive Soft Rush. While there may be some elements of calcareous grassland in some of these areas as well, it is generally not extensive and Soft Rush is frequently the dominant feature of the pioneer vegetation. Typical pioneer calcareous grassland features include Carnation Sedge, Wild Strawberry, Knapweed and Ox-eye Daisy. Other species like Carline Thistle were present on some spoil. Birch scrub is also scattered to varying extents through these habitats. The wetlands are generally areas of open water with emergent Bog Cotton and Bottle Sedge that are fringed by these poor fen species as well as by Birch and Willow scrub in places. Typical species such as Cuckoo Flower, Marsh Bedstraw, Marsh Pennywort and Mint can be found in the damper areas around some of these wetlands. There are also rare hummocks of S. palustre, S. subnitens and S. capillifolium associated with some dense areas of Bog Cotton. Purple Moorgrass and Hair's-tail Bog-Cotton can also be found in this vegetation. Some of the wetlands also have extensive rafts or lawns of Sphagnum, mainly S. cuspidatum and S. fallax associated with emergent Bog Cotton or Bottle Sedge in water. There are occasional drier mounds within these rafts with hummocks of S. subnitens and S. palustre also developing. White Beak-sedge can also be found in association with this community in places. Some of the Sphagnum development can be associated with adjacent old sodpeat facebanks. Aquatic species such as Pondweeds and Bladderwort are found in some the wetlands and also within the drains. One of the wetlands has developed close to the original route of the stream that flowed across the site. Some Greater Tussock Sedge is associated with this wetland (between turbines 8 and 10) and is probably a relic of the fen habitat that was originally present along the stream. One interesting note to make about these wetlands is that the southern-most wetland is at an elevated height relative to the largest wetland. This is an indication that the variable topography over the site means that localised depressions at different elevations can develop wetlands that may have a somewhat isolated hydrology. This may also influence water chemistry and the development of embryonic peat forming communities. The north-west boundary contains a long strip of ditched high bog that is disturbed and being colonised by scrub. There is also some well-developed Birch woodland in this area. Some of this area around the margin is also used for domestic sod peat production and is active cutover bog.

Central section – production areas This section includes both the narrow zone of production bog along the western side and the more extensive zone of former production bog to the east that are separated by typical pioneer cutaway habitats.

Both areas are considered as being in development. The regular Peco field system has not been developed in these areas. There are old long stockpiles of sod peat present that have been covered with plastic.

North-west section – Production area This section includes a large area that was in active milled peat production. It is divided by a typical long strip of high bog with a deep drain and some Birch woodland and dry heath development. It is bordered to the west by two sections of high bog that has been intensively drained. While this section is mainly vegetated by Heather and other typical raised bog species, subsidence was noted between the drains and the Sphagnum cover is largely absent.

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

None

Templetuohy is located within the catchment of the River Suir (and Nore), which are SACs and have several qualifying interests listed on Annex I of the EU Habitats Directive, such as Salmon, White-clawed Crayfish and Freshwater Pearl Mussel. The River Suir (and Nore) is also protected via the Water Framework Directive with a River Basin Management Plan.

Adjacent habitats and land-use

Much of the land around the site is fertile and used for intensive agriculture (GA1, BC1). Mineral soils extend quite close to parts of the bog in places so some of the margins do not have extensive typical marginal peatland habitats. These marginal peatland habitats can be seem at other locations with remnant high bog (PB1), active and abandoned cutover bog (PB4), conifer plantation (planted on high bog) (WD4), scrub (WS1) and Birch woodland (WN7) all present.

Bord na Móna have constructed a 40MW Wind Farm with 14 turbines and road network on cutaway at Templetuohy bog called Bruckana Wind Farm. This wind farm is operational since 2015.

Watercourses (major water features on/off site)

- Templetuohy falls along the boundary of the River Nore and River Suir catchments, with the north-eastern section being part of the River Nore catchment and the majority of the site falling in the River Suir catchment.
- The main drainage feature is a stream that flows from west from the centre of the site and flows directly to the River Suir. Much of the site drainage is connected to this outfall.
- Other drains and outfalls are likely to connect with local drains.

Peat type and sub-soils

Much of Templetuohy is underlain with limestone-based glacial gravels that are exposed in various places. Blue silt-clay is also exposed in some places along drains and silt ponds. The main exposed peat type is dark fen peat. However, Sphagnum peat is also exposed in parts of the site where there may be remnant sod-peat cuttings. Heather is also a significant feature of the natural colonisation around the site and this is an indicator of more acidic peat being left on the site (although this may be on mounds where the peat was thin and not worked intensively.

Fauna biodiversity

Birds

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

- Buzzard (roosting in centre of site). Buzzard (3) (possibly a family group - hunting) were recorded on site during a visit in summer 2010.
- Willow Warbler and Whitethroat (frequently encountered using scrub around the site)
- Mallard (2) (on northern wetland)

- Heron (on northern wetland)
- Black-headed Gull (2) (roosting in southern large wetland)
- Blackcap and Chiffchaff (recorded in and around the wood)
- Sedge Warbler (using wetlands)
- Moorhen (using wetlands – probably breeding)
- Cuckoo
- Other more common birds encountered around the site include Blackbird, Grey Crow, Reed Bunting (using wetlands), Wren, Swallow, Robin, Pied Wagtail, Redpoll, Great Tit (around Works Area), Pheasant, Chaffinch, Wood Pigeon (wood).
- In addition, a bird survey was carried out by Roger Goodwillie and Tobin engineers as part of the EIS prepared for the wind farm project. These surveys identified a broader range of species for the site, but most are typical of cutaway habitats. No breeding waders have been recorded at Templetuohy, despite the presence of suitable breeding habitat. The site does not attract significant numbers of Whooper Swan, although numbers have been recorded on occasion. Small groups of Mallard (38) and Teal (8) were recorded on the southern wetland during a wintering survey of the site. No waders such as Lapwing, Golden Plover or Curlew were recorded. However, wintering flocks of these species may use the site from time to time.

Mammals

Signs of several mammals were recorded during the survey

- Hare – signs recorded all over the site (several seen during the survey)
- Rabbit – signs recorded all over the site (several seen during the survey)
- Hare
- Fox

Other species

Several butterfly species were recorded during the survey

- Speckled wood
- Orange-tip
- Green-veined White
- Peacock
- Small Copper

Frogs also noted in some drains

References

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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[8] will be adhered with throughout all rehabilitation measures and activities.

[8] 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 Littleton bog group (Ref. P0-409-01). 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 Littleton 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 (BnM) 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.

Peatlands rehabilitation and restoration is referenced in Section 17.3.3 of the Land Use, Land Use Change, Forestry and Marine Chapter of the National Climate Action Plan 2021 as follows:

"The rehabilitation of degraded peatlands to a condition in which they regain their ability to deliver specific ecosystem services has considerable potential for initial mitigation gains, and future carbon sequestration. Additional benefits of peatland restoration include positive socio-economic outcomes for the Midlands, increased natural capital, enriched biodiversity, improved water quality, and flood attenuation."

The scheme is included as Action 33 in the Climate Action Plan 2021 Annex of Actions - Deliver the Enhanced Decommissioning, Rehabilitation and Restoration (EDRR) Scheme for Bord na Móna Peatlands.

EDRRS is also referenced in the Climate Action Plan 2021 as a measure to deliver a Just Transition in the Midlands.

International research and scientific understanding of peatlands is now reflected in key Irish national policy and strategy documents such as the National Raised Bog Special Areas of Conservation (SACs) Management Plan 2017 - 2022 (Department of Arts, Heritage and the Gaeltacht 2017), The National Peatland Strategy (Department of Arts, Heritage and the Gaeltacht 2015), The National Biodiversity Action Plan (National Parks and Wildlife Service 2017), the River Basin Management Plan for Ireland 2018-2021 (Department of Housing, Planning and Local Government 2018), the Draft River Basin Management Plan for Ireland 2022-2027 (Department of Housing, Local Government and Heritage, 2022) and the Biodiversity – Climate Change Sectoral Action Plan (Department of Arts, Heritage and the Gaeltacht 2019). Each of the national plans, which are also complemented with the recently published EU Green Deal communication on Biodiversity Strategy for 2030 (COM 2020) have overlapping objectives and actions that focus on the restoration of peatlands damaged by turf-cutting, drainage and other impacts, as well as the re-wetting of Bord na Móna industrial peat extraction bogs.

While not specifically identified as a restoration implementor, EDRRS objectives are in line with those of the United Nations Decade on Ecosystem Restoration 2021-2030 of Preventing, Halting and Reversing the Degradation of Ecosystems worldwide.

EDRRS is also in line with the EU Commission proposal for a Nature Restoration Law which will apply legally binding targets for nature restoration in different eco-systems to every Member State. The aim is to cover at least 20% of the EU's land and sea areas by 2030 with nature restoration measures and eventually extend these to all ecosystems in need of restoration by 2050.

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 (DHLGH 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 draft 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, pNHAs) 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	Templetuohy 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 thewaste.

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.

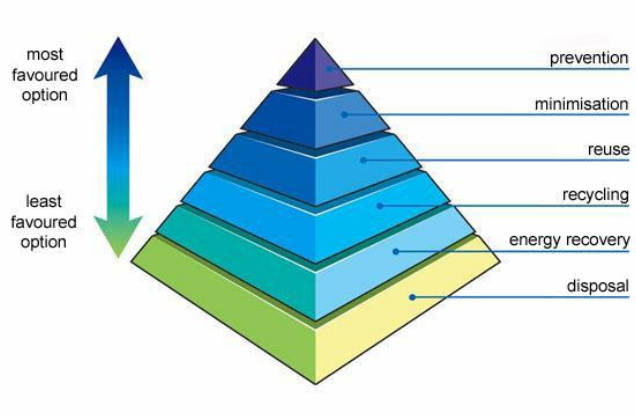
7.3.5 The tonnages and EWC Code for the waste materials listed in *Schedule 2(i) Hazardous Wastes for Disposal/Recovery* and *Schedule 2(ii) Other Wastes for Disposal/Recovery* sent off-site for disposal/recovery.

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	Templetuohy 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 BnM cutaway in general in the short-term. In general, most of the peat mass has been removed from many BnM 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 is 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 acrotelm – 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 BnM 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 P0-409-01, Littleton Group of Bogs located in Counties Kilkenny and Tipperary.

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 Littleton 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 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 PO-409-01 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 31st of 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	Classification	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 Littleton IPPC Licence PO-409-01.

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

APPENDIX XI: CONSULTATION SUMMARIES

Table APXI -1 Consultees contacted. ***Note: This includes consultation undertaken as part of the Phase 1 rehabilitation plan.***

Bog Name	Contact Organisation	Contact Name	Date of Issue	Format	Date Response Received	Response Format
Consultation undertaken in 2017-2018						
Ballybeg-Lanespark-Derryvella	Private individual A					
Littleton Bog Group	Irish Peatland Conservation Council	Several staff members				
Ballysorrell, Templetouhy, Baunmore	National Parks and Wildlife Service	Several staff members				
Lanespark	Private individual B					
Ballysorrell, Carrickhill Baunmore	NUIG	Several staff members				
Littleton Bog Group	Private individual C					
Derryvilla	Slieve Ardagh Rural Development Group	Several members				
Littleton Bog Group	National Parks and Wildlife Service	Regional staff				
Littleton Bog Group	General community meeting – Loch Doire Bhile, site visit to Baunmore					
Littleton Bog Group	National Parks and Wildlife Service	Regional staff				
Littleton Bog Group	Tipperary County Council	Heritage Officer				
Derryvilla	Private Individual D					
Littleton Bog Group	Birdwatch Ireland	Several staff members				
Littleton Bog Group	Irish Peatland Conservation Council	Several staff members				
Littleton Bog Group	Kilkenny County Council	Heritage Officer				
Littleton Bog Group	National Parks and Wildlife Service	Several staff members				
Littleton Bog Group	Irish Peatland Conservation Council	Several staff members				
Littleton	Forest Service	Several staff members				

Bog Name	Contact Organisation	Contact Name	Date of Issue	Format	Date Response Received	Response Format
Baunmore & Littleton	Birdwatch Ireland – Tipperary Branch	Several staff members				
Littleton Bog Group	Tipperary County Council	Several staff members				
Littleton Bog Group	Tipperary Heritage Forum	Several staff members				
Knockahaw	Private Individual E					
Littleton Bog Group	Environmental Protection Agency, National Parks and Wildlife Service, Irish Peatland Conservation Council	Several staff members				
Baunmore	Irish Wildlife Trust	Several staff members				
Lanespark Derryvilla	National Parks and Wildlife Service and Slieve Ardagh Rural Development Group – Loch Doire Bhile	Several staff members				
Longfordpass	Private Individual F					
Ballysorrell	Heritage Week Walk - Ballysorrell	Several staff members				
Baunmore Carrickhill	Limerick Institute of Technology (LIT)	Several staff members				
Consultation undertaken in 2025						
Templetuohy	Department of Housing, Local Government and Heritage NPWS	General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy	Department of Agriculture, Food and the Marine	General email contact	10/07/2025	Email		

Bog Name	Contact Organisation	Contact Name	Date of Issue	Format	Date Response Received	Response Format
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy	Head of Ecological Advisory Unit - NPWS Department of Housing, Local Government and Heritage NPWS	General email contact	10/07/2025	Email		
Templetuohy	National Monuments Service	General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy	Department of Housing, Local Government and Heritage	General email contact	10/07/2025	Email		
Templetuohy	Department of Housing, Local Government and Heritage	General email contact	10/07/2025	Email		
Templetuohy	Dept of Agriculture Food & the Marine	General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy	Department of Climate, Energy and the Environment	General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy		General email contact	10/07/2025	Email		
Templetuohy	Dept of Rural and Community Development	Minister Dara Calleary	10/07/2025	Email		
Templetuohy	Department of the Housing Local Government and Heritage	(Minister of State at the Department of Housing, Local Government and Heritage) Minister James Browne	10/07/2025	Email		
Templetuohy	Minister of state for Agriculture with responsibility for Land use and Biodiversity	Senator Pippa Hackett Minister of State for Land Use and Biodiversity)	10/07/2025	Email		
Templetuohy	Minister of State with responsibility for Nature, Heritage and Biodiversity	Christopher O'Sullivan TD	10/07/2025	Email	10/07/2025	Email
Templetuohy	Iarnród Éireann/Irish Rail	General email	10/07/2025	Email		
Templetuohy	An Taisce	General email	10/07/2025	Email		
Templetuohy	Environmental Protection Agency (EPA)	General email	10/07/2025	Email		

Bog Name	Contact Organisation	Contact Name	Date of Issue	Format	Date Response Received	Response Format
Templetuohy	Inland Fisheries Ireland	General email	10/07/2025	Email		
Templetuohy	Local Authority Waters Programme (West and Border Region)	General email	10/07/2025	Email		
Templetuohy	Local Authority Waters Programme	General email	10/07/2025	Email		
Templetuohy		General email	10/07/2025	Email		
Templetuohy	Local Authority Waters Programme (Midlands and Eastern Region)	General email	10/07/2025	Email		
Templetuohy	Northern and Western Regional Assembly (NWRA)	General email	10/07/2025	Email		
Templetuohy	National Museum of Ireland	General email	10/07/2025	Email		
Templetuohy	Teagasc	General email	10/07/2025	Email		
Templetuohy	The Heritage Council	General email	10/07/2025	Email		
Templetuohy	Waterways Ireland	General email	10/07/2025	Email		
Templetuohy	An Forum Uisce (The Water Forum)	General email	10/07/2025	Email		
Templetuohy	Coillte	General email	10/07/2025	Email		
Templetuohy	Irish Water- Water Supply Project Eastern and Midlands Region	General email	10/07/2025	Email		
Templetuohy	Uisce Éireann (formerly Irish Water)	General email	10/07/2025	Email	03/08/2025	Email
Templetuohy	Office of Public Works (OPW)	General email	10/07/2025	Email		
Templetuohy	CARO (Climate Action Regional Office) Eastern and Midlands	General email	10/07/2025	Email		
Templetuohy	Bat Conservation Ireland	General email	10/07/2025	Email		
Templetuohy	Birdwatch Ireland	General email	10/07/2025	Email		
Templetuohy	Butterfly Conservation Ireland	General email	10/07/2025	Email		
Templetuohy	Eastern and Midland Regional Assembly	General email	10/07/2025	Email		
Templetuohy	Friends of the Irish Environment	General email	10/07/2025	Email		
Templetuohy	ICMSA (Irish Creamery Milk Suppliers Association)	General email	10/07/2025	Email		
Templetuohy	ICSA (Irish Cattle and Sheep Farmers Association	General email	10/07/2025	Email		

Bog Name	Contact Organisation	Contact Name	Date of Issue	Format	Date Response Received	Response Format
Templetuohy	Irish Environmental Network (Agriculture and Land Use Policy and Advocacy Officer)	General email	10/07/2025	Email		
Templetuohy	Irish Farmers Association	General email	10/07/2025	Email		
Templetuohy	Irish Farmers Association (Senior Policy Exec)	General email	10/07/2025	Email		
Templetuohy	Irish Farmers Association (Galway/Leitrim/Longford/Roscommon/Sligo)	General email	10/07/2025	Email		
Templetuohy		General email	10/07/2025	Email		
Templetuohy	Irish Peatlands Conservation Council (IPCC)	General email	10/07/2025	Email		
Templetuohy	Irish Raptor Study Group	General email	10/07/2025	Email		
Templetuohy	Irish Rural Link	General email	10/07/2025	Email		
Templetuohy	Irish Wildlife Trust	General email	10/07/2025	Email		
Templetuohy	Inland Waterways Association of Ireland (IWAI)	General email	10/07/2025	Email		
Templetuohy	National Association of Regional Game Councils	General email	10/07/2025	Email		
Templetuohy	National Association of Regional Game Councils	Chairperson	10/07/2025	Email		
Templetuohy	NPWS Rangers North Midlands	General email	10/07/2025	Email		
Templetuohy	NUIG Galway	General email	10/07/2025	Email		
Templetuohy	PPN Roscommon Public Participation Network	General email	10/07/2025	Email		
Templetuohy	Outdoor Recreation NI	General email	10/07/2025	Email		
Templetuohy	Ranger Association Committee	General email	10/07/2025	Email		
Templetuohy	Mid-Shannon Wilderness Park Awareness Group	General email	10/07/2025	Email		
Templetuohy	Sustainable Water Action Network (SWAN)	General email	10/07/2025	Email		
Templetuohy	Trinity College Dublin	General email	10/07/2025	Email		
Templetuohy	Turf Cutters and Contractors Association	General email	10/07/2025	Email		
Templetuohy	UCD / Irish Rural Link	General email	10/07/2025	Email		
Templetuohy	University College Dublin	General email	10/07/2025	Email		
Templetuohy	Earthy Matters	General email	10/07/2025	Email		
Templetuohy	Waterways Ireland	General email	10/07/2025	Email		

Bog Name	Contact Organisation	Contact Name	Date of Issue	Format	Date Response Received	Response Format
Templetuohy	Waterways Ireland Org	General email	10/07/2025	Email		
Templetuohy	Woodlands of Ireland	General email	10/07/2025	Email		
Templetuohy	University of Galway	General email	10/07/2025	Email		
Templetuohy	Iarnrod Eireann (Infrastructure)	General email	10/07/2025	Email		
Templetuohy	Iarnrod Eireann	General email	10/07/2025	Email		
Templetuohy	Tipperary County Council, General Address	General email	10/07/2025	Email	03/09/2025	Email
Templetuohy	Senior Executive Officer, Nenagh Municipal District Administrator	General email	10/07/2025	Email		
Templetuohy	Senior Executive Officer, Corporate Services	General email	10/07/2025	Email		
Templetuohy	Chief Executive	General email	10/07/2025	Email		
Templetuohy	Director of Services, roads and transportation, Health and Safety	General email	10/07/2025	Email		
Templetuohy	Director of Services, Economic and Rural Development (including just Transition)	General email	10/07/2025	Email		
Templetuohy	Director of Services, Environment and Climate Action.	General email	10/07/2025	Email		
Templetuohy	Director of Services, Local Authorities Water Programme (LAWPRO)	General email	10/07/2025	Email		
Templetuohy	Alan Kelly TD	General email	10/07/2025	Email		
Templetuohy	Michael Lowry TD	General email	10/07/2025	Email		
Templetuohy	Ryan O Meara TD	General email	10/07/2025	Email		
Templetuohy	Seamus Healy TD	General email	10/07/2025	Email		
Templetuohy	Mattie McGrath TD	General email	10/07/2025	Email		
Templetuohy	Michael Murphy TD	General email	10/07/2025	Email		
Templetuohy	Cllr Sean Ryan	General email	10/07/2025	Email		
Templetuohy	Cllr Shane Lee	General email	10/07/2025	Email		
Templetuohy	Cllr Siobhan Ambrose	General email	10/07/2025	Email		
Templetuohy	Cllr William Kennedy	General email	10/07/2025	Email		
Templetuohy	Cllr Michael O Meara	General email	10/07/2025	Email		

Bog Name	Contact Organisation	Contact Name	Date of Issue	Format	Date Response Received	Response Format
Templetuohy	Cllr Michael Smith Cathaoirleach	General email	10/07/2025	Email		
Templetuohy	Cllr Micheal Anglim	General email	10/07/2025	Email		
Templetuohy	Cllr Micheal Lowry Leas Chaoirleath	General email	10/07/2025	Email		
Templetuohy	Cllr Niall P Dennehy	General email	10/07/2025	Email		
Templetuohy	Cllr Pamela Quirke O Meara	General email	10/07/2025	Email		
Templetuohy	Cllr Pat English Deputy Mayor Clonmel BD	General email	10/07/2025	Email		
Templetuohy	Cllr Peggy Ryan	General email	10/07/2025	Email		
Templetuohy	Cllr Richie Molloy	General email	10/07/2025	Email		
Templetuohy	Cllr Roger Kennedy Leas Chathaoirleach	General email	10/07/2025	Email		
Templetuohy	Cllr Ryan O Meara	General email	10/07/2025	Email		
Templetuohy	Cllr Seamus Morris Leas Chathaoirleach	General email	10/07/2025	Email		
Templetuohy	Cllr John Fitzgerald	General email	10/07/2025	Email		
Templetuohy	Cllr John O Heney	General email	10/07/2025	Email		
Templetuohy	Cllr Kay Cahill Skehan	General email	10/07/2025	Email		
Templetuohy	Cllr Kieran Bourke	General email	10/07/2025	Email		
Templetuohy	Cllr Liam Browne	General email	10/07/2025	Email		
Templetuohy	Cllr Louise Morgan Walsh	General email	10/07/2025	Email		
Templetuohy	Cllr Mairin McGrath	General email	10/07/2025	Email		
Templetuohy	Cllr Marie Murphy	General email	10/07/2025	Email		
Templetuohy	Cllr Mark Fitzgerald Cathaoirleach	General email	10/07/2025	Email		
Templetuohy	Cllr Mary Hanna Hourigan	General email	10/07/2025	Email		
Templetuohy	Cllr Michael Brennan	General email	10/07/2025	Email		
Templetuohy	Cllr Micheal Murphy Mayor-Clonmel BD	General email	10/07/2025	Email		
Templetuohy	Cllr Jim Ryan	General email	10/07/2025	Email		
Templetuohy	Cllr Joe Hannigan	General email	10/07/2025	Email		
Templetuohy	Cllr John Carroll	General email	10/07/2025	Email		

Bog Name	Contact Organisation	Contact Name	Date of Issue	Format	Date Response Received	Response Format
Templetuohy	Cllr John Crosse Cathaoirleach	General email	10/07/2025	Email		
Templetuohy	Cllr Eddie Moran	General email	10/07/2025	Email		
Templetuohy	Cllr Fiona Bonfield Cathaoirleach	General email	10/07/2025	Email		
Templetuohy	Cllr Amy Goldsboro	General email	10/07/2025	Email		
Templetuohy	Cllr Declan Burgess Cathaoirleach	General email	10/07/2025	Email		
Templetuohy	Cllr Dr Phyll Bugler	General email	10/07/2025	Email		
Templetuohy	Cllr David Dunne	General email	10/07/2025	Email		
Templetuohy	Cllr Anne Maire Ryan-(Shiner)	General email	10/07/2025	Email		
Templetuohy	Cllr Tom Acheson	General email	10/07/2025	Email		
Templetuohy	Cllr JP O'Meara	General email	10/07/2025	Email		

APXI -2 Response summary from Consultees contacted (*Note: This includes consultation undertaken as part of the Phase 1 rehabilitation plan).*

Organisation	Summary of Response by Stakeholder	BnM Response
NPWS 8/3/2018	Ballysorrell All walked over the bog and viewed the bog restoration works. MCC outlined work carried out so far and work planned for the future. Planned work is > 75% complete. NPWS staff very complementary of the bog restoration work (drain-blocking with peat dams) carried out so far. All agreed that the bog had significant potential for bog restoration, and future nature conservation. Signs that the bog is already re-wetting in places due to drain-blocking. Discussions about potential for designation of the site for nature conservation by NPWS in future. Review and discussion of NPWS degraded raised bog model outputs for Ballysorrell. Model predicted that 9 ha would have potential for development into active raised bog in the future. General view was that this was probably an under-estimate and that the model likely to be affected by the intensive BnM drainage network. Discussion of potential measures to further increase re-wetting of the bog including berms across high bog at southern section. Bruckana All visited the Bruckana Windfarm. Viewed a cutaway bog area within the windfarm complex where there has been significant natural colonisation for at least 20 years and some targeted hydrological management. Discussion of the former history of Templetuohy Bog as a sod turf production bog. Sod turf cutaway tends to have deeper remnant peat, which in turn can develop Sphagnum-rich vegetation, where conditions suit. Attendees viewed some wet cutaway where there has been some Sphagnum colonisation. Discussion of environmental conditions that led to the development of this specific vegetation type. Discussion of potential to re-wet similar cutaway, with similar environmental conditions and deeper peat, to encourage development of Sphagnum-rich peat-forming vegetation. Discussion of different constraints and opportunities for this type of re-wetting. This Sphagnum-rich peat-forming vegetation only has potential to develop in certain environmental conditions in association with deeper peat. NPWS staff suggested that intensive bunding would have potential to increase the overall re-wetted area. There was general discussion of potential larger project opportunities, in association with planned BnM rehabilitation or future BnM afteruse development. These larger projects could potentially focus on GHG emission reduction, creation of peat-forming habitats, biodiversity enhancement, other ecosystem services enhancement/restoration. Baunmore All visited Baunmore cutaway. Baunmore is a typical milled peat cutaway with pumped drainage and with shallower remnant peat more typical of milled cutaway in the Littleton Bog Group, in contrast to Bruckana. All walked part of the bog where some recent rehabilitation trials have been carried out. MMC pointed out the recent field drain blocking using a bull-dozer that has been carried out so far. The target here was to block drains, re-establish surface drainage and re-wet peat. This work has already successfully held back surface water in places. The cambered fields and variable topography mean that a proportion of the peat fields remain dry. The expected habitat development is a mosaic of poor fen wetland communities, Reed swamp and scrub/wet woodland. MMC explained how blocking the field drains is Phase 1 of the planned rehab trial and that Phase 2 will involve blocking outfalls and cutting new overflow drains to further manipulate overall water levels. The overall strategy is to maximise the area	

Organisation	Summary of Response by Stakeholder	BnM Response
	of re-wetted peat with water levels close to the peat surface and emergent wetland communities. NPWS staff also suggested that more intensive bunding would have potential to increase the overall re-wetted area and help manage water levels. All then examined some cutaway that is colonising naturally with pioneer vegetation. This cutaway is much more alkaline compared to Bruckana with indicators such as the presence of Black Bog-rush.	
Tipperary County Council	The draft plan is an overview of the rehabilitation within the Littleton bog group this comprises of 12 bog areas. The plan is developed under Condition 10 of IPC Licence Ref. P0499-01. (An incorrect licence ref. is given in the plan.) Any consideration for future after uses for the bog areas will be subject to the planning regulatory framework and the Environment section will be obliged to comment at this time on a more detailed proposal. The rehabilitation plan should include best practice measures for the restoration of an optimal range of biodiversity and ecosystems. The aftercare management activities on the level, quantity and quality of water both on site and in the surrounding landscape should avoid any unnecessary deterioration in the quality and quantity of ground and surface waters. After use, peatland water levels and flow regimes should be restored to as close to the natural reference conditions as possible. Any works carried out must be detailed and all stakeholders consulted.	
Irish Peatland Conservation Council	The IPCC welcome the zonation of Ballysorrell Bog for biodiversity and the decision not to develop it for peat resources (Page 3). Ballysorrell Bog is quite southerly in its location and its rehabilitation and zonation for biodiversity will help to extend the range of raised bog habitat in Ireland, which according to "The Status of EU Protected Habitats and Species in Ireland | 2013" (NPWS, 2013) is "BAD". We have a few questions and points to make on the draft rehabilitation plan with the aim to improving its content. It is good to see that Bord na Móna will be restoring the hydrology of the high bog through drain blocking as mentioned on Page 4 and that you also intend to carry out a trial rehab programme of a selected area for training purposes. Could you please elaborate on this? What training/trials do you intend to conduct and is it only inhouse training for Bord na Móna staff? The rehabilitation process may be a good time to test the Canadian method of Sphagnum transfer as there would be time to prepare the site prior to drain blocking. Please give this suggestion consideration as you indicated the peat present as light red brown Sphagnum peat (Page 9). There is Sphagnum on site that could be harvested and used as a donor inoculum for a Sphagnum trial. Page 5 gives information on the short and long-term time-frames of the plan. Could you give more details on the methods that will be utilised to monitor the hydrology i.e. will piezometers be used to measure water levels and will they be measured before drain blocking? This could ensure that any hydrological successes will be shown. In addition, how frequently will the ecotope mapping be conducted? Page 3 details the time-line for the development of Ballysorrell ("Ballysorrell was originally developed....."). Could this historical timeline be re-written as it is difficult to follow. For instance, when did the private sodpeat cutting around the bog cease? When did the milled peat production cease? Could you please specify how Ballysorrell Bog will help to achieve the national conservation target for active raised bog and supporting habitat in Ireland? Are there plans to formally designate this site in the future? Thank you for giving us this opportunity to make some comments on this welcome initiative by Bord na Mona.	
Private Individual A	Seeking return of land at Baunmore CPOed by Bord na Móna	

Organisation	Summary of Response by Stakeholder	BnM Response
NPWS 9/10/2018	The Department, particularly, welcomes the restoration measures proposed for Ballysorrell Bog and Knockahaw Bog which will result in the development of active raised bog habitat and acknowledge that this will significantly aid Ireland in meeting its commitments under the EU Habitats Directive. Whilst it is appreciated that "the rehabilitation measures will be adapted to the various baseline conditions" (Part 1, pg.20) the Department recommends that Bord na Móna consider more fully the potential for forward-planning during production phases of its operation so that the topography of the commercial fields could be engineered so as to best facilitate rewetting of the sites. Such an approach would better conform to Principle 17 (afteruse of cutaway peatlands) of the National Peatlands Strategy (2015). The Department recommends that the ongoing research into the interaction between rehabilitation measures and carbon emissions is prioritized so as to better inform future rehabilitation plans. In the absence of the assimilation of such research outputs into rehabilitation planning it is nonetheless recommended that serious consideration is giving to reprofiling works within the Littleton Bog Group. In relevant sites this could greatly improve the baseline conditions for rewetting and would be justified on the basis that rewetted cutaway has lower carbon emissions that dry, bare cutaway. The foregoing is in line with Principle 19 (contribution of peatland rehabilitation and restoration to climate change mitigation and adaption) of the National Peatlands Strategy. There is some difficulty interpreting the maps due to their complexity and the size of the legend. Maps showing specific restoration actions would be useful, possibly in the form of an overview grid at a scale 1:35,000 with more detailed mapping as per grid squares. Eco-hydrological modelling based on LiDAR/DTM would be essential to ascertain the potential to achieve wet habitats with the potential to turn into carbon sinks. ….. 2 The Department is keen to continue engagement with Bord na Móna as regards investigating more engineered restoration techniques likely to provide results in line with the principles of the National Peatlands Strategy. The NPWS of the Department would welcome an opportunity to meet with you to allow for the Plan to be presented by your Ecology Team and to further explore the options of external funding such as EU LIFE funding, as discussed in previous meetings.	
IPCC 15/08/2018	Could you please clarify the correct area for the group of 12 sites included: is it 5050ha (Page 11, Section 4.2) or is it 4824ha (Page 11, Table 1). If it is the latter could you clarify what the other 226ha constitutes please. IPCC's principal interest in this plan lies in the future of existing acid peat bog remnants, the potential of the cutaway areas to provide biodiversity value and priority habitats for nature conservation, climate change mitigation and the extent to which the plan meets requirements of the National Peatlands Strategy 2015. The area of peatland included in the Littleton Bog Group is significant in the county of Tipperary as it represents one third of the original area of raised bog that occurred in the whole County particularly concentrated in South Tipperary (Hammond 1979 Peatland Map of Ireland) the southern distribution range for raised bogs described in the Status of EU Protected Habitats and Species. In your plan on Table 5 only two bog restoration sites (Ballysorrell and Knockahaw) are proposed covering an area of 567ha. Can you explain the method used in choosing these areas for bog restoration and were any other sites considered within the group? IPCC maintain that two sites is far too little considering the area of the land in the Littleton Group and the lack of any sites of conservation value in this area of former raised bog distribution. We note that Killeens Bog contains acidic peat and that it appears to be earmarked for horticultural peat (sod moss judging from the satellite photograph) should this be required. On Page 16 in conclusion 5 the plan states that this bog could be restored if horticultural peat extraction is stopped. IPCC strongly recommend the immediate cessation of this activity on this site and its inclusion in the restoration sites plan. We have reasoned with Bord na Móna on numerous occasions about the continued national production of horticultural peat as we do not agree that this use represents responsible management as defined in principle	

Organisation	Summary of Response by Stakeholder	BnM Response
	P24 in the National Peatlands Strategy. We understand that Sod Moss is regarded in economic terms as a "lost leader" product which negates any economic argument for keeping this site in production. Here in Littleton where Bord na Móna have exploited over 5000ha of Tipperary's natural peatland resources, all peat production should cease and every effort should be made to restore suitable acid peat resources to living bog where they exist. In this regard on Page 15 (Section 4.3.1.1 [ii]) two further sites with acid peat are mentioned - Carrickhill (substantial raised bog cutover east and west of the cutaway) & Inch (raised bog cutover to the south west of the cutaway) - why are these sites not being included in the bog restoration sites line-up? In the IPCC Sites Database we have a site named Longford Pass - Littleton Bog which is a remnant raised bog that we surveyed with a former Bord na Móna employee Sean Canney and which we subsequently used for educational purposes with local schools with the agreement of Bord na Móna. We would like to see this site included in the bog sites restoration list. (Grid ref. = S 23023 59319). IPCC are very unclear about your aims for the non-designated sites with considerable wildlife interest described on Page 21 of the plan. We estimate that there are 10 sites mentioned that are noteworthy for birds, crustaceans and invertebrates. In addition a further 3 rehabilitation sites are included in the Bord na Móna Biodiversity Plan. On the one hand Bord na Móna makes use of the fact that cutaway bogs are rich in biodiversity as part of the "Naturally Driven" image you like to portray but we can see no substantial commitment to undertake targeted management actions in relation to enhancing and maintaining these species on the sites. For example on Page 19 you state that without additional funding targeted conservation works for breeding birds will not be a feature of this plan. This is wrong and is at odds with Principle 15 in the National Peatlands Strategy 2015. In relation to climate change this rehabilitation plan needs to ensure that all of the cutaway bogs within the Littleton Group are rewetted to prevent carbon leakage. In our experience through visits to Mount Lucas, Ballycon and Lullymore cutaway bogs there are substantial areas within these rehabilitated sites that are dry and emitting carbon. Why does Bord na Móna not recontour sites with un-even topography to ensure that the majority of the bare peat is rewetted? Surely at the peat production stage more effort could be made to extract the peat so that flat substrate remains. Can you indicate within the plan the percentage of peat that will be rewetted and be carbon neutral? This is an important consideration in line with national climate change policy. IPCC find that the plan is overstating the company's intention to cease peat production for electricity by 2030 as their contribution to climate change policy	
Private Individual B	Meeting to discuss land security issues and leasing of land at Lanespark and Derryvilla.	
Private Individual C	Phone call to discuss potential to develop greenway amenity across the Littleton Bog Group.	
Private Individual D	Meeting to discuss boundary issues and potential impact of rehabilitation on adjoining land	
Private Individual E	Meeting to discuss potential gun club project at Knockahaw Bog.	
Private Individual F	Meeting to discuss rare orchids at Longfordpass railway cutting	

Consultation undertaken in 2025		
Uisce Éireann (formerly Irish Water)	In their response, Uisce Éireann stated that: • 'Uisce Éireann is supportive of the key objective of achieving environmental stabilisation of the bog and stabilising/improving key emissions to water. • Uisce Éireann understand that restored peatlands are generally beneficial for drinking water sources downstream by improving water quality and by creating water retention and slowing the flow from the site. We are therefore in support of the Cutaway Bog Decommissioning and Rehabilitation Plan and believe that it could help to achieve to improvements the quality of drinking water sources downstream in terms of suspended sediment, colour, ammonia and dissolved organic carbon. • Uisce Éireann is supportive of the key objective of achieving environmental stabilisation of the bog and stabilising/improving key emissions to water. • Uisce Éireann understand that restored peatlands are generally beneficial for drinking water sources downstream by improving water quality and by creating water retention and slowing the flow from the site. We are therefore in support of the Cutaway Bog Decommissioning and Rehabilitation Plan and believe that it could help to achieve to improvements the quality of drinking water sources downstream in terms of suspended sediment, colour, ammonia and dissolved organic carbon'. Further, Uisce Éireann provided some recommendations around the protection of water quality during the implementation of the rehabilitation plan.	BnM acknowledged the response and consultation is ongoing.
Tipperary County Council	In their submission, Tipperary County Council highlighted that the rehabilitation plan should 'ensure that future options for amenity or tourism uses of the lands are not discounted, having regard to the Council's aspirations to develop eco-tourism projects throughout the county'. Further, it was highlighted that archaeological impacts associated with rehabilitation of Templetuohy bogs, given the rich archaeological heritage of the lands, should be assessed. Tipperary County Council provided information on the relevant policies and objectives within the Tipperary County Council's Climate Action Plan 2024-2029 that aligned with peatland restoration. Other information focused on the Tipperary Decarbonising Zone, and how peatland restoration would benefit such decarbonisation. Other information was provided on the council's policies on Land-use, Land-use Change and Forestry (LULUCF). It notes that the 'management of agricultural ecosystems, such as grasslands and peatlands' are emitters of CO2 and 'the management of agricultural ecosystems, such as grasslands and peatlands 'an important area for climate mitigation measures'. 'For example, alternative land management measures such as raising the water table in existing pastures and peatlands, new crop types, forestry etc could make this sector a net remover of GHGs'.	BnM acknowledged the response. Consultation is ongoing.

	The submission notes that 'Bord na Móna is to be commended for its decarbonisation programme aimed at reducing the carbon emissions from its activities. This programme supports the National policy position and objective of achieving a transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050'. The submission requests: • 'stakeholder collaboration to deliver concerted efforts towards carbon and GHG emissions reductions within the DZ, which can lead the way for wider application across Tipperary'. • 'BnaM are requested to considered if there are opportunities for collaboration with stakeholders, including Tipperary County Council, as part of the delivery of their PCAS programme'. • 'The Mid-Tipperary Decarbonising Zone is within the JTF area and thus there are opportunities to engage local communities, including those previously employed in the peat harvesting industry, in areas related to training and upskilling and sustainable local job creation'. • 'BnaM are requested to consider the referring of the Mid-Tipperary DZ in their relevant publications and projects. In particular to include details on the Mid-Tipperary Decarbonising Zone in the relevant Rehabilitation Plans and associated Map Books'. • 'The strategic location of the national Bioeconomy Campus (Irish Bioeconomy Foundation) at Lisheen should be noted and it is requested that BnaM consider the vision for the National Bioeconomy campus as part of their overall plans in the Mid-Tipperary DZ areas'. 'BnaM are requested to consider, given the particular role of the national DZ programme in emissions reduction, if there is an opportunity to monitor the changes in carbon emissions from a current baseline within the Killeen bog and report on reduced the carbon emissions in support of the national objective of achieving a transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. Thus, the rehabilitation plans can explicitly state how emissions will be monitored and reported. Such reporting will also support Tipperary County Council objectives for supporting moves towards low-carbon communities within the Decarbonising Zone'.	
(Minister of State at the Department of Housing, Local Government and Heritage) Minister James Browne	Acknowledged receipt of rehabilitation plan.	BnM acknowledged the response. Consultation is ongoing.

APPENDIX XII: ARCHAEOLOGY

Role of the Archaeological Liaison Officer

1. To communicate this Code of Practice and the *Archaeological Protection Procedures* (Appendix IV) to all personnel operating on the bog.
2. To ensure that all notices relating to the *Archaeological Protection Procedures* are posted and maintained at appropriate locations on the bog.
3. To report any stray finds, presented to the Liaison Officer from his/her group of bogs, to the Duty Officer of the National Museum of Ireland.
4. To provide for the appropriate protection of the stray find, whether in-situ or removed from the bog, as directed by the Duty Officer of the National Museum of Ireland.

Code of Practice

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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		Land & Habitats– Bog Operations **Archaeological Findings**	
Document Approved By:	**Revision Date:**	**Doc No:**	**Revision No:**
EMD	13/08/2024	ENV017	2
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	Environment Department		1 of 5

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.

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 manmade 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 Enda McDonagh.

2) Records

Revision Index			
Revision	Date	Description of change	Approved
1	13/19/2020	First release	EMcD
2	13/08/2024	Second release	EMcD

Archaeological Impact Assessment of Proposed Bog Decommissioning and Rehabilitation at Templetuohy Bog, Co. Tipperary

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.227 hectares at Templetuohy Bog, Co. Tipperary 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. Proposed Phase 2 rehabilitation measures for Carrickhill will include (See Table 1).

- Targeted additional drain blocking, where needed (Additional Works AW2)
- Initial hydrological modelling indicates low lying parts of the site will develop a mosaic of wetland habitats with the potential for some 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 small 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.
- 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 in suitable areas including more intensive drain blocking (max 7/100 m) and management of water levels with overflow taps.

Type	Rehab Code	Enhanced Rehabilitation Measure	Extent (Ha)
Dry Cutaway	DCT1	Blocking outfalls and managing water levels with overflow pipes	
	DCT2	Regular drain blocking (3/100m), modifying outfalls and managing water levels with overflow pipes and targeted fertiliser treatment.	31.1
Wetland	WLT2	Turn off or reduce pumping to re-wet cutaway, blocking outfalls and managing water levels with overflow pipes and targeted blocking of outfalls within a site.	33.8
Deep Peat	DPT2	More intensive drain blocking (max 7/100 m) and modifying outfalls and managing overflows	22.2
	DPT3	More intensive drain blocking (max 7/100 m), + field reprofiling + blocking outfalls and managing overflows.	
	DPT4		2.2

	DPT7		9.3
Marginal land	MLT1	No work required.	19.8
Additional Work	AW2	Targeted Drain Blocking	387.2
Silt ponds	Silt pond	Silt ponds.	
Constraint	Constraint	Other Constraints (Rights of Way, Bruckana Wind Farm, turbary/turfcutting areas, marginal agricultural grassland).	226.9
Total			

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

Templetouhy Bog is located 2km east of Templetouhy village The overall rehabilitation area occupies the townlands of Tullowmacjames, Derrylaughta, Baunaghra, Derryville, Rathpatrick, Bruckana and Baunmore.

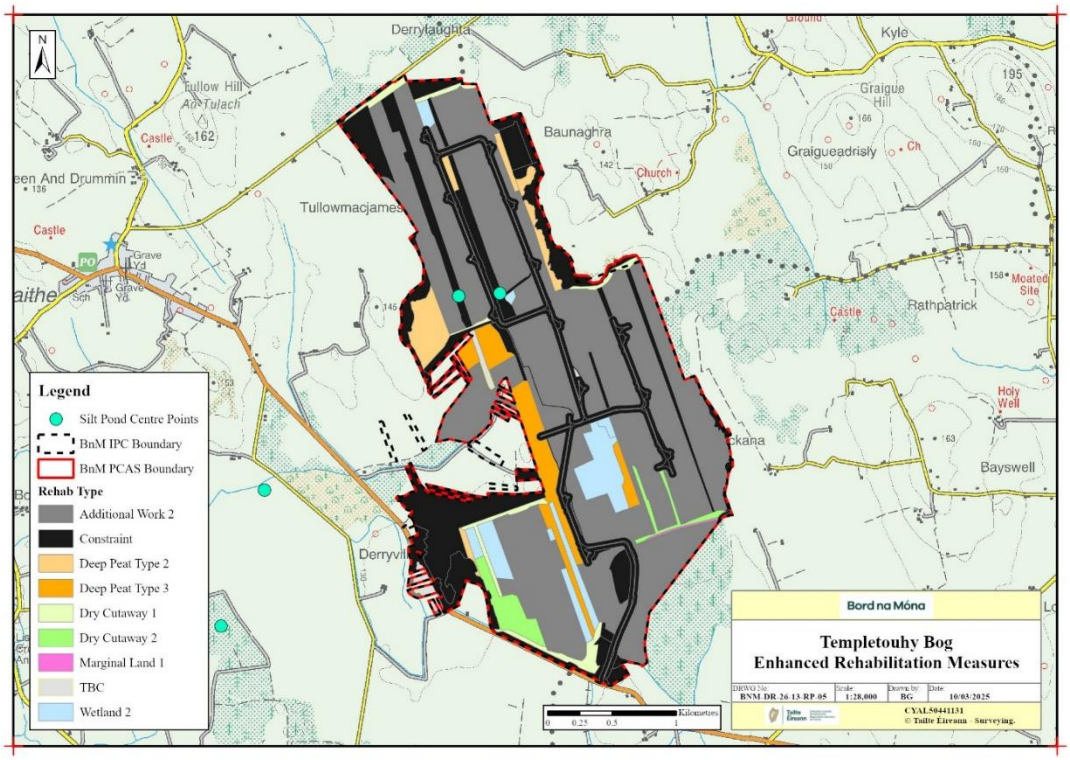

Fig. 1. Templetuohy Bog, Co. Tipperary.

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 Templetuohy Bog followed by a field survey. The overall extent of the rehabilitation is indicated in Fig. 1. This area was examined using information from:

- Peatland survey 2006

- The Sites and Monuments Record that is maintained by the Dept of Housing, Local Government and Heritage
- Previous assessments

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

Desktop assessment

Peatland survey 2006

In 2006 Templetuohy bog was the subject of the Peatland Survey 2006 (Licence No. 06E0704) carried out BY ADS (Whitaker 2007). Eight sightings were recorded during the course of the survey. These comprised two plank trackway sites were recorded at the northern extent of the bog, which were dated to 1190 820BC (TN-TPY002) and 1033±9BC (TN-TPY003). (see Table 1).

SMR No	Survey code	Townland	Monument Class	Descript	x	y
TN030-042----		TULLOWMACJAMES	Boundary mound	Situated on flat bogland which is being worked on by Bord Na Mona, unable to locate mound in area marked on OS 6-inch map. Not depicted on the first edition OS 6-inch map, and mound may possibly be related to the nearby Trig. Station, possible sappers station. The mound staddles the county boundary of Tipperary and Kilkenny and is recorded in the latter as KK007-017----.	622180	669658
TN030-046----	N-TPY002a	TULLOWMACJAMES	Road - class 1 togher	A peatland survey carried out in 2006 by Archaeological Development Services recorded a togher measuring in 'width 3.1m, depth 0.17m, length 30m and dated to 1190–820bc' (Whitaker 2006, 136). Described by Whitaker (2006, 136-9) as 'although the individual sightings were varied in their composition, it is believed that the three sightings recorded across three drain faces represent a single plank trackway supported by transverse planks, with associated brushwood and roundwood elements. It is possible that this site represents the eastern extent of the longer single plank trackway recorded as TN-TPY003a–e, which was dendrochronologically dated to 1033±9bc and that both formed part of the site recorded in the RMP as LA033-015----, which is no longer visible owing to that part of the bog being very overgrown'. According to Whitaker (2006, 136-7) 'it is possible that this site represents the eastern extent of the longer single plank trackway recorded as TN-TPY003a–e (TN030-047----), which was dendrochronologically dated to 1033±9BC and that both formed part of the site recorded in the RMP as LA033-015----, which is no longer visible owing to that part of the bog being very overgrown'.	621431	671310
TN030-046----	N-TPY002b	TULLOWMACJAMES	Road - class 1 togher	As above	621441.8	671310.4
TN030-046----	N-TPY002c	TULLOWMACJAMES	Road - class 1 togher	As above	621400.9	671308.4
TN030-047----	N-TPY003a	TULLOWMACJAMES	Road - class 1 togher	A peatland survey carried out in 2006 by Archaeological Development Services recorded a togher measuring in 'width 0.28–	621309	671286

				3.62m, depth 0.12m, length 63m and dated to 1033±9bc' (Whitaker 2006, 140). Described by Whitaker (2006, 140) as 'this site was a poorly preserved transverse plank trackway. The upper transverse elements were supported by longitudinally laid brushwood and roundwood elements. Pegs were recorded in three of the sightings. It is possible that this site is the western extent of the site recorded in the RMP as LA033-015---- and that site TN-TPY002, to the east, also forms part of the RMP site'. According to Whitaker (2006, 140) 'it is possible that this site represents the eastern extent of the longer single plank trackway recorded as TN-TPY002a–c (TN030-046----), which was dendrochronologically dated to 1190–820bc and that both formed part of the site recorded in the RMP as LA033-015----, which is no longer visible owing to that part of the bog being very overgrown'.		
TN030-047----	N-TPY003b	TULLOWMACJAMES	Road - class 1 togher	As above	621295.9	671281.4
TN030-047----	N-TPY003c	TULLOWMACJAMES	Road - class 1 togher	As above	621295.9	671281.4
TN030-047----	N-TPY003d	TULLOWMACJAMES	Road - class 1 togher	As above	621267.9	671274.4
TN030-047----	N-TPY003e	TULLOWMACJAMES	Road - class 1 togher	As above	621250.9	671269.4
TN030-042----		TULLOWMACJAMES	Boundary mound	Situated on flat bogland which is being worked on by Bord Na Mona, unable to locate mound in area marked on OS 6-inch map. Not depicted on the first edition OS 6-inch map, and mound may possibly be related to the nearby Trig. Station, possible sappers station. The mound staddles the county boundary of Tipperary and Kilkenny and is recorded in the latter as KK007-017----.	622180	669658

Table 1. List of archaeological sightings in Templetuohy Bog.

Recorded Monuments

The Record of Monuments and Places (RMP) for Co. Tipperary and Kilkenny which was established under Section 12 of the National Monuments (Amendment) Act, 1994 was examined as part of the assessment (DAHGI 1998 and 1996). These records were published by the Minister in 1998 and 1996 and include sites and monuments that were known in Templetuohy Bog before that date. This review established that there are two RMPs located in the proposed rehabilitation area (see Table 2 and Fig. 1).

RMP No.	Survey Code	RMP Class	Townland	ITM E	ITM N
TN030-042---	-	**Boundary mound**	Tullowmacjames	622180	669658
LA033-015---	TN-TPY003	**Road - unclassified togher**	Baunagra		

Table 2. Sites in Templetuohy Bog entered in the RMP.

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 30th of March 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 24 entries in the SMR in the proposed rehabilitation area (see Table 1 and Fig. 2).

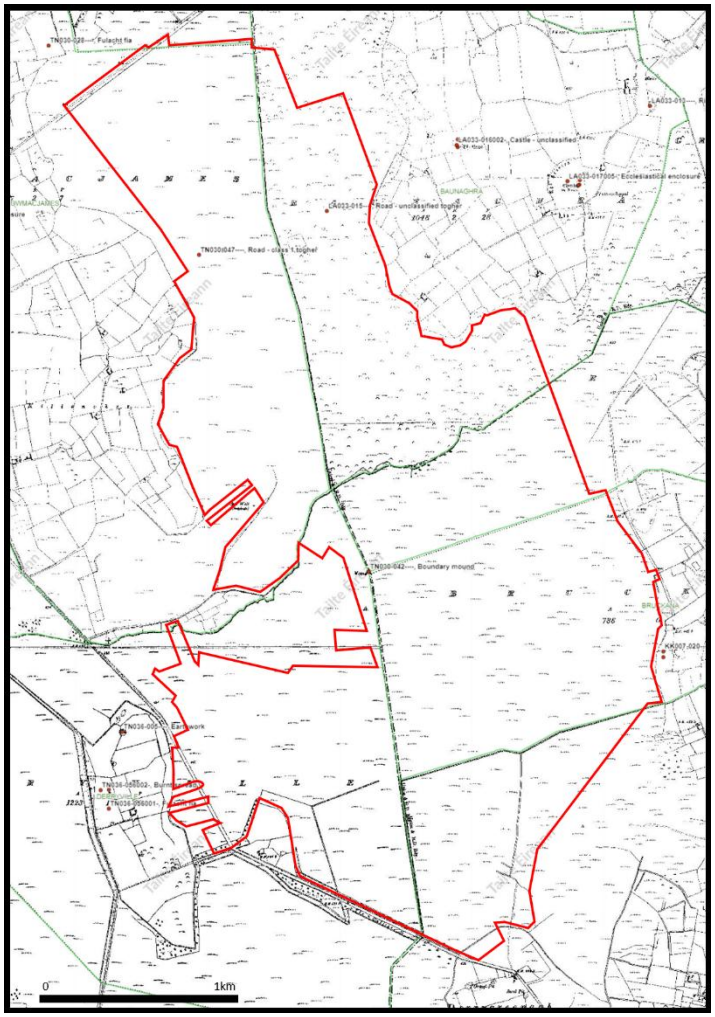

Fig. 2. Templetuohy Bog, Co. Tipperary detail of the SMR map sheets. The proposed rehabilitation area is outlined with the red line.

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 have been two archaeological investigations carried out in the rehabilitation area (see Table 3).

SMR_NO	SMR Class	Licence No.	Townland	Reference
TN030-046----	class 1 togher	09E0298	Tullowmacjames	Whitaker and Rohan 2019.
TN030-047----	class 1 togher	09E0299	Tullowmacjames	Whitaker and Rohan 2019.

Table 3. Excavations in Templetuohy bog.

The Bruckana Wind Farm was developed in Templetuohy Bog. As part of the cultural assessment of the development an assessment of the rehabilitation area was carried out by Tobi Consulting Engineers. A field survey was carried out in July 2009. During the course of the field survey both LA033-015 Road -

Togher (Unclassified) and TN030-042 Cairn possible were located within the study area. LA033-015 could not be located during the assessment. TN030-042 could not be located during the assessment. No new sightings of archaeological material were made.

Finds

The Templetuohy finds will be the subject of a research programme focused on the archives and topographical files of the National Museum.

Field Survey

Templetuohy has been the subject of several field surveys carried out in 2006 and 2009, the bog has already undergone basic rehabbed previously and the drains are underwater with no opportunity to see any archaeological material and the fields which are becoming overgrown.

Impact assessment

A total of 12 sightings of archaeological material were identified and recorded in Templetuohy Bog and are entered into the Sites and Monuments Record (see Table 1).

Recommendations

The 12 sightings of archaeological material identified in Templetuohy Bog and entered in the Sites and Monuments Record should be preserved *in situ* with a 20m buffer zone (see Table 1 and Fig 2). 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.

Conclusion

The 12 sightings of archaeological material identified in Templetuohy Bog and entered in the Sites and Monuments Record should be preserved in situ with a 20m buffer zone. 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.

References

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Dr. Charles Mount
23 May 2025

APPENDIX XIII: WATER QUALITY MONITORING RESULTS FOR TEMPLETUOHY 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	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	mg/l
				1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23	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
Littleton Group	P0499-01	Templetuohy	SW30	5			2			4			<2			4			<2		
			Suspended Solids ELV	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
		Rainfall (mm) CLONOULTY_Clogher		178.5	82.5	136.2	137	83.7	131.3	62.1	155	93.9	74.9	50.9	42.8	50.7	44.7	64.6	51.5	70.3	

PCAS SW Sampling Scheme				Colour	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	mg/l Pt Co
				1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23	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
Littleton Group	P0499-01	Templetuohy	SW30	350			288			267			394			134			112		
		Rainfall (mm) CLONOULTY_Clogher		178.5	82.5	136.2	137	83.7	131.3	62.1	155	93.9	74.9	50.9	42.8	50.7	44.7	64.6	51.5	70.3	

PCAS SW Sampling Scheme				COD	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	mg/l
				1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23	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
Littleton Group	P0499-01	Templetuohy	SW30	78			64			64			94			28			37		
			COD Trigger Level	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
		Rainfall (mm) CLONOULTY_Clogher		178.5	82.5	136.2	137	83.7	131.3	62.1	155	93.9	74.9	50.9	42.8	50.7	44.7	64.6	51.5	70.3	

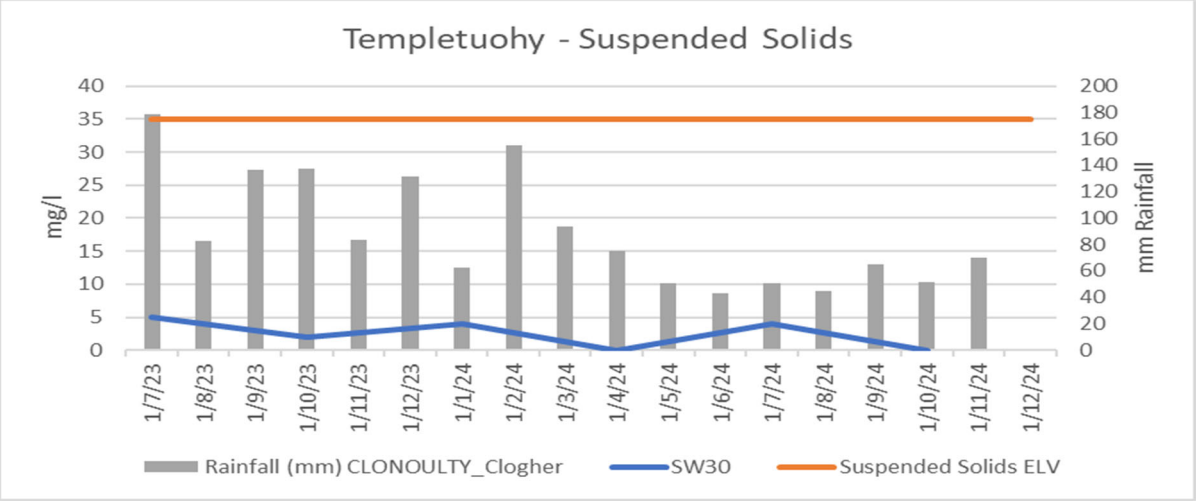
PCAS SW Sampling Scheme				pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH
Bog Group	Licence No	Bog Name	SW Code GIS	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units	pH Units
				1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23	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
Littleton Group	P0499-01	Templetuohy	SW30	7.5			7.4			7.2			7.3			7.7			12.2		
		Rainfall (mm) CLONOULTY_Clogher		178.5	82.5	136.2	137	83.7	131.3	62.1	155	93.9	74.9	50.9	42.8	50.7	44.7	64.6	51.5	70.3	

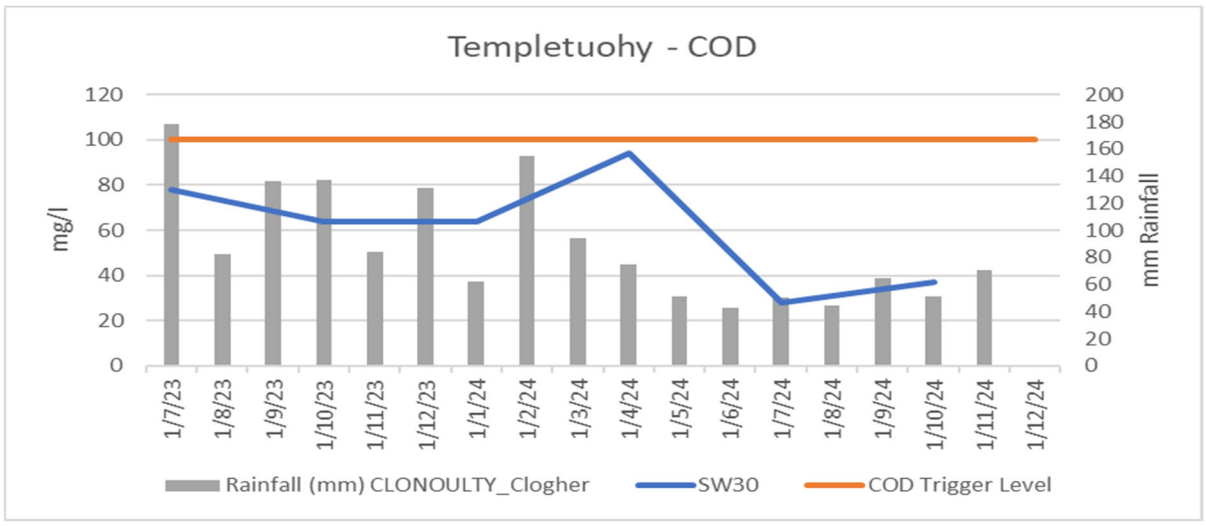
PCAS SW Sampling Scheme				TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P	TP as P
Bog Group	Licence No	Bog Name	SW Code GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23	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
Littleton Group	P0499-01	Templetuohy	SW30	<0.05			<0.05			<0.05			<0.05			<0.05			<0.05		
		Rainfall (mm) CLONOULTY_Clogher		178.5	82.5	136.2	137	83.7	131.3	62.1	155	93.9	74.9	50.9	42.8	50.7	44.7	64.6	51.5	70.3	

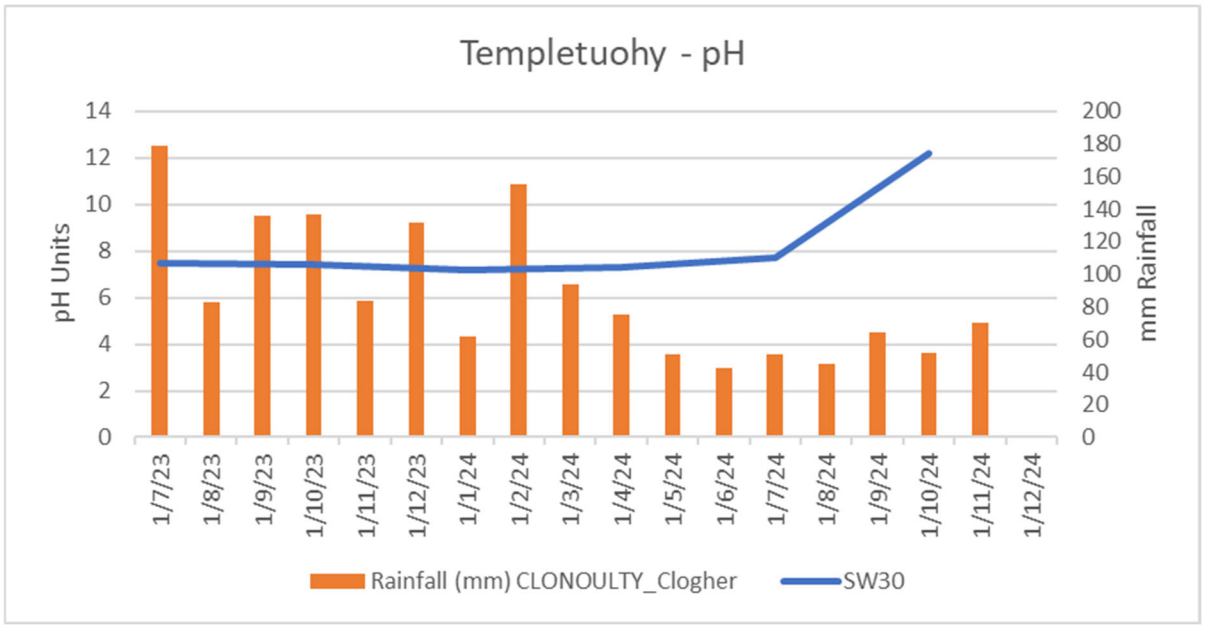
PCAS SW Sampling Scheme				TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS
Bog Group	Licence No	Bog Name	SW Code GIS	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23	1/1/24	1/2/24	1/3/24	1/4/24	1/5/24	1/6/24	1/7/24	1/8/24	1/9/24	1/10/24	1/11/24	1/12/24
Littleton Group	P0499-01	Templetuohy	SW30	279			236			165			276			341			336		
		Rainfall (mm) CLONOULTY_Clogher		178.5	82.5	136.2	137	83.7	131.3	62.1	155	93.9	74.9	50.9	42.8	50.7	44.7	64.6	51.5	70.3	

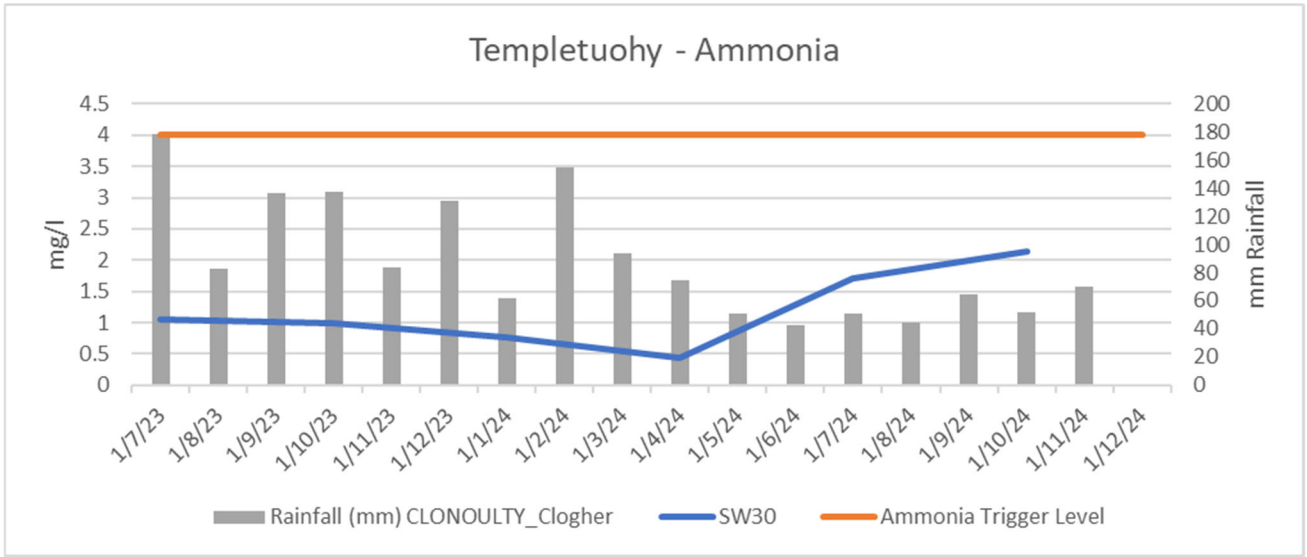
PCAS SW Sampling Scheme				Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N	Ammonia as N
Bog Group	Licence No	Bog Name	SW Code GIS	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	mg/l
				1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23	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
Littleton Group	P0499-01	Templetuohy	SW30	1.06			0.996			0.77			0.431			1.71			2.14		
			Ammonia Trigger Level	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		Rainfall (mm) CLONOULTY_Clogher		178.5	82.5	136.2	137	83.7	131.3	62.1	155	93.9	74.9	50.9	42.8	50.7	44.7	64.6	51.5	70.3	

PCAS SW Sampling Scheme				DOC	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	mg/l
				1/7/23	1/8/23	1/9/23	1/10/23	1/11/23	1/12/23	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
Littleton Group	P0499-01	Templetuohy	SW30	26.1			22.8			25.1			23.1			12.8			12.2		
		Rainfall (mm) CLONOULTY_Clogher		178.5	82.5	136.2	137	83.7	131.3	62.1	155	93.9	74.9	50.9	42.8	50.7	44.7	64.6	51.5	70.3	




Templetuohy - COD
mg/l
mm Rainfall
120
100
80
60
40
20
0
200
180
160
140
120
100
80
60
40
20
0
1/7/23
1/8/23
1/9/23
1/10/23
1/11/23
1/12/23
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
Rainfall (mm) CLONOULTY_Clogher
SW30
COD Trigger Level


Templetuohy - pH
pH Units
mm Rainfall
14
12
10
8
6
4
2
0
200
180
160
140
120
100
80
60
40
20
0
1/7/23
1/8/23
1/9/23
1/10/23
1/11/23
1/12/23
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
Rainfall (mm) CLONOULTY_Clogher
SW30


Templetuohy - Ammonia
mg/l
mm Rainfall
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
200
180
160
140
120
100
80
60
40
20
0
1/7/23
1/8/23
1/9/23
1/10/23
1/11/23
1/12/23
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
Rainfall (mm) CLONOULTY_Clogher
SW30
Ammonia Trigger Level

APPENDIX XIV: 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.