

Remedial Natura Impact Statement

In respect of:

Application to An Bord Pleanála by applicant Mr. David O'Toole

Proposal Description: **Retention for soil fill on lands under the applicant's ownership**

Site Location: **Cregganna Beg, Oranmore, Co. Galway**

Date: **28th July 2025**

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This report has been prepared by the author with all reasonable skill, care and diligence, taking account of the programme of work agreed between the author and the client on this project. All opinions, analysis, recommendations and conclusions contained in this report are based on existing site conditions and knowledge acquired during site visits and desk study. No explicit warranty is provided as to their accuracy, and no liability is accepted by the author for any use of this report, other than the purposes for which it was originally prepared and provided. The author accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk. No other party may copy, reproduce, distribute, make use of, or rely on the contents of the report.

Author's name, qualifications, and contact email address on cover page of this report.

1. Introduction

1.1 Background and Methods

This Remedial Natura Impact Statement document has been prepared for the applicant Mr. David O'Toole, relating to an application for retention of unauthorised fill on lands at Cregganna Beg, Oranmore, County Galway. This document is completed to provide the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment.

As part of the previous correspondence between Galway County Council and the applicant on the subject of the infill works on this site, the Council issued a Warning Letter Pursuant to Section 152 of the Planning & Development Act 2000 (reference number: WL/EN21/139) on 31st July 2023. Within the letter, the description of unauthorised development refers to unauthorised fill on lands at Cregganna Beg, and an unauthorised container at the same address. The container in question has since been removed by the applicant. As part of the applicant's responses and submissions to the Council, the applicant requested that this author prepare ecological reports relating to this site and the works undertaken, namely an Ecological Impact Assessment and a Natura Impact Statement, both dated 20th November 2023.

Subsequently, it was decided that the Substitute Consent process would be the next step, and that this application would be submitted directly to An Bord Pleanála. Representatives from the Board advised that any application for substitute consent is required to satisfactorily demonstrate that exceptional circumstances arise under Section 177K of the Planning and Development Act 2000 as amended. An Bord Pleanála stated this should be clearly set out in any application. Article 227 sets out the required content of any subsequent application.

The advice above was part of the record minutes of meeting ABP-321342-24 between An Bord Pleanála (ABP) representatives, the applicant, and the applicant's agent dated 18th March 2025, which was forwarded to the author for review. The case reference / description was listed as a request to enter into pre-application consultation pursuant to Section 177E (1A) of the Planning and Development Act 2000 (as amended) for retention for soil fill on his lands (ABP – 321342-24).

Within this meeting, ABP advised that the Substitute Consent process would be the next step, and this application would be submitted directly to the Board. ABP representatives advised that any application for substitute consent is required to satisfactorily demonstrate that exceptional circumstances arise under Section 177K of the Planning and Development Act 2000 as amended.

The ABP representatives advised that the application must be accompanied with a Remedial NIS. The ABP note that it is important to note for the rNIS, the burden of proof is quite high,

and anybody preparing this report should be suitably qualified and their qualification set out in the report. The ABP representatives also stated that:

- There should be accurate information on works carried out and timings of the work;
- Conclusions should be based off accurate survey data;
- Conclusions should be scientific or data-based.

The ABP representatives noted that the ecologist (this author) prepared two assessments, two years apart. They noted the documents included information on tree growth, the effect on birds and insects, and the effect of taking out the landfill. They noted that the last report was done 12 months ago - with the date of their meeting being 18th March 2025.

The ABP representatives state that the report for the submission to them should be scientific and up-to-date, and it should highlight the impacts of works carried out, any ongoing effects, and any mitigation measures. The ABP representatives have asked that documentation to be submitted with the application will describe the full life cycle of the development.

On 6th April 2025, the applicant contacted the author regarding the preparation of this Remedial Natura Impact Statement. A range of relevant information was compiled for the preparation of this document during the period of 6th April to 28th July 2025. Desktop data was gathered using existing files and information relating to the environment surrounding the retention application from relevant websites such as the National Parks and Wildlife Service, in addition to other relevant internet sources. The applicant's consulting engineer sent the site layout, with existing levels and contours, to the author on 17th July 2025.

Three surveys of the site and the surrounding area were undertaken to understand the existing conditions of the site, for habitat identification, and for mapping purposes. These three surveys were undertaken over a two-month period to cover the spring and early summer periods. These survey dates were on 7th April, 24th April, and 6th June 2025. The photographic evidence shown throughout this report were taken during these dates. The author of this document has also consulted extensively with the applicant throughout this period, both in person and through email exchange. Relevant information on the site has also been sourced from the applicant's consulting engineer in the preparation of the document.

The author of this report has appropriate degree qualifications in the disciplines of environmental engineering, urban & regional planning, and ecology, namely the following:

- B.E. (Environmental Engineering), First Class Honours Degree, University College Galway;
- MRUP (Urban & Regional Planning), First Class Honours Degree, University College Dublin;
- MSc (Biodiversity & Conservation), First Class Honours Degree, University of Leeds.

The author has been working in the mix of these disciplines since 2003. The author possesses extensive experience in developing a variety of environmental and ecological reports for a range of development applications within a number of Irish local authority areas. These include Appropriate Assessment Screening Reports, Natura Impact Statements, Construction & Environmental Management Plans, Ecological Impact Assessments, Habitat Assessments and Wildlife Surveys. Further work has included the development of a Spatial Strategy, Site Appraisals, HRA Appropriate Assessment, and a Sustainability Appraisal for a local authority's development plan.

1.2 EU Legislation related to this document

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

This remedial Natura Impact Statement has been prepared in accordance with the European Commission's Assessment of Plans and Projects significantly affecting Natura 2000 sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) as well as the Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG, 2010).

In addition to the guidelines referenced above, the following relevant guidance was considered in preparation of this report:

- European Communities (2000), Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission;
- Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission.
- EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission. European Commission.

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are designated to afford protection to the most vulnerable habitats and species in Ireland and throughout the European Union. SACs and SPAs are collectively known as the 'Natura 2000 network'. Relevant organisations must undertake 'screening' to assess if there is a possibility of the proposed project having an effect, either individually or in combination with other plans or projects on a Natura site within a 15 km radius.

A local authority can only approve an application where it deemed at screening stage, or at NIS and appropriate assessment stage if required, that there will be no adverse effect on the integrity of any Natura site. The stages are outlined in the following paragraphs:

- **Screening – Stage 1**

If there is a possibility of the proposed project having an effect, either individually or in combination with other plans or projects on a Natura site within a 15km radius, then the project is 'screened in' in relation to the Natura site(s) involved.

Where a site has been screened-in for appropriate assessment, Galway County Council can seek the submission of a Natura Impact Statement (NIS) to inform that process. The purpose of the NIS is to provide adequate information to enable the local authority to undertake and complete its Appropriate Assessment of the proposed project.

Where a site has been screened-in for appropriate assessment, the local authority will issue a Further Information Request to the applicant. Applicants can also opt to submit a NIS with their initial application at the very outset, in the assumption that the application will be screened-in. The local authority will only approve an application at screening stage where it deems that there is no possibility of an effect on any Natura site within a 15km radius.

- **Natura Impact Statement**

A Natura Impact Statement is a scientific examination that identifies and characterises any possible impact the project may have (either individually or in combination with other plans and projects) on the conservation objectives of any 'screened-in' Natura site(s), taking into account the full scope of these objectives, whether generic or site specific.

It must also identify and detail any proposed mitigation measures needed to avoid, reduce or eliminate the risk of such impact. The NIS must also present the necessary analysis to demonstrate how any proposed mitigation measures will avoid or remove the risks of those adverse effects identified, so that the final analysis is undertaken in the context of the predicted residual effects.

All sources of information must be cited. The local authority states that it is the responsibility of the applicant to engage relevant experts and to bear the cost of preparing the NIS. In most cases, a person with appropriate ecological qualifications and experience will be required to undertake the necessary ecological surveys, research and analysis. Other

relevant experts may be required if non-ecological input is needed, e.g. in the area of hydrology or engineering.

- **Appropriate Assessment (AA) – stage 2**

At AA stage, the local authority undertakes an 'appropriate assessment' to determine beyond reasonable scientific doubt whether there will be an adverse effect on the integrity of these Natura site(s), based on the nature of the impact, the effectiveness of any mitigation measures proposed, etc. The appropriate assessment must:

- Identify, in light of the best scientific knowledge, all aspects of the development that would affect Natura sites within a 15km radius of the proposed project;
- Contain complete and definitive findings capable of removing all reasonable scientific doubt that the development would adversely affect the integrity of those sites;
- The local authority will only approve a relevant application at AA stage where it deems that there will be no adverse effect on the integrity of any Natura site within a 15km radius of the proposed project.

This document is termed a remedial Natura Impact Statement (rNIS). A rNIS shall contain a statement of the significant effects, if any, on the relevant European site which have occurred, or which are occurring, or which can be reasonably be expected to occur because the development the subject of the application for substitute consent was carried out. Details can also be included regarding any appropriate remedial or mitigation measures undertaken or proposed to be undertaken by the applicant for substitute consent to remedy or mitigate any significant effects on the environment or on the European site.

2. Description of the Proposed Development

2.1 Site Location and Characteristics

The site is located at Cregganna Beg, Oranmore, in southern County Galway (see figures 1 & 2 overleaf). The site is accessed via a local road L-8106 from the N67 route which connects Galway city to the town of Oranmore, and then to the settlements of Clarinbridge, and Kilcolgan to the south. The site area is 1.1455 hectares. The site is surrounded to the south and to the east by residential development of single dwellings and their curtilages.

To the northwest are agricultural holdings, and to the north and northeast are the lands of Cregganna Marsh SPA, commencing approximately 230 metres from the nearest boundary of this site. Between the subject site area and the designated SPA boundary is a buffer of agricultural land in private ownership of the applicant's neighbour. The subject site was

purchased by the applicant in the late 1990s. The site has a history as an agricultural holding with grazing livestock, and it does not presently host livestock. The site now has a covering of a mix of semi-natural grassland, scrub, and early successional tree covering.

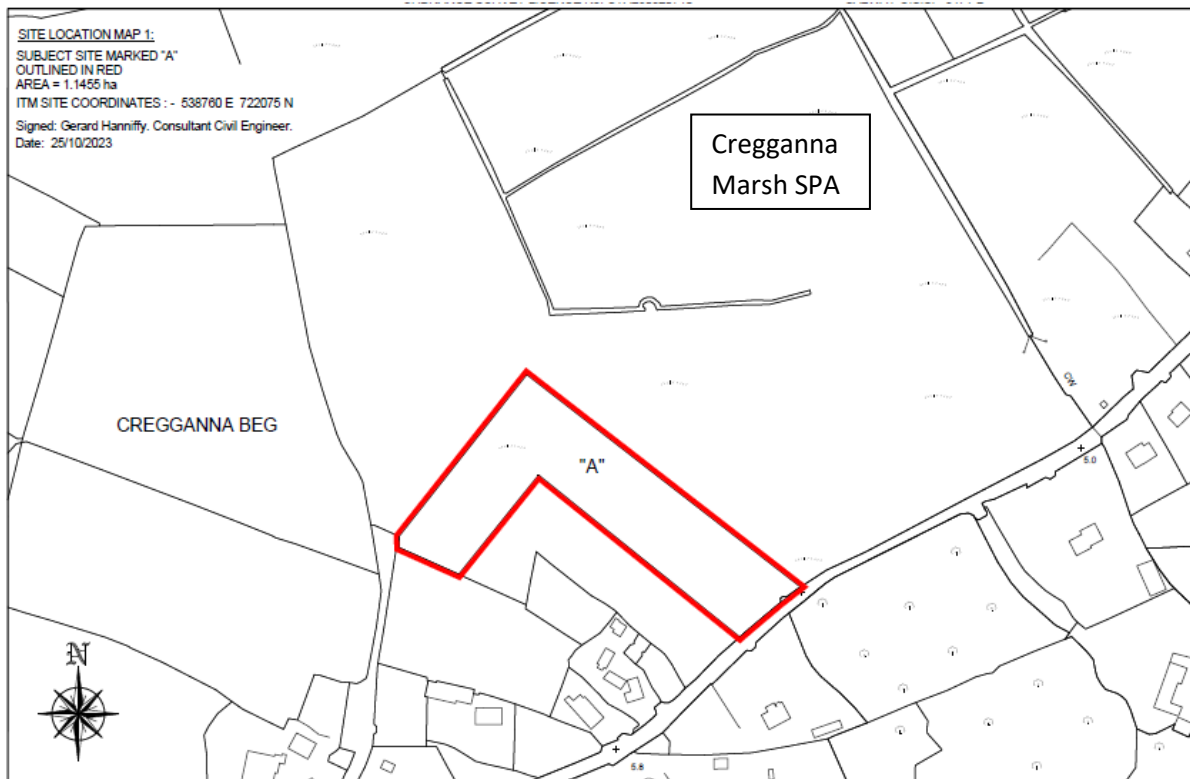


Figure 1: The site area in red outline marked 'A' in the context of the surrounding landscape. Cregganna Marsh SPA is marked in the vicinity of the site (image courtesy of the applicant's planning representative).



Figure 2: The Cregganna Marsh SPA (blue colour) in the context of the surrounding region in southern County Galway (image courtesy of the applicant's planning representative).

2.2 History of the Site, Infill Soil Works, and Biodiversity Project

The author has consulted extensively with the applicant in order to establish a comprehensive and accurate history of the works on this site. The following paragraphs reflect these discussions and the text sent to the author from the applicant on this subject.

In 2010, the applicant on his own land, adjacent to his dwelling, extended an existing gateway from the main Cregganna Road onto his lands, and developed a gravel road from the gateway through the land to his house. This site borders on land owned by the applicant's neighbour, and is the site is outside of the Special Area of Conservation known as the Cregganna Marsh SAC.

The new pathway involved re-shaping and infilling an area approximately 60 metres from the main Cregganna Road. During the works, an earth mound was created on the right-hand side of the gravel path. During the year 2021, the applicant decided to undertake a biodiversity project on his land. Comprising of an area of 1.1455 hectares, the applicant states that the planned project consisted of:

- (a) The plantation of a native, indigenous Irish tree plantation to the rear of the site;
- (b) An orchard of at least 30 fruit trees, consisting of mainly rare Irish varieties purchased from the company 'Seedsavers' in Scariff, Co. Clare;
- (c) A wildlife pond (already existing);
- (d) A paddock for grazing animals, especially horses, given family interests in horse riding.

The applicant states he flattened the existing earth mound backwards and infilled the area back to the rear of the site with good quality top soil. The applicant calculates there were approximately 230 loads delivered (by measuring the height difference between his land and the adjoining land of this neighbour). The applicant then commenced stage one of the tree planting program; he planted the fruit trees and re-seeded the area with meadow seed.

During the year 2023, the applicant was contacted by Galway County Council, after the applicant believes an employee of the Council inspected the land. The applicant states there was no meeting with the applicant at the time of such as site visit. The Council requested that the applicant remove the container which was on the site, which the applicant subsequently did.

During the Council's inspection, the applicant states that a small area on the site was found with substandard fill (i.e. bits of plastic, broken tills, etc.), which was put in by who the applicant describes as "a rogue operator". This is during a time when the applicant was out of the country at a work conference, and hence he could not supervise the fill that was put in at the time. The applicant subsequently contracted an individual to remove this material, and he then provided a receipt to Galway County Council for twelve loads of fill removed and delivered to Barna Waste.

At that time, the applicant believed he had addressed and complied with the issues raised initially by Galway County Council. Subsequently, the applicant received enforcement notices from the Council about removing all of the fill loads and restoring the land to its original state. The applicant states that he was not asked at any stage to meet with any Council employee to discuss the works undertaken at the site, and he would have liked the opportunity to do so to explain the infill works.

The applicant later engaged a civil engineer, Mr Gerry Hanniffy, to compile a retention application to Galway County Council, and he also requested that the author undertake environmental impact reports relating to the works and the site. These reports assessed any potential effects on the surrounding areas and also to assess the potential impacts on the environment of digging out the whole site again and removing the fill loads. The applicant states that this would involve uprooting trees, flowers, and plants, and damaging the habitat of the fauna that have already made this site their home.

Galway County Council refused to grant retention permission, stating to the applicant that the environmental assessment should have been carried out before the development works were undertaken. The applicant stated that the Council continued to issue letters to him threatening court proceedings, because the enforcement orders were not complied with.

At present, the applicant considers the project is complete. The applicant's designated Phase II of the tree planting programme is finished with numerous identified animals, birds, and insects on site, in addition to the flora. The applicant has stated there are no invasive species on the site. There are no pesticides used on site. Wild flowers, trees, and wildlife are flourishing. The applicant has stated that good construction site hygiene has been employed when external infill was used to prevent the introduction and spread of problematic invasive alien plant species (e.g. Rhododendron, Japanese Knotweed, Giant Rhubarb etc.). The applicant has stated that infill material used on site which was sourced externally was from local, known sources that were free of any invasive species.

The applicant has stated he has done his best between the orchard and wildflower planting to support pollinators, especially now as he notes that there is increasing evidence that native Irish bees are becoming an endangered species due to lack of suitable habitats. The applicant has an interest in bee keeping and he currently has on active bee hive on site, and with more bee hives to arrive on site at the time of writing. The applicant is a member of the Clarinbridge Tribal Bee Association and he has also registered with the Department of Agriculture, Food, and Marine as a honey producer.

2.3 Description of the Proposed Retention

The proposed retention application consists of the retention of what Galway County Council have identified as unauthorised soil infill on parts of the land in question. The applicant has

infilled in portions of the subject site with selected material, and he has provided information for the purposes of this document on the infill works carried out to date.

In terms of sources for the infill works, the applicant has stated that there was an extensive earth mound already in place on the site before infill work commenced. The applicant has stated that this mound was levelled out first and then the remainder of the infill was sourced externally.

The applicant has stated to the author that about 20% of the fill came from material sourced from the Oranmore Maree GAA pitch development, which was a new development at the time of the infill works. The applicant has stated that there were some other infill loads from the Oranmore locality brought by an individual known to the applicant. The applicant stated that he was careful to avoid the introduction of any invasive plant species such as Japanese knotweed or any other harmful foreign material before accepting any external fill. The applicant has stated that the total amount of infill now comprises approximately 40% of the area of the site.

From numerous surveys of the site area, it does not appear that the infill works have unduly interfered with the small stream running through the site. Vegetation has grown over in the infill areas, and there are no obvious slopes on the site, apart from a depression in which a small pond of water exists. These details are discussed in greater detail later in this report.

Figure 3 overleaf shows the existing state of the subject site, including its levels and contours. The post fill contours are shown throughout the site. The diagram shows the area of extensive native tree planting within the site environs, and the existing orchard area. The site has a post and wire fence on two borders. It can be seen that there is a drain or stream running through the site, and a deep excavation, which now hosts a small water pond as mentioned above. The location of the existing entrance gate, and the old gravel access roadway is shown. The location of the proposed paddock area for ponies, and the proposed beehive farm area are also marked on the site.

The applicant states it is his further wish that this situation can be solved without the need for court proceedings. The applicant notes that in June 2023, Galway County Council appointed their first Biodiversity Officer. The applicant states he would like to work with Galway County Council on resolving this situation and he would welcome a visit from the Biodiversity Officer to this site. The applicant states he would act upon any advice or suggestions this officer may have to improve the site or remedy any potential issues. Overall, the applicant would prefer to retain the infill works and then collaborate with the Council in terms of the future of the site.

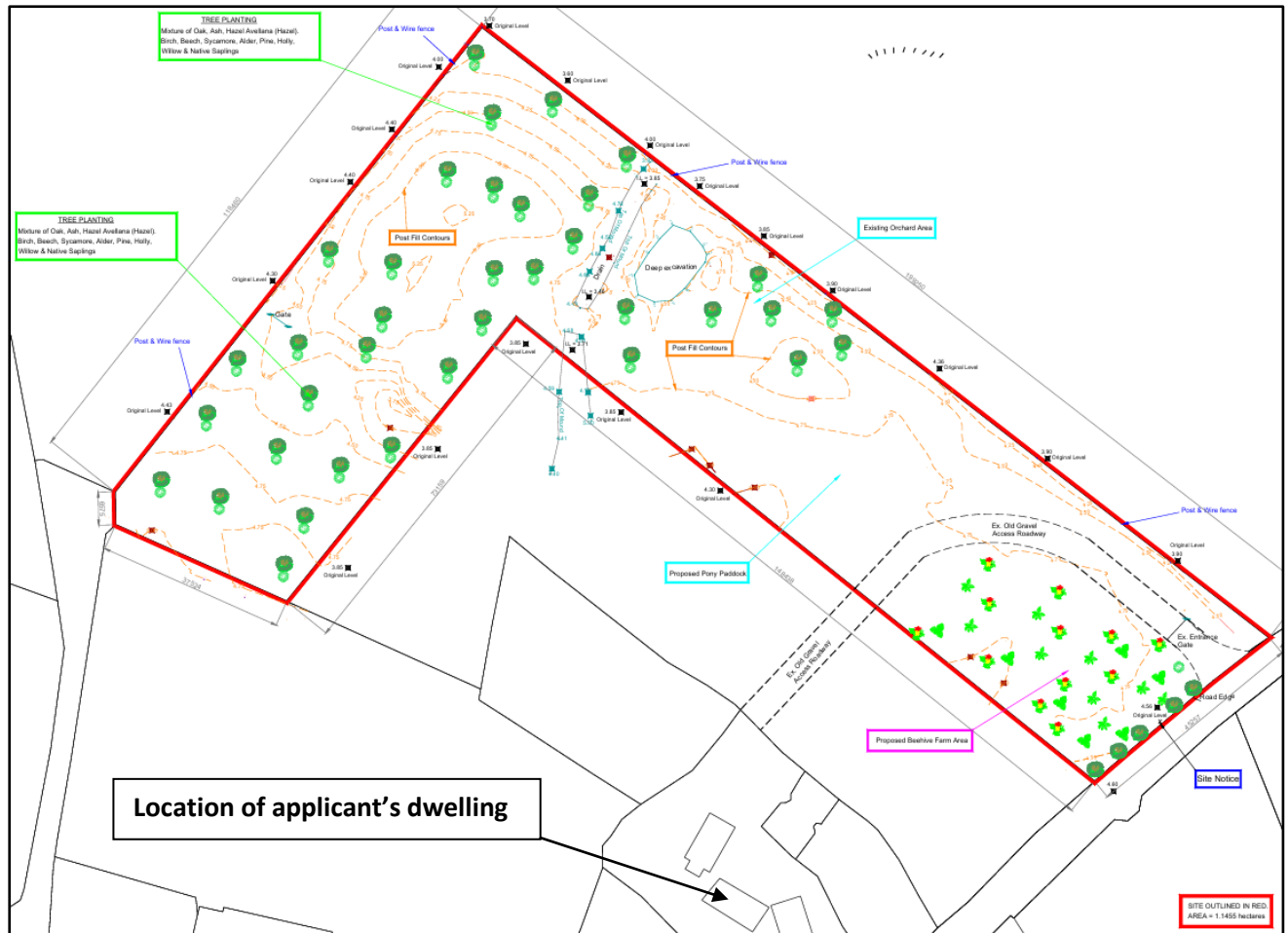


Figure 3: The existing site layout including the areas of current vegetation cover. The applicant's dwelling is shown to the south (image courtesy of the applicant's consulting engineer).

3. Description of Ecological Environment

3.1 Identification of the Designated European Sites within the Likely Zone of Impact

The following methodology was used to establish which designated European Sites are within the Likely Zone of Impact of the retention development:

- Initially the most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie) on the 12/05/2025. The datasets were utilised to identify designated European Sites which could feasibly be affected by the retention development;
- All designated European Sites within a distance of 15km surrounding the development site were identified. In addition, the potential for connectivity with designated European Sites at distances of greater than 15km from the retention development was also considered in this initial assessment. In this case, no potential

connectivity with sites located at a distance of over 15km from the retention development was identified;

- The catchment mapping was used to establish or discount potential hydrological connectivity between the site of the retention development and any European Sites;
- In relation to Special Protection Areas, in the absence of any specific European or Irish guidance in relation to such sites, the Scottish Natural Heritage (SNH) Guidance, 'Assessing Connectivity with Special Protection Areas (2016)' was consulted. This document provides guidance in relation to the identification of connectivity between the retention development and Special Protection Areas. The guidance takes into consideration the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects;
- The following section provides details of all relevant European Sites as identified in the preceding steps and assesses which are within the likely Zone of Impact. The assessment considers any likely direct or indirect impacts of the retention development, both alone and in combination with other plans and projects, on European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning were considered in this screening assessment;
- The site synopses and conservation objectives of these designated European sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report, and are available to view in Appendix I;
- Where potential pathways for significant effects are identified, the site is included within the Likely Zone of Impact and further assessment is required.

3.2 List and Description of Designated European Sites of Interest

From the desktop study, it has been noted that there four Special Protection Areas and eight Special Areas of Conservation within 15km of the proposed site. The three SPAs and the seven Special Areas of Conservation are as follows:

- Inner Galway Bay SPA (site code: 004301);
- Cregganna Marsh SPA (site code: 004142);
- Rahasane Turlough SPA (site code: 004089);
- Lough Corrib SPA (site code: 004042);

- Galway Bay Complex SAC (site code: 000268);
- Lough Fingall Complex SAC (site code: 000606);
- Kiltiernan Turlough SAC (site code: 002185);
- Ardahan Grassland SAC (site code: 002244);
- Castletaylor Complex SAC (site code: 000242);
- Rahasane Turlough SAC (site code: 000322);
- Cahermore Turlough SAC (site code: 002294);
- Ballinduff Turlough SAC (site code: 002295);
- Lough Corrib SAC (site code: 000297).

The qualifying interests, conservation objectives and site synopsis of each of these SPAs and SACs are presented in Appendix I. It is noted that the eight SACs in question are a mix of turlough habitat, grassland, and coastal habitats. Given the land type nature of these SACs, and their further distance from this retention site compared to Cregganna Marsh SPA, it is not thought that there are any significant pathways to the conservation objectives of the SACs from the retention elements of the subject site. There are no construction of buildings or wastewater treatment systems involved in this retention application.

For example, the Galway Bay Complex SAC is located at a sufficient distance away from the retention site and without a hydrological conduit to it, and hence it is not expected that the elements of the proposed retention development (i.e. unauthorised soil fill) will have any significant on the conservation objectives of this SAC. The boundary of the Cregganna Marsh SPA is located approximately 230 metres away from the nearest boundary of the subject site. The qualifying interest and the supporting habitats of the Cregganna Marsh SPA will be hence now analysed in more detail in this section.

Cregganna Marsh SPA [site code: 004142]

Qualifying Interest

Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]

Site Synopsis

Cregganna Marsh is situated about 3km south of Oranmore, to the west of the Galway - Ennis road. The predominant habitats on the site are lowland wet grassland and improved grassland, but areas of limestone pavement and other exposed rock, Hazel (*Corylus avellana*) scrub, freshwater marsh, drainage ditches and dry grassland are also represented.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Greenland White-fronted Goose.

The site is of major conservation importance as a feeding site for a nationally important flock of Greenland White-fronted Goose (157 – 5 year mean peak between 1994/95 and 1998/99). The birds using this site form part of the Rahasane flock. Cregganna Marsh SPA is of ornithological importance because it is regularly utilised by a nationally important flock of Greenland White-fronted Goose, a species listed on Annex I of the E.U. Birds Directive. Figure 4 shows the area and outline of the Cregganna Marsh SPA in the context of the surrounding environment. Some of the northern boundary of the SPA is adjacent to the expanse of the Oranmore urban area. Other boundaries of the SPA feature adjoining agricultural fields, with dispersed single housing in close proximity.

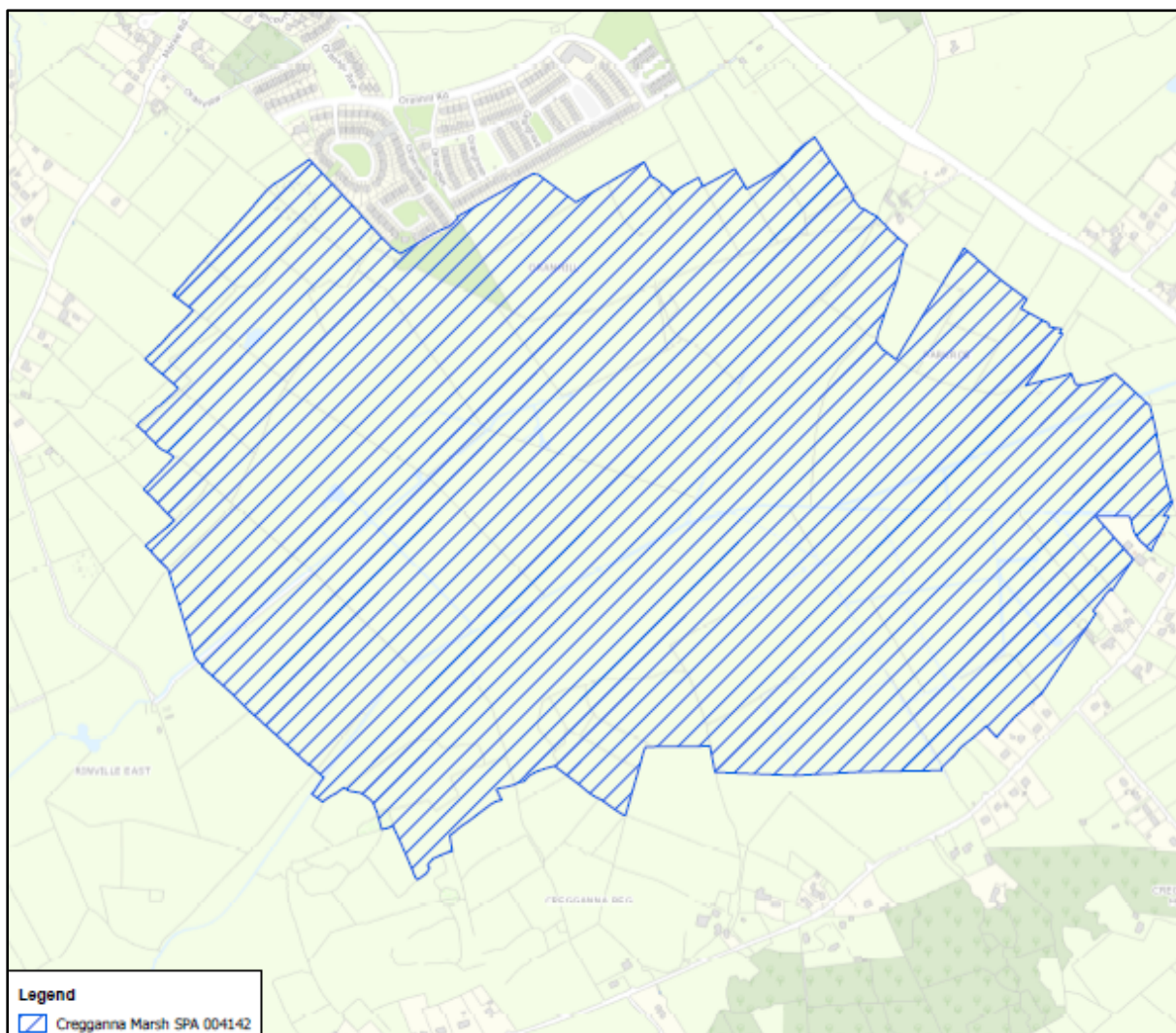


Figure 4: The outline of the Cregganna Marsh SPA in the context of the surrounding landscape (map taken from the National Parks and Wildlife Service website).

4. Biodiversity Enhancement Measures

4.1 Strategy to assess potential effects on designated European sites

Any likely direct or indirect effects of the proposed development on designated European sites are considered in this assessment, both alone and in combination with other plans and projects, by virtue of the following criteria: size and scale, land-take, distance from the designated European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction and operation. The review here focuses on conservation objectives that relate to designated European sites. This section describes the potential direct and indirect effects on the designated European site(s) and the mitigation measures (if any) that are in place to block or sufficiently mitigate any identified potential effects. It concludes on whether there is any potential for adverse effects on the integrity of the identified designated European sites.

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

- Galway County Development Plan, 2022 – 2028;
- National Biodiversity Action Plan, 2023 – 2030;
- RSES for Northern & Western Region, 2020 – 2032.

4.2 Potential effects on designated European Sites

The section of the report lists any potential impacts arising from the development works being retained and the likely potential impacts, if any, on designated European Sites within the zone of influence of the development, in view of their conservation objectives (qualifying interests). The table below outlines this list of potential impacts.

Potential direct or indirect impacts and zone of impact of the potential effects	Are there any designated European sites within the Zone of Influence?
Habitat loss Habitat loss will be confined to the lands within the retention development boundary.	No. There are no designated European sites within the proposed development boundary.
Habitat degradation as a result of hydrological impacts Habitats and species downstream of the retention development site.	Yes, a potential impact to be further analysed. Cregganna Marsh SPA, Galway Bay Complex SAC, and Inner Galway Bay SPA are of particular consideration here.
Habitat degradation as a result of hydrogeological impacts Groundwater-dependant habitats, and the	Yes, a potential impact to be further analysed. Cregganna Marsh SPA, Galway Bay Complex SAC, and Inner Galway Bay SPA are of

species those habitats support, in the local area that lie downgradient of the retention development site.	consideration here.
Habitat degradation as a result of air quality impacts Habitat areas within potentially several kilometres of the emissions location, depending on emission concentrations and environmental conditions such as prevailing wind direction.	No. This is primarily due to the nature and characteristics of the development works being retained. Post infilling, the applicant is not proposing any permanent built structures on the land, and instead to enhance biodiversity on the site. Emission concentrations will henceforth be effectively zero.
Disturbance and displacement impacts Potentially up to several hundred metres from the retention development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the retention development, in conjunction with the sensitivity of the qualifying interest species to disturbance effects.	No. This is primarily due to the nature and characteristics of the development works being retained, and the fact that no further construction activity is henceforth required on site. Noise, vibration and visual disturbance will now be effectively zero.
Cumulative impacts How the retention development may act in combination with other developments in the locality to produce potential impacts.	No cumulative impacts likely. The surrounding environment features a number of single dwellings and their curtilages. The development works being retained does not feature similar characteristics to such other development in the area, and hence does not act in combination with such development.

Table 1: Potential of direct or indirect impacts.

This section provides a detailed analysis of the potential for hydrological connectivity between the infill soil works being retained and the aforementioned designated European sites, by analysing the context and characteristics of the infill works. The potential hydrological connectivity routes from this site are principally via any flooding episodes or any pollution events. There is no potential for flooding at this site as there are no permanent built structures to impede the natural soakage of water into the ground or into the stream running through the subject site. Post infill, there are no construction activities required. This section considers effects on the hydrological and hydrogeological characteristics of the site, which can include:

- Potential impacts on water quality (including both surface water and groundwater bodies) and assessment of risks from chemical pollution or sedimentation;
- Assessment of flood risk, and the potential for direct and indirect impacts of the retention development on flood risk at the site;

- Impacts on flow regimes, water quality or the geomorphological characteristics of watercourses; and
- The potential for the retention development to impact groundwater dependent terrestrial ecosystems.

In this context, it is important to analyse the potential hydrological impacts of the retention application on the conservation objectives of the Cregganna Marsh SPA, Galway Bay Complex SAC, Inner Galway Bay SPA and the groundwater dependent designations. The local hydro-geological regime in the vicinity of the subject site contributes to, and supports, the marine habitats of the latter two named designations above and their qualifying interests and conservation objectives.

A pollution event, of a sufficient magnitude, has the potential to affect the receiving aquatic and marine environments (either alone or in combination with other pressures on water quality) to an extent that undermines the conservation objectives of these designated European sites. This can be particularly the case for the Cregganna Marsh SPA given its proximity to the subject site, so the potential impacts on this SPA are analysed in detail in the paragraphs below.

Phase 1 Habitat Surveys were undertaken during the months of October and November of 2023 for the original ecological reports for this site. This is the time of year when the Greenland White-fronted Goose (*Anser albifrons flavirostris*) which is the qualifying interest of the nearby Cregganna Marsh SPA, has recently returned to Ireland from its summer breeding residence in western Greenland. The Cregganna Marsh SPA represents one of the strongholds for Greenland White-fronted Goose on the island of Ireland. From the analysis of the Phase 1 Habitat Surveys, there is no evidence of the subject site itself supporting the presence of this species.

The Greenland White-fronted Goose has been of conservation concern for many years. Threats to the conservation interests of this bird include habitat loss from drainage, inappropriate development, and disturbance. Habitat loss and degradation are major global threats to Greenland White-fronted Geese. In particular, disturbance by humans, wetland habitat degradation due to drainage, peat-extraction and changing management practices are threats to the feeding and roosting habitats used by this species across its range.

Collision impacts with inappropriately located wind energy developments are identified as a potential threat, with a prerogative on appropriate survey and impact assessment. It is in relation to these threats to the Greenland White-fronted Goose, and the habitats of the Cregganna Marsh SPA that it depends on, that the works undertaken within the subject site are to be henceforth considered.

The applicant has infilled in portions of the subject site with selected material, and he has provided information for the purposes of this document on the infill works carried out to

date. These details have been provided in Chapter 2 of this report. From surveys of the site area, it does not appear that the infill works have unduly interfered with or contaminated the small stream running through the site. There were no debris or obstacles to the flow of the water in the stream visible during the site surveys. Vegetation has grown over in the infill areas (figure 6 below), and there are no obvious slopes on the site, apart from the depression in which a small pond of water exists.



Figure 5: The land of the subject site is predominately covered by semi-natural grassland, with scrub, bramble, and tree coverings elsewhere on the site (image taken on 06/06/2025).

The works undertaken do not result in any habitat loss from drainage. The site area does not function as a wetland, and hence there is no wetland degradation in evidence due to drainage or otherwise. There are no permanent built structures in place on the site, nor or any proposed. It is the intention of the applicant to have the site in question to help and boost biodiversity in the locality, particularly given the site's proximity to Cregganna Marsh SPA. The human disturbance was temporary and limited to the infill works. There is no on-going human disturbance within the site as there are no built or permanent structures with human occupancy on the site, or tarmacked laneways to facilitate vehicular movement. There are hence no threats to the feeding or roosting habitats of the Greenland White-fronted Goose in Cregganna Marsh SPA from the retention of the infill on this site.

The retention of the works will not remove habitat for the qualifying interests of the Cregganna Marsh SPA, in terms of the key species of the Greenland White-fronted Goose. In contrast, the semi-natural landscape of the existing site (and its ongoing proposed measures for biodiversity enhancement) will complement the adjacent habitats of the SPA. The subject site, free from built development and focused on biodiversity enhancement, means that the Cregganna Marsh SPA has this locally significant area of land to its southwest free from human disturbance.

The conservation objective of the SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, namely the Greenland White-fronted Goose. The potential pathways from the subject site are not deemed to be significant in terms of a threat to these conservation objectives, and indeed for the reasons above, the nature of the subject site should support this conservation objective.

Having regard to the location of the subject site close to the boundary of the Cregganna Marsh SPA, potential effects are also considered here. At the times of the numerous site surveys, a walk around the perimeter and internal space of the site was undertaken. There was some evidence of surface water present on the land, which was not surprising given the periods of heavy rain preceding the visits in mid-October and early November 2023. During the three surveys of April and June 2025, there was much smaller surface water areas visible during the surveys. It was observed that there was quite a level site, seemingly assisted by the infill soil works, with no steep sloping apart from the small depression for the aforementioned pond of water.

There is one small stream which runs through the site (see figure 6 overleaf), and hence there can be an ecological conduit from the subject site to the designated SPA in the form of gravity flow. The applicant has stated that he has previously improved its drainage, and installed piping under an access crossing to facilitate the movement of the stream water. The stream seems to move underground where the subject site has its boundary with the adjacent agricultural lands between it and the SPA. During the site surveys in October and November of 2023, there seemed to be excessive nutrient enrichment within this stream. During the three site surveys in April and June 2025, it was observed that the stream water was in good condition, clear of any green algae, and indeed this slow-moving stream now supported frogspawn and the emergence of a large number of tadpoles (see Chapter 5).

Upon inspection during the numerous site surveys, as noted previously, the stream does not appear to have any debris from the previous infill works, and the stream has an unobstructed pathway through the subject site. Hence the works that are subject to retention permission seem not to have resulted in producing a potential pathway in hydrological terms that would negatively affect the qualifying interests and conservation objectives of the range of SACs and SPAs under consideration in this report.

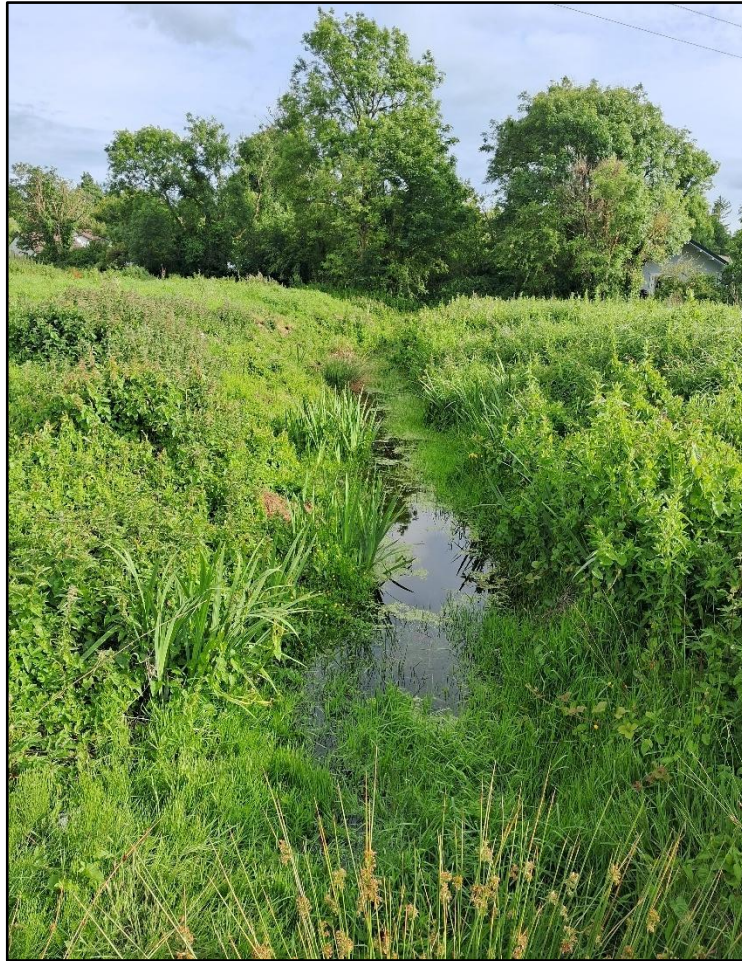


Figure 6: The small stream or drain which moves through the centre of the subject site, surrounded by semi-natural grassland (image taken on 06/06/2025).

The second pathway is a potential pollution risk from the site related to any flooding episodes related to the subject site. As noted previously, the site is quite level overall with no obvious sloping of the land. During the survey, there was analysis of the surrounding environment, comprising of existing dwellings and their curtilages, tree cover, agricultural fields close to and adjacent to the subject site. There is no wastewater treatment system associated with this development works, or any facility which could potentially add pollutants to the nearby Cregganna Marsh SPA or other designated European sites within the vicinity of the subject site. During any heavy rain episodes on the subject site, rainwater can soak underground easily without any building impediments or be transferred via the existing stream towards the Cregganna Marsh SPA.

It is hence not expected that a pathway can exist in terms of a potential pollution risk from flooding, as accumulation of water on this site can readily be avoided. Moreover, it was noticed, during the second survey for the original ecological documentation on 8th November 2023, that surface water had accumulated within the boundary of the Cregganna Marsh SPA, which was not in evidence during the first survey work on 16th October 2023. After a period of rain in the second half of October, water can accumulate in the freshwater

marsh environment of the SPA, including taking water from surrounding lands. Hence, the subject site is not considered to be at reasonable risk from flooding, and the infill works posed for retention do not pose a pollution risk to the habitats of the Cregganna Marsh SPA.

The cumulative impact of the works for retention is negligible, considering the nature of the infill works. The subject site is primarily focused on enhancing and supporting biodiversity, and these lands can act to support the habitat and wildlife of the Cregganna Marsh SPA. The site does not host residential, commercial, or any permanent buildings, and so it does not act in a cumulative manner with built development in the area. Based on the site analysis and the information put forward by the applicant, it can be concluded that the retention, individually or in-combination with other plans or projects, would not have a likely significant effect on the integrity and qualifying interests / conservation objectives of the Cregganna Marsh SPA, Galway Bay Complex SAC, Inner Galway Bay SPA, or other designated European sites within its zone of influence.

It was noted in Section 3.2 that the qualifying interests of the Cregganna Marsh SPA feature numerous listed bird species, and the conservation objectives of the SPA aim to protect the habitats associated with these bird species. The conservation objective of the SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. The potential pathways from the subject site are not deemed to be significant in terms of a threat to these conservation objectives.

5. Potential effects of Soil Fill Removal

The purpose of this chapter is to analyse the ecological importance of the site as it currently exists, and to assess the potential impacts of enforcing the soil removal order to the applicant from Galway County Council. The soil fill was placed over a period of time for the purpose of raising the level of land. Since then, the area has undergone significant natural colonisation and active planting of native tree species, creating a range of habitats now supporting diverse flora and fauna.

5.1 Current Ecological Conditions of the Site

As part of the preparation for this report, ecological surveys of the site were undertaken on 7th April, 24th April, and 6th June 2025, to analyse the progression of flora and fauna on the site during the late spring and early summer periods. The following text details the findings.

(a) Habitats: A mix of early successional tree cover, native scrub, and semi-natural grassland.

The area of the site with early successional tree covering has pioneer tree species like birch, willow, hazel, and rowan (see full list of planted tree species below). With trees still in an

early stage of growth at the time of the site surveys, ground light levels are still high, and this has encouraged a ground flora of grasses and herbs (see figure 5). These habitat conditions have importance for birds, invertebrates, and mammals that benefit in open-canopy young forested areas.

Within the native scrub areas of the site, there is dense growth of *Crataegus punctata* (white hawthorn), gorse, and bramble. These areas of the site mimic features found within a transitional stage between grassland and woodland or along field edges. In terms of an ecological role, these areas of the site provide nesting habitat for birds, foraging areas for pollinators, and cover for small mammals.

Semi-natural grassland covers much of the remaining areas of the site, and they are not managed by the applicant. It was observed that this area within the site has relatively high botanical diversity. These areas are rich in native grasses and wildflowers like knapweed, birds-foot trefoil, and oxeye daisy. This is important habitat for pollinators (e.g. bees, butterflies), seed-eating birds, and a range of soil invertebrates.

This combination of habitats supports species at different life stages and with varied habitat needs. This site, at the local level, acts as an ecological corridor, supporting the semi-natural habitats of the area, and those of Cregganna Marsh SPA. This is important considering that much of the surrounding landscape is fragmented with a large number of single dwellings and their curtilages. The structural and ecological diversity of this semi-natural area increases the resilience to ecological shocks (e.g. climate extremes) at the local level.

(b) Planting Efforts: Over a two-year period, native Irish **tree species** have been planted by the applicant in the north and northwestern areas of the site (see figure 7). These trees are both deciduous and coniferous, such as *Quercus robur* (pedunculate oak), *Corylus avellana* (hazel), *Fraxinus* (ash), *Betula* (birch), *Fagus* (beech), *Acer pseudoplatanus* (sycamore), *Alnus Glutinosa* (alder), *Crataegus Mollis* (red hawthorn), *Castanae Fagacene* (chestnut), *Sorbus Rosacore* (rowan), *Pinus* (pine), *Laurus nobilis* (laurel), *Ilex* (holly), and *Salix* (willow). Approximately 30 metres of *Crataegus punctata* (white hawthorn) hedging has been planted along some of the southern boundary of the site. There has been planting of fruit bearing trees such as *Trifolium* (clover) and *Borago officinalis* (borage) within the north-central areas of the site. **Plants** observed on site during the survey, either occurring through planting by the applicant or otherwise include: *Ranunculus Genus* (buttercup), *Trifolium Pratense* (red clover), *Bellis Perennis* (wild daisy), *Digitalis* (foxglove), *Tropaeolum* (nasturtium), and *Iris Pseudacollus* (bog iris).

Appendix II displays images of a number of these tree and plant species observed within the site during the site surveys.



Figure 7: Numerous types of tree species are planted on site, with the early successional woodland encouraging ground flora of grasses and herbs (image taken on 06/06/2025).

(c) Species Observed:

There were a number of bird, invertebrate, and amphibian species observed within the boundaries of the site, initially during the two surveys of October and November 2023, and later during the three surveys of April and June 2025. The sightings record below also includes species recorded by the applicant on the site during the years of 2023 to 2025.

- Birds: *Erithacus rubecula* (Robin), *Troglodytes troglodytes* (Wren), *Saxicola rubicola* (Stonechat), *Turdus merula* (Blackbird), *Turdus philomelos* (Song Thrush), *Egretta garzetta* (Little Egret), *Anas platyrhynchos* (Mallard), *Emberiza schoeniclus* (Reed Bunting), *Circus aeruginosus* (Marsh Harrier), *Ardea cinerea* (Grey Heron), *Phasianus colchicus* (Pheasant), and *Cuculus canorus* (Cuckoo).
- Mammals: *Sciurus vulgaris* (Red Squirrel).
- Amphibians: *Rana temporaria* (common frog). This observation includes a large number of tadpoles in the stream within the site (see figure 8).
- Invertebrates: Bumblebees (*Bombus spp.*), hoverflies, butterflies (*Pieris spp.*, *Aglais urticae*).



Figure 8: A sample of tadpoles temporarily taken with a bucket from the stream running through the site for illustration purposes (image taken on 07/04/2025).

(d) Soil Condition: Stable topsoil, with dense root structures, and with no visible erosion or sediment transfer observed.

The importation of approximately 230 loads of topsoil onto the 1.4-hectare site has been carried out in a manner that seems to provide long-term stability and environmental integrity. The site now supports a structured and widespread planting of native tree species interspersed with semi-natural grassland, scrub and bramble, contributing positively to local biodiversity. The topsoil has become well-integrated into the landscape, exhibiting stable conditions underpinned by dense root structures from the established vegetation.

Site inspections on numerous visits covering four seasons during the years of 2023 and 2025 confirm there is no visible evidence of soil erosion, sediment transfer, or runoff. These observations support the conclusion that the soil placement has had no adverse impact on the surrounding environment, and that the development contributes to landscape enhancement and ecological resilience.

5.2 Future Proposals for Biodiversity Enhancement on Site, and Mitigation Measures

The applicant has commenced a small native tree planting program on the site which he intends to complete if retention permission is granted. Alongside proposed bee keeping activity and associated bee friendly trees, the applicant intends to enrich and further improve the biodiversity potential on this site and hence to support the habitats of the nearby Cregganna Marsh SPA. The applicant is a member of the Kilcolgan bee keeping group, and intends to keep and look after beehives on a small section of the site. Subject to retention permission been granted, the applicant hopes to introduce bee-friendly plants such as borage, cornflowers, goldenrod, sunflowers, foxgloves, and lavender.

The applicant wishes to keep the land of the subject site free of any permanent built structures, and hence there will be no in-combination or cumulative impact with residential or commercial development in the surrounding area.

Subject to retention permission be granted, the applicant has also stated that he can leave the existing pond on the site in place in its existing condition (see figure 9 below), or work with the Council to make whatever modifications to the pond which may be required. The applicant's objective is for the site to be in a suitable overall condition to support a wide range of biodiversity, and he is hence willing to work with the Council on any recommended works which may be required.



Figure 9: Existing excavation and pond on the site (image taken on 24/04/2025).

The applicant intends to host a fenced paddock area comprising of approximately 0.5 acres, and separate from the gated entrance to the trees planted. The applicant hopes to accommodate a small pony for his daughter within the paddock. The paddock area would represent less than half of the total site area.

This proposal, combined with the beehive area, hawthorn hedging along the site boundaries, and the extensive tree planting coverage, would mean that the site has no intended future use for permanent built facilities or significant human disturbance of any kind, and that the site as a whole can be a valuable and vibrant area for biodiversity.

In terms of mitigation, there is established buffer zone between the subject site and the SPA in terms of agricultural land in the ownership of the applicant's neighbour, with whom the applicant has a good and supportive relationship with. There is no element of encroachment. The applicant has no intention of any further soil importation on the site, and he is now only concentrating on further improving biodiversity on this site. The applicant will not carry out any vegetation clearance works in the areas where soil has been imported, and hence stable soil conditions and habitats will be maintained. The applicant

will regularly monitor the stream or drain running through the site, and undertake works if necessary to ensure it is clean and free of any contaminants or algae buildup.



Figure 10: Bee keeping professionals bringing infrastructure for hosting bee hives onto the site (image provided by the applicant).

5.3 Potential Impacts of Enforced Soil Removal

As described in Chapter 3, Cregganna Marsh SPA is a low-lying inland freshwater marsh, important for a range of wetland and marshland habitats. The Qualifying Interest is the Greenland White-fronted Goose *Anser albifrons flavirostris* and the Conservation Objective is to restore the favourable conservation condition of Greenland white-fronted goose in the Cregganna Marsh SPA, which is defined by a stated list of attributes and targets. The following table describes the impact type and description of removing the fill loads from the site:

Impact Type	Description
Habitat Destruction	Loss of established young woodland and grassland, including native species and their associated ecosystem services.
Biodiversity Loss	Displacement of pollinators, amphibians, nesting birds, and soil invertebrates.
Runoff and Water Pollution	Disturbed soil surfaces increase risk of sediment and nutrient runoff into the Cregganna Marsh SPA, particularly given its marsh hydrology.
Hydrological Disruption	The site modification may have altered micro-drainage, removal may increase waterlogging or downstream flooding impacts.
Indirect Impacts on SPA	Noise, machinery operation, and potential waterborne sedimentation can directly affect the sensitive hydrology and flora of the SPA.

Table 2: Identified potential impact types and their description.

Having considered the proximity of the soil infill site to the SPA, the type of habitats and species present, and the potential mechanisms for impact, it is not possible to rule out significant effects on the qualifying interest of the SPA without further assessment.

Pathway for Impact	Likely Significant Effect
Sediment and nutrient runoff to marsh	Yes
Hydrological alteration affecting wetland balance	Yes
Disturbance from removal operations	Yes
Habitat buffer loss (loss of ecotone or transitional area)	Yes

Table 3: Pathways for identified impact types and the likely significant effects.

Therefore, the current state of the site provides valuable biodiversity function and a buffer to the SPA, so avoidance of soil removal is recommended. It should not be disturbed without further scientific assessment. The current notice of enforcement to remove filled soil from these lands in close proximity to Cregganna Marsh SPA would appear to pose clear risks to the ecological integrity of the SPA, particularly in terms of sedimentation, runoff, and disturbance.

As per Article 6(3) of the Habitats Directive, Appropriate Assessment is required prior to any approval or continuation of enforcement action involving site works. An ecological retention proposal is recommended, including a habitat management plan, continued monitoring of water quality and vegetation, and commitment to avoid additional soil deposition. In this regard, a collaborative approach with Galway County Council and their biodiversity officer can help identify a compatible resolution in nature conservation and enhancement terms.

6. Conclusions and Recommendations

6.1 Summary of Assessment

This remedial Natura Impact Statement report has provided an assessment of the background and methods to this report, including desktop studies and information gathered through site surveys and habitat analysis. It outlines the EU legislation related to this document. It provides a description of the soil infill works, including the site location and description of the site boundaries and surrounding area. The document has identified and described all the designated European sites within the likely zone of impact. Finally, it provides an assessment of any cumulative or in-combination effects, and potential direct or indirect effects on the designated European sites under consideration.

6.2 Determination of Potential Impacts and Recommendations

The importation of approximately 230 loads of topsoil onto the 1.4255 hectare site has been undertaken with an emphasis from the applicant on environmental stability, ecological

enhancement, and compliance with biodiversity protection principles. The site, now supporting a structured planting of native tree species, in addition to large areas of semi-natural grassland, scrub and bramble, demonstrates a stable land surface underpinned by dense root systems that prevent erosion, sediment loss, or surface runoff.

The site lies in proximity to the Cregganna Marsh SPA, designated under the EU Habitats and Birds Directives for the protection of wetland habitats and Annex I bird species. The works carried out do not result in any direct, indirect, or cumulative impacts on the qualifying interests of these European sites. The works undertaken do not contribute to any transfer of silt, nutrients, or contaminants to the protected area through the stream/drain or otherwise. The development contributes positively to objectives of the Galway County Development Plan 2022–2028, in particular:

- Objective NHB 1 – The project of works now supports the protection, conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of designated European sites;
- Objective NHB 3 – This is not a project giving rise to significant cumulative, direct, indirect or secondary impacts on designated European sites;
- Objective NHB 5 – These works support the protection and enhancement of biodiversity and ecological connectivity in non-designated sites. The subject site now forms part of the ecological network, and may also be considered as an ecological corridor in the context of Article 10 of the Habitats Directive.

Given the current condition of the site with stabilised soil, no observed negative environmental effects, and demonstrable ecological benefit through afforestation and grassland development, it is submitted that the works are consistent with good environmental practice, do not compromise Natura 2000 network objectives, and align with local and national planning policy in terms of the policies highlighted above.

In light of the demonstrated environmental stability, the absence of adverse impacts on nearby designated European sites, and the clear contribution to local biodiversity and landscape enhancement, it is submitted that enforcement action to remove the imported soil would be both disproportionate and counterproductive. Such action would risk disturbing an already stabilised and ecologically functional site, potentially generating erosion or habitat loss where none currently exists. Rather than remedying harm, enforcement in this instance would undermine the environmental, ecological, and planning policy gains already achieved on the site.

Therefore, it is concluded that the infill work subject to retention, by itself or in combination with other development in the vicinity, is not deemed to have any significant negative effects on the designated European sites under consideration, their qualifying interests or conservation objectives. Instead, the established ecological condition of the site itself should have a positive impact on biodiversity and habitats in the locality and support the Cregganna Marsh SPA in this respect.

Appendix I: Biodiversity Project Implemented by the Applicant

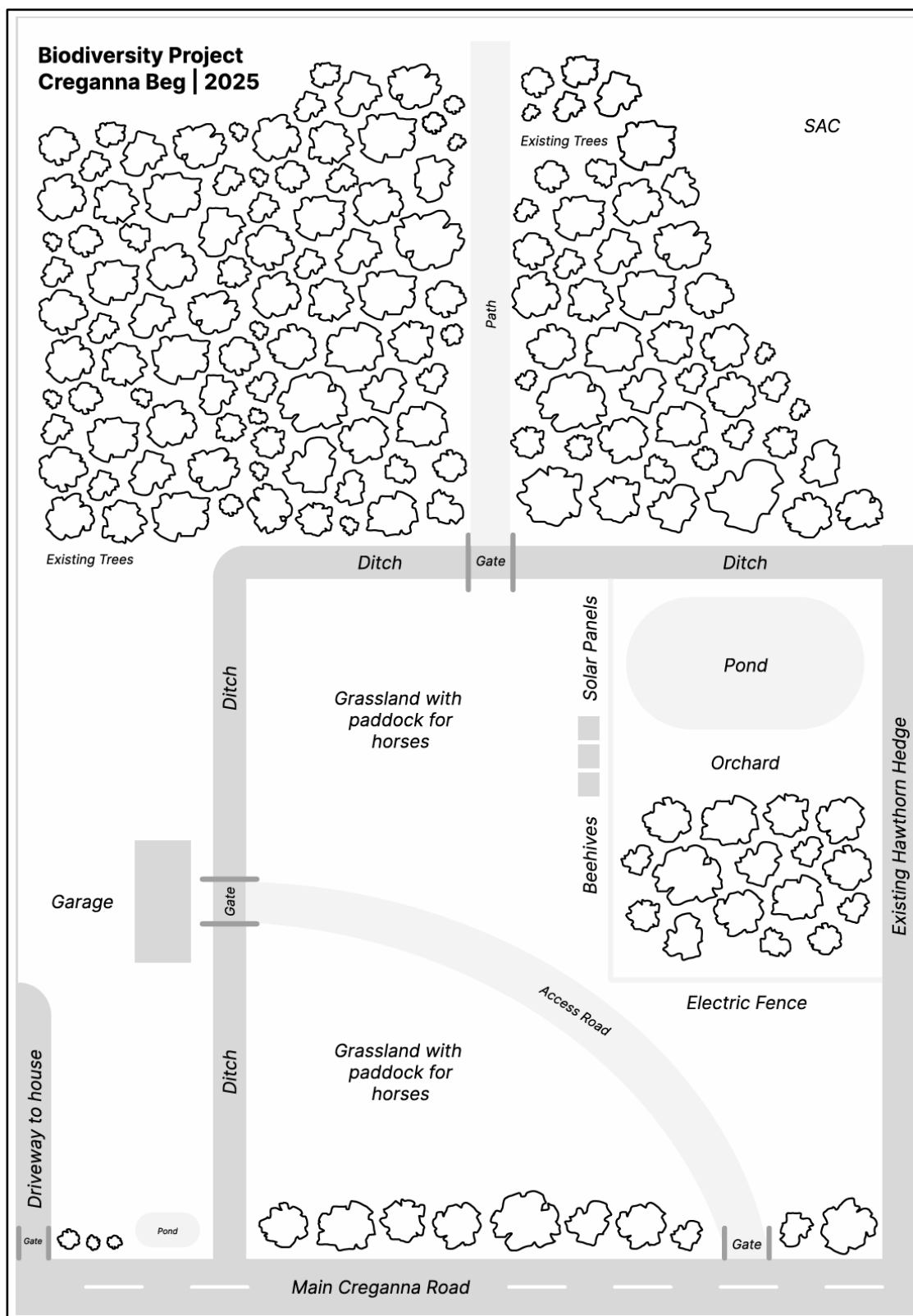


Figure 11: Biodiversity Project Implemented by the Applicant, with areas of extensive tree planting.

Appendix II: Selection of tree species, plants, and animals observed on site



Figure 12: *Tilia Cordata* (Lime Tree) (image provided by applicant).



Figure 13: *Alios Balsomea* (Balsam fir) (image provided by applicant)



Figure 14: *Rana temporaria* (Common Frog) (image provided by applicant)



Figure 15: *Sciurus vulgaris* (Red Squirrel) (image provided by applicant)



Figure 16: *Phasianus colchicus* (Pheasants) (image provided by applicant)



Figure 17: *Vicia Cracca* (Cow Vetch) (image provided by applicant)

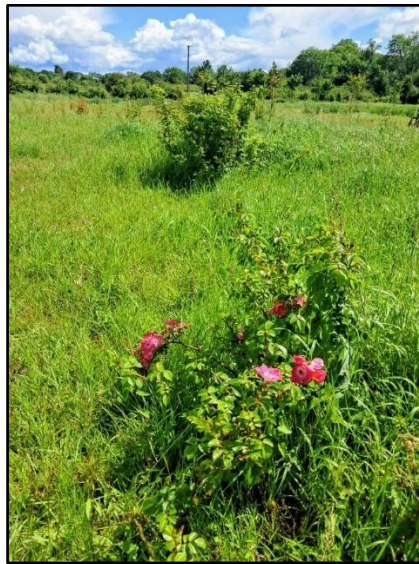


Figure 18: *Rosa Canina* (Dog Rose) (image provided by applicant)



Figure 19: *Helionthus Annuus* (Sunflower) (image provided by applicant)

Appendix III: Qualifying Interests, Conservation Objectives and Site Synopses of Designated European Sites

This section shows the qualifying interests, conservation objectives, and the site synopses of each designated Special Protection Area (SPA) and Special Conservation Area (SAC) within 15km of the subject site.

Cregganna Marsh SPA [site code: 004142]

Qualifying Interest

Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]

Site Synopsis

Cregganna Marsh is situated about 3 km south of Oranmore, to the west of the Galway - Ennis road. The predominant habitats on the site are lowland wet grassland and improved grassland, but areas of limestone pavement and other exposed rock, Hazel (*Corylus avellana*) scrub, freshwater marsh, drainage ditches and dry grassland are also represented. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Greenland White-fronted Goose.

The site is of major conservation importance as a feeding site for a nationally important flock of Greenland White-fronted Goose (157 – 5 year mean peak between 1994/95 and 1998/99). The birds using this site form part of the Rahasane flock. Cregganna Marsh SPA is of ornithological importance because it is regularly utilised by a nationally important flock of Greenland White-fronted Goose, a species listed on Annex I of the E.U. Birds Directive.

Lough Fingall Complex SAC [site code: 000606]

Qualifying Interests

Turloughs [3180] Alpine and Boreal heaths [4060]

Juniperus communis formations on heaths or calcareous grasslands [5130]

Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]

Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]

Limestone pavements [8240] *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]

Conservation Objectives

3180 Turloughs

To restore the favourable conservation condition of Turloughs* in Lough Fingall Complex SAC, which is defined by a stated list of attributes and targets.

4060 Alpine and Boreal heaths

To maintain the favourable conservation condition of Alpine and Boreal heaths in Lough Fingall Complex SAC, which is defined as a stated list of attributes and targets.

5130 *Juniperus communis* formations on heaths or calcareous grasslands

To maintain the favourable conservation condition of *Juniperus communis* formations on heaths or calcareous grasslands in Lough Fingall Complex SAC, which is defined by a stated list of attributes and targets.

6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)(*important orchid sites)

To restore the favourable conservation condition of semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites) in Lough Fingall Complex SAC, which is defined by a stated list of attributes and targets.

7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

To maintain the favourable conservation condition of Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae** in Lough Fingall Complex SAC, which is defined by a stated list of attributes and targets.

8240 Limestone pavements

To maintain the favourable conservation condition of Limestone pavements* in Lough Fingall Complex SAC, which is defined by a stated list of attributes and targets.

1303 Lesser Horseshoe Bat *Rhinolophus hipposideros*

To maintain the favourable conservation condition of Lesser Horseshoe Bat in Lough Fingall Complex SAC, which is defined by a stated list of attributes and targets.

Site Synopsis

This site is situated immediately south-east of Ballindeereen in Co. Galway, and within 2-3 km of Galway Bay. It is within the stretch of flat low-lying bare limestones known as the Ardahan limestones, which extend from the foot of the Burren hills northwards towards Craughwell. The site comprises a complex of habitats, the dominant being turloughs and limestone pavement.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [3180] Turloughs* [4060] Alpine and Subalpine Heaths [5130] Juniper Scrub [6210] Orchid-rich Calcareous Grassland* [7210] Cladium Fens* [8240] Limestone Pavement* [1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*).

The turloughs at this site are oligotrophic (nutrient-poor) and calcareous in character. Their catchment areas are relatively small and water tends to remain in them for considerable periods of time. The surface waters usually occupy distinct separate basins in most years but during extreme floods these can be linked together as one large expanse of open water. Taken together these turloughs represent one of the largest expanses of oligotrophic turlough vegetation in the country. Ballinderreen turlough occupies a flat limestone pavement basin and supports extensive areas of Black Bog-rush (*Schoenus nigricans*) and sedge (*Carex* spp.) fen vegetation.

Marl ponds occur in the lower lying parts, with Shoreweed (*Littorella uniflora*), Bulbous Rush (*Juncus bulbosus*), Many-stalked Spike-rush (*Eleocharis multicaulis*), Alternate Water-milfoil (*Myriophyllum alternifolium*), along with a little Horned Pondweed (*Zannichellia palustris*) and stonewort (*Chara hispida* var. *major*). Rare plants found at this turlough include Fen Violet (*Viola persicifolia*), a Red Data Book species, Water Germander (*Teucrium scordium*) and Marsh Fern (*Thelypteris palustris*).

A smaller area to the south-east of Ballinderreen, Frenchpark turlough, contains a Black Bog-rush/Purple Moor-grass (*Molinia caerulea*) stand with patches of Great Fensedge (*Cladium mariscus*) within it. Cuiltooish turlough is of linear shape with a high central section. It has level limestone pavement forming its eastern side and is aligned and lies parallel with Lough Fingall, which is effectively also a turlough.

There is much Buckthorn (*Rhamnus catharticus*) scrub here and at the northern end of the main lake. Carraghadoo turlough has a shallow basin without standing water in summer and with less peat. Creeping Willow (*Salix repens*) and Common Sedge (*Carex nigra*) are the main species here. The shores of Tullaghnafrankagh Lough flood during winter and have a similar, if slightly more eutrophic (nutrient-rich), vegetation.

Alder Buckthorn (*Frangula alnus*), a Red Data Book species, grows on sloping limestone pavement close to the limit of winter flooding in several places. Limestone pavement occurs throughout the site. It varies from the classic bare open pavement, with little vegetation, to pavement and shattered limestone blocks interspersed with calcareous grassland, heath, turlough and scrub.

A rich and diverse flora occurs, with many of the typical Burren species represented - Bloody Crane's-bill (*Geranium sanguineum*), Herb-Robert (*G. robertianum*), Rustyback (*Ceterach officinarum*), Burnet Rose (*Rosa pimpinellifolia*) and Wood Sage (*Teucrium scorodonia*), along with some rarer species such as Spring Gentian (*Gentiana verna*) and Mountain Avens (*Dryas octopetala*). Orchid species present in areas of calcareous grassland at the site include Fly Orchid (*Ophrys insectifera*), Lesser Butterfly-orchid (*Platanthera bifolia*), Early-purple Orchid (*Orchis mascula*) and several *Dactylorhiza* species.

In the past, the scarce Denseflowered Orchid (*Neotinea maculata*) has been recorded from the site. Lough Fingall, Cloghballymore Lough and Cahernalinsky Lough are shallow infilling lakes with stands of Great Fen-sedge and other fen and wetland vegetation such as Common Reed (*Phragmites australis*) and Tufted-sedge (*Carex elata*). Juniper scrub and lowland alpine heath occur in close association with one another.

The juniper scrub is dominated by Juniper (*Juniperus communis*), with Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and rose (*Rosa* spp.) species. Lowland alpine heath is characterised by Bearberry (*Arctostaphylos uva-ursi*) and Mountain Avens, a rare vegetation type known from a few areas in the Burren, the Lough Fingall area and the Moycullen area near Lough Corrib.

Cloghballymore House provides a summer breeding site for the Lesser Horseshoe Bat, a species listed on Annex II of the E.U. Habitats Directive. The bats use the large roof space, although a smaller number roost in a boiler house, gaining access by means of gaps around the pipes. The surrounding mixed woods provide suitable foraging habitat within a short radius of the day roost site. In 1993 more than 200 bats were counted at this site, which makes it of international importance. The site is of local importance for wintering waterfowl, particularly Lapwing (max. count 381 in 1995/96), with 6 breeding pairs recorded in 1996. Some scarce invertebrate species have been recorded from the Lough Fingall area.

The main land use in the site is cattle grazing, which is mostly of light to moderate intensity. Clearance of limestone pavement and scrub has taken place in the past and burning is a threat to the heath habitats. A drainage scheme to relieve exceptional flooding has been implemented recently. There are no immediate threats facing the bat population. This site is of great conservation importance for the presence of six E.U. Habitats Directive habitats, including four priority habitats. The transitions and gradations between habitats, for example between turloughs, lakes and limestone pavement, gives rise to a range of physical conditions that favour many uncommon species. In addition, the site supports an internationally important population of Lesser Horseshoe Bats.

Inner Galway Bay SPA [site code: 004301]

Qualifying Interests

Black-throated Diver (*Gavia arctica*) [A002] Great Northern Diver (*Gavia immer*) [A003]
Cormorant (*Phalacrocorax carbo*) [A017] Grey Heron (*Ardea cinerea*) [A028]
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Wigeon (*Anas penelope*) [A050]
Teal (*Anas crecca*) [A052] Red-breasted Merganser (*Mergus serrator*) [A069]
Ringed Plover (*Charadrius hiaticula*) [A137] Golden Plover (*Pluvialis apricaria*) [A140]
Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina*) [A149]
Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160]
Redshank (*Tringa totanus*) [A162] Turnstone (*Arenaria interpres*) [A169]
Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Common Gull (*Larus canus*) [A182]
Sandwich Tern (*Sterna sandvicensis*) [A191] Common Tern (*Sterna hirundo*) [A193]
Wetland and Waterbirds [A999]

Conservation Objectives

To maintain the favourable conservation condition of numerous bird species shown below in Inner Galway Bay SPA, which is defined by a stated list of attributes and targets.

A003	Great Northern Diver	<i>Gavia immer</i>	A017	Cormorant	<i>Phalacrocorax carbo</i>
A028	Grey Heron	<i>Ardea cinerea</i>	A046	Brent Goose	<i>Branta bernicla hrota</i>
A050	Wigeon	<i>Anas Penelope</i>	A052	Teal	<i>Anas crecca</i>
A056	Shoveler	<i>Anas clypeata</i>	A069	Red-breasted Merganser	<i>Mergus serrator</i>
A137	Ringed Plover	<i>Charadrius hiaticula</i>	A140	Golden Plover	<i>Pluvialis apricaria</i>
A142	Lapwing	<i>Vanellus vanellus</i>	A149	Dunlin	<i>Calidris alpina alpina</i>
A157	Bar-tailed Godwit	<i>Limosa lapponica</i>	A160	Curlew	<i>Numenius arquata</i>
A162	Redshank	<i>Tringa totanus</i>	A169	Turnstone	<i>Arenaria interpres</i>

A179	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	A182	Common Gull	<i>Larus canus</i>
A191	Sandwich Tern	<i>Sterna sandvicensis</i>	A193	Common Tern	<i>Sterna hirundo</i>
A999	Wetlands				

Site Synopsis

Inner Galway Bay SPA is a very large, marine-dominated site situated on the west coast of Ireland. The inner bay is protected from exposure to Atlantic swells by the Aran Islands and Black Head. Subsidiary bays and inlets (e.g. Poul-na-clough, Aughinish and Kinvarra Bays) add texture to the patterns of water movement and sediment deposition, which lends variety to the marine habitats and communities. The terraced Carboniferous (Viséan) limestone platform of the Burren sweeps down to the shore and into the sublittoral. The long shoreline is noted for its diversity, and comprises complex mixtures of bedrock shore, shingle beach, sandy beach and fringing salt marshes. Intertidal sand and mud flats occur around much of the shoreline, with the largest areas being found on the sheltered eastern coast between Oranmore Bay and Kinvarra Bay.

A number of small islands and rocky islets in the Bay are included within the site. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Black-throated Diver, Great Northern Diver, Cormorant, Grey Heron, Light-bellied Brent Goose, Wigeon, Teal, Redbreasted Merganser, Ringed Plover, Golden Plover, Lapwing, Dunlin, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull, Common Gull, Sandwich Tern and Common Tern.

The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Inner Galway Bay supports an excellent diversity of wintering wetland birds, with divers, grebes, cormorants, dabbling duck, sea duck and waders all well represented.

There are internationally important wintering populations of Great Northern Diver (88) and Light-Bellied Brent Goose (676) and nationally important wintering populations of an additional sixteen species i.e. Black-throated Diver (36), Cormorant (266), Grey Heron (102), Wigeon (1,168), Teal (700), Red-breasted Merganser (249), Ringed Plover (335), Golden Plover (2,030), Lapwing (3,969), Dunlin (2,155), Bartailed Godwit (447), Curlew (697), Redshank (505), Turnstone (182), Black-headed Gull (1,941) and Common Gull (1,066) - all figures given are five year mean peaks for the seasons 1995/96 to 1999/2000. Of note is that the populations of Red-breasted Merganser and Ringed Plover represent 6.8% and 2.3% of the respective all-Ireland totals.

Other species which occur in notable numbers include Little Grebe (35), Long-tailed Duck (21), Scaup (44) and Herring Gull (216). In addition, the following species also use the site: Great Crested Grebe (16), Mallard (200), Common Scoter (87), Oystercatcher (576), Grey Plover (60), Black-tailed Godwit (46), Mute Swan (150) and Great Black-backed Gull (129). The site provides both feeding and roost sites for most of the species. Little Egret, a species which has recently colonised Ireland, also occurs at this site.

The site has several important populations of breeding birds, most notably colonies of Sandwich Tern (81 pairs in 1995) and Common Tern (98 pairs in 1995 on Green Island and 46 pairs in 2001 on Mutton Island). A large Cormorant colony occurs on Deer Island - this had 200 pairs in 1985 and 300 pairs in 1989.

Inner Galway Bay SPA is of high ornithological importance with two wintering species having populations of international importance and a further sixteen wintering species having populations of national importance. The breeding colonies of Sandwich Tern, Common Tern and Cormorant are also of national importance. Also of note is that six of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e. Black-throated Diver, Great Northern Diver, Golden Plover, Bar-tailed Godwit, Sandwich Tern and Common Tern. Inner Galway Bay is a Ramsar Convention site and part of the Inner Galway Bay SPA is a Wildfowl Sanctuary.

Galway Bay Complex SAC [site code: 000268]

Qualifying Interests

Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150]

Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220]

Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]

Salicornia and other annuals colonising mud and sand [1310]

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]

Mediterranean salt meadows (*Juncetalia maritimi*) [1410]

Turloughs [3180] *Juniperus communis* formations on heaths or calcareous grasslands [5130]

Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]

Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]

Alkaline fens [7230] Limestone pavements [8240] *Lutra lutra* (Otter) [1355]

Phoca vitulina (Harbour Seal) [1365]

Conservation Objectives

1140 Mudflats and sandflats not covered by seawater at low tide

To maintain the favourable conservation of mudflats and sandflats not covered by seawater at low tide in Galway Bay Complex SAC, which is defined by a stated list of attributes and targets.

1150 Coastal lagoons

To restore the favourable conservation condition of coastal lagoons in Galway Bay Complex SAC, which is defined by a stated list of attributes and targets.

1160 Large shallow inlets and bays

To maintain the favourable conservation condition of large shallow inlets and bays in Galway Bay Complex SAC, which is defined by a stated list of attributes and targets.

1170 Reefs

To maintain the favourable conservation condition of reefs in Galway Bay Complex SAC which is defined by a stated list of attributes and targets.

1220 Perennial vegetation of stony banks

To maintain the favourable conservation condition of Perennial vegetation of stony banks in Galway Bay Complex SAC, which is defined by a stated list of attributes and targets.

1310 Salicornia and other annuals colonising mud and sand

To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in Galway Bay Complex SAC, which is defined by a stated list of attributes and targets.

1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

To restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Galway Bay Complex SAC, which is defined by a stated list of attributes and targets.

1410 Mediterranean salt meadows (*Juncetalia maritimi*)

To restore the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Galway Bay Complex SAC, which is defined by a stated list of attributes and targets.

Site Synopsis

Situated on the west coast of Ireland, this site comprises the inner, shallow part of a large bay which is partially sheltered by the Aran Islands. The Burren karstic limestone fringes the southern sides and extends into the sublittoral. West of Galway city the bedrock geology is granite. There are numerous shallow and intertidal inlets on the eastern and southern sides, notably Muckinish, Aughinish, and Kinvarra Bays.

A number of small islands composed of glacial deposits are located along the eastern side. These include Eddy Island, Deer Island, and Tawin Island. A diverse range of marine, coastal and terrestrial habitats, including several listed on Annex I of the E.U. Habitats Directive, occur within the site, making the area of high scientific importance.

Galway Bay South holds a very high number of littoral communities. They range from rocky terraces, to sandy beaches with rock or sand dunes behind. The intertidal sediments of Galway Bay support good examples of communities that are moderately exposed to wave action. A well-defined talitrid zone in the upper shore gives way to an intertidal, mid shore zone with sparse epifauna or infauna. On the lower, flat part of the shore, the tubes of the deposit-feeding terebellid worm, *Janicea conchilega*, are common on the surface.

Nereid and cirratulid polychaete worms (*Hediste diversicolor*, *Arenicola marina*), small crustaceans and bivalves (*Angulus tenuis*, *Cerastoderma edule* and *Macoma balthica*) are present. The area has the country's only recorded example of the littoral community characterised by *Fucus serratus* with sponges, ascidians and red seaweeds on tide-swept lower eulittoral mixed substrata. This community has very high species richness (85 species), as do the sublittoral fringe communities on the Finavarra reef (88 species). The rare Purple Sea Urchin *Paracentrotus lividus* and the foliose red alga *Phyllophora sicula* are present at Finavarra, whereas the red alga *Rhodomyenia delicatula* and the rare brown alga, *Ascophyllum nodosum* var. *mackii*, occur in Kinvarra and Muckinish Bays. Sublittorally, the area has a number of distinctive and important communities.

Of particular note is that Ireland's only reported piddock (*bivalve mollusc*) bed thrives in the shallows of Aughinish Bay. The rare sponge, *Mycale contarenii*, is also found here. There is further interest in an extensive maerl bed of *Phymatolithon calcareum* which occurs in the strong tidal currents of Muckinish Bay. There is also maerl off Finavarra Point and in Kinvarra Bay (*Lithothamnion*

corallioides, *Lithophyllum dentatum* and *Lithophyllum fasciculatum*). An oyster bed in Kinvarra Bay and seagrass (*Zostera* spp.) beds off Finavarra Point are also important features. Other significant habitats which occur include secondary maerl beds and communities strongly influenced by tidal streams.

Saltmarshes are frequent within this extensive coastal site, with both E.U. Habitats Directive types. 'Atlantic Salt Meadow' and 'Mediterranean Salt Meadow' well represented. Most of the saltmarshes are classified as the bay type, with the substrate being mud or mud/sand. There is one lagoon type and one estuary type. Lagoon saltmarshes are the rarest type found in Ireland. The best examples of saltmarsh are located in inner Galway bay, east of a line running between Galway city and Kinvarra.

In this area the coastline is highly indented, thus providing the sheltered conditions necessary for extensive saltmarsh development. Common saltmarsh species include Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*), Common Scurvygrass (*Cochlearia officinalis*), Lax-flowered Sea-lavender (*Limonium humile*), Common Saltmarsh-grass (*Puccinellia maritima*), Saltmarsh Rush (*Juncus gerardi*) and Sea Rush (*Juncus maritimus*).

On the lower levels of the saltmarshes and within pans there occurs Glasswort (*Salicornia europaea* agg.). A noteworthy feature of the saltmarsh habitat within this site is the presence of dwarfed brown seaweeds in the vegetation. These are also known as "turf fucoids" and typical species include *Fucus* spp., *Ascophyllum nodosum* and *Pelvetia canaliculata*. A number of locally rare vascular plant species also grow in saltmarsh areas within the site. These include Reflexed Saltmarsh-grass (*Puccinellia distans*) and Sea-purslane (*Halimione portulacoides*), which are both relatively rare in the western half of the country.

Shingle and stony beaches can be found throughout the site, with the best examples along the more exposed shores to the south and west of Galway city and to the north and east of Finavarra, Co. Clare. In general, these shingle shorelines are sparsely vegetated and frequently occur interspersed with areas of sandy beach and/or bedrock shore. The associated flora is dominated by plant species of frequently disturbed maritime habitats. To the south and west of Galway city, typical plants include Curled Dock (*Rumex crispus*), Common Couch (*Elymus repens*), Sea Sandwort (*Honkenya peploides*), Sea Beet (*Beta vulgaris* subsp. *maritima*), Sea Mayweed (*Matricaria maritima*), Silverweed (*Potentilla anserina*) and Oraches (*Atriplex* spp.). Two rare plant species are associated with the habitat: Henbane (*Hyoscyamus niger*), a threatened species listed in the Irish Red Data Book, grows on shingle beach to the south of Lough Atalia; there are also old records for the threatened plant species Sea-kale (*Crambe maritima*).

Soft coastal cliffs reaching heights in excess of 10m occur at Rusheen. These support coastal grassland with very sparse vegetation cover. Species recorded include Sea Plantain (*Plantago maritima*), Creeping Bent (*Agrostis stolonifera*), False Oat-grass (*Arrhenatherum elatius*), Cock's Foot (*Dactylis glomerata*), Red Fescue, Common Bird's-foot-trefoil (*Lotus corniculatus*), and the lichens *Ramalina* sp. and *Xanthoria parietina*. They are considered highly representative of the rarer soft type of sea cliffs in Ireland.

An excellent range of lagoons of different types, sizes and salinities occurs within the site. This habitat is given priority status on Annex I of the E.U. Habitats Directive. One unusual type of lagoon, karstic rock lagoon, is particularly well represented. This type of lagoon is common on the Aran Islands, but on mainland Ireland, all but one are confined to this site. Additionally, the best example of all karstic lagoons in the country, Lough Murree, is found at this site.

The flora of the habitat is rich and diverse, reflecting the range of salinities in the different lagoons. It is typically brackish, with two species of Tasselweed (*Ruppia* spp.), two Red Data charophytes *Chara canescens* and *Lamprothamnion papulosum*, and *Chaetomorpha linum*, an alga (all lagoonal specialists). The fauna of the lagoon is also rich, diverse and lagoonal. At least 10 lagoonal specialist species were recorded in 1996 and 1998 from the combined habitat of all the lagoons, which is one of the highest number for any lagoonal habitat in the country. Many of the species appear to be rare. The lagoons within this site are excellent examples of the habitat type and of high conservation importance.

Inner Galway Bay provides extensive good quality habitat for Common Seal (maximum count of 317 in the all-Ireland survey of 2003). This species is listed on Annex II of the E.U. Habitats Directive. The seals use a range of haul-out sites distributed through the bay – these include inner Oranmore Bay, Rabbit Island, St. Brendan's Island, Tawin Island, Kinvarra Bay, Aughinish Bay and Ballyvaughan. The site provides optimum habitat for otter, also an Annex II-listed species.

Galway Bay is a very important ornithological site. The shallow waters provide excellent habitat for Great Northern Divers (35), Black-throated Divers (28), Scaup (39), Long-tailed Duck (27) and Red-breasted Merganser (232). Figures given are peak average maxima over the three winters 1994/95 to 1996/97. All of these populations are of national importance. The intertidal areas and shoreline provides feeding and roosting habitat for wintering waterfowl, with Brent Goose (517) having a population of international importance and a further 11 species having populations of national importance.

Four of the regular wintering species are listed on Annex I of the E.U. Birds Directive – Golden Plover, Bat-tailed Godwit and the two diver species. Breeding birds are also of importance, with significant populations of Sandwich Terns (81 pairs in 1995) and Common Terns (99 pairs in 1995), both also being listed on Annex I of the E.U. Birds Directive. A large Cormorant colony (approximately 300 pairs in 1989) occurs on Deer Island.

Fishing and aquaculture are the main commercial activities within the site. A concern is that sewage effluent and detritus of the aquaculture industry could be deleterious to benthic communities. Reef and sediment communities are vulnerable to disturbance or compaction from tractors accessing oyster trestles. The *Paracentrotus lividus* populations have been shown to be vulnerable to over-fishing. Extraction of maerl in Galway Bay is a threat. Owing to the proximity of Galway city, shoreline and terrestrial habitats are under pressure from urban expansion and recreational activities. Eutrophication is probably affecting some of the lagoons and is a continued threat. Drainage is a general threat to the turlough and fen habitats. Bird populations may be disturbed by aquaculture activities.

This large coastal site is of immense conservation importance, with many habitats listed on Annex I of the E.U. Habitats Directive, four of which have priority status (lagoon, Cladium fen, turlough and orchid-rich calcareous grassland). The examples of shallow bays, reefs, lagoons, and saltmarshes found within this site are amongst the best in the country. The site supports an important Common Seal colony and a breeding Otter population (Annex II species), and six regular Annex I E.U. Birds Directive species. The site also has four Red Data Book plant species, plus a host of rare or scarce marine and lagoonal animal and plant species.

Rahasane Turlough SPA [site code: 004089]

Qualifying Interests

Whooper Swan (*Cygnus cygnus*) [A038]

Wigeon (*Anas penelope*) [A050]

Golden Plover (*Pluvialis apricaria*) [A140]

Black-tailed Godwit (*Limosa limosa*) [A156]

Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395] Wetland and Waterbirds [A999]

Conservation Objectives

To maintain or restore the favourable conservation condition of the wetland habitat at Rahasane Turlough SPA as a resource for the regularly-occurring migratory water birds that utilise it.

Site Synopsis

Rahasane Turlough lies in gently undulating land, approximately 2 km west of Craughwell, Co. Galway. It consists of two basins which are connected at times of flood but separated as the waters recede. The larger of these, the northern basin, takes the Dunkellin River westwards. Rahasane was formerly the natural sink of the Dunkellin River, but now an artificial channel takes some of the water further downstream.

Water escapes the artificial channel to sweep around the northern basin, and again in the west, where it flows into an active swallow hole system. Some minor collapses are found elsewhere in the turlough, as well as a small number of more permanent pools. The substrate consists largely of silty clay.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation importance for the following species: Whooper Swan, Greenland White-fronted Goose, Wigeon, Golden Plover and Black-tailed Godwit. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Water birds.

Rahasane is a traditional site for Greenland White-fronted Goose, and supports a population of national importance (157 individuals - five year mean peak for the period 1994/95 to 1998/99). It is of international importance for Black-tailed Godwit (437 - all figures are five year mean peaks for the period 1995/96 to 1999/2000). It also has nationally important populations of Whooper Swan (165), Wigeon (3,430), and Golden Plover (6,613).

The site has the largest inland population of Dunlin (864) in the country and also supports Mute Swan (57), Teal (307), Mallard (142), Pintail (19), Shoveler (28), Tufted Duck (32), Grey Heron (31), Lapwing (2,220), Curlew (197), Redshank (134) and Black-headed Gull (280). Little Egret, a species which has recently colonised Ireland, also occurs at this site. Rahasane Turlough SPA is of high ornithological importance; it supports nationally important populations of four species and an internationally important population of one.

The Wigeon and Golden Plover populations are of particular note as they each represent approximately 4% of the All-Ireland totals of these species. The regular occurrence of Greenland White-fronted Goose, Whooper Swan and Golden Plover is of note as these species are listed on Annex I of the E.U. Birds Directive.

Ardrahan Grassland SAC [site code: 002244]

Qualifying Interests

Alpine and Boreal heaths [4060]

Juniperus communis formations on heaths or calcareous grasslands [5130]

Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] Limestone pavements [8240]

Conservation Objectives

4060 Alpine and Boreal heaths

To maintain the favourable conservation condition of Alpine and Boreal heaths in Ardrahan Grassland SAC, which is defined by a stated list of attributes and targets.

5130 *Juniperus communis* formations on heaths or calcareous grasslands

To restore the favourable conservation condition of *Juniperus communis* formations on heaths or calcareous grasslands in Ardrahan Grassland SAC, which is defined by a stated list of attributes and targets.

8240 Limestone pavements

To maintain the favourable conservation condition of Limestone pavements* in Ardrahan Grassland SAC, which is defined by a stated list of attributes and targets.

Site Synopsis

This site lies immediately west and north of Ardrahan in south Co. Galway. It is dominated by a large flat limestone area with a mosaic of calcareous habitats including limestone pavement, alpine heath, Juniper scrub and species rich dry grasslands. In contrast, the south-west of the site consists of a small marl lake and adjoining fens and marshes, with Juniper heath frequent on the higher ground. Soils associated with limestone pavement are generally thin rendzina; deeper pockets are more mineral rich and support limestone grassland and scrub in places.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [4060] Alpine and Subalpine Heaths [5130] Juniper Scrub [6210] Orchid-rich Calcareous Grassland* [8240] Limestone Pavement* The site contains a good example of limestone pavement, a priority habitat listed on Annex I of the E.U. Habitats Directive, a small though excellent example of the Annex I habitat alpine heath, areas of the Annex I priority habitat orchid-rich calcareous grassland, along with one other Annex I habitat, Juniper scrub.

Of particular note is the abundance of Bearberry (*Arctostaphylos uva-ursi*) and Juniper (*Juniperus communis*) in association with a typical Burren flora including species such as Mountain Avens (*Dryas octopetala*), Spring Gentian (*Gentiana verna*) and various orchid species including Fly Orchid (*Ophrys insectifera*). The southern and western part of the area is of significant interest due to the low intensity of management in the area. Both Mountain Avens and Bearberry alpine heaths occur at this site, where they form a mosaic with Juniper scrub, limestone pavement and calcareous grasslands. This site contains a relatively small but fine example of limestone pavement, which occurs in a mosaic with other habitats.

Common species include Blue Moor-grass (*Sesleria albicans*), Wild Thyme (*Thymus praecox*), Flea Sedge (*Carex pulicaris*), Quaking-grass (*Briza media*), Devil's-bit Scabious (*Succisa pratensis*) and Heather (*Calluna vulgaris*). Pockets of Hazel (*Corylus avellana*) scrub have developed, and there are lesser amounts of Blackthorn (*Prunus spinosa*), Bracken (*Pteridium aquilinum*) and Hawthorn (*Crataegus monogyna*). At the north of the site Juniper scrub forms a dense mat over limestone pavement along with Bearberry and Mountain Avens. Further south it occurs on higher undulating ground over a species rich calcareous heath with Wild Thyme, Carline Thistle (*Carlina vulgaris*), Tormential (*Potentilla erecta*), Bloody Cranesbill (*Geranium sanguineum*), Black Bog-rush (*Schoenus nigricans*), Heather and occasional Bearberry. Areas of orchid-rich calcareous grassland are found across the site, interspersed with areas of scrub, pavement and less species-rich grassland.

At least eleven orchid species have been recorded from the site, many in good numbers. The best areas of grassland are very species rich, and support an excellent suite of calcareous indicators. Species such as Kidney Vetch (*Anthyllis vulneraria*), Squinancywort (*Asperula cynanchica*), Spring-sedge (*Carex caryophyllea*), Glaucus Sedge (*Carex flacca*), Common Knapweed (*Centaurea nigra*), Eyebright (*Euphrasia officinalis* agg.), Lady's Bedstraw (*Galium verum*), Juniper, Rough Hawkbit (*Leontodon hispidus*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Sea Plantain (*Plantago maritima*), Yellow-rattle (*Rhinanthus minor*), Blue Moor-grass, Devil's-bit Scabious and Red Clover (*Trifolium pratense*) have been commonly recorded.

Species such as Mountain Avens and Spring Gentian are also present, and the Flora (Protection) Order, 2015 species Wood Bitter- vetch (*Vicia orobus*), has been recently documented. Many areas of orchid-rich grassland are however becoming swamped and overtaken by Purple Moor-grass (*Molinia caerulea*). Brackloon Lough occurs in the south of the site and is a fine example of a small shallow marl lake, one of very few in this locality.

This open lake has a pronounced whitish appearance and a flora of lime-encrusted Thread-leaved Water-crowfoot (*Ranunculus trichophyllus*) and a little Curled Pondweed (*Potamogeton crispus*) occurs. Shoreweed (*Littorella uniflora*) is locally abundant on the shoreline, where it grows with Many-stalked Spike-rush (*Eleocharis multicaulis*), Pink Water-speedwell (*Veronica catenata*), Lesser Water-plantain (*Baldellia ranunculoides*) and some Amphibious Bistort (*Polygonum amphibium*). Although small, the lake seems in a relatively natural state.

There are two small turloughs present within the site. Both are well grazed and consist of a short-turf peaty vegetation with Common Sedge (*Carex nigra*), Lesser Spearwort (*Ranunculus flammula*), Creeping Buttercup (*Ranunculus repens*) (turlough form), Lesser Marshwort (*Apium inundatum*), Cuckooflower (*Cardamine pratensis*), Marsh Pennywort (*Hydrocotyle vulgaris*) and Water Mint (*Mentha aquatica*), along with Common Marsh-bedstraw (*Galium palustre*), Creeping Bent (*Agrostis stolonifera*), Jointed Rush (*Juncus articulatus*) and Common Spike-rush (*Eleocharis palustris*). Bird species recorded from the site include Snipe, Mute Swan and Curlew. Land use at this site consists mainly of the traditional practise of winter grazing by cattle.

This is a low intensity farming practise generally confined to the Burren in Ireland and one that is vital to the maintenance of the high scientific interest of this site. However, recent agricultural improvement has damaged the scientific interest of part of the site through loss of habitat in the turlough and limestone pavement areas. Intensification of the land usage around Brackloon Lough could lead to a deterioration in the water quality of the lake. A modification of the current grazing regime is needed to help deal with the spread of Purple Moor-grass in the best of the grassland areas of the site. Ardrahan Grassland contains a mosaic of calcareous habitats including good examples of four habitats listed on Annex I of the E.U. Habitats Directive - limestone pavement,

alpine heath, orchid-rich calcareous grassland and Juniper scrub. The presence of a relatively unpolluted marl lake adds further diversity and interest of this important site.

Castletaylor Complex SAC [site code: 000242]

Qualifying Interests

Turloughs [3180] Alpine and Boreal heaths [4060]

Juniperus communis formations on heaths or calcareous grasslands [5130]

Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] Limestone pavements [8240]

Conservation Objectives

3180 Turloughs

To restore the favourable conservation condition of Turloughs in Castletaylor Complex SAC, which is defined by a stated list of attributes and targets.

4060 Alpine and Boreal heaths

To restore the favourable conservation condition of Alpine and Boreal heaths in Castletaylor Complex SAC, which is defined by a stated list of attributes and targets.

5130 *Juniperus communis* formations on heaths or calcareous grasslands

To maintain the favourable conservation condition of *Juniperis communis* formations on heaths or calcareous grasslands in Castletaylor Complex SAC, which is defined by a stated list of attributes and targets.

6120 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites) in Castletaylor Complex SAC, which is defined by a stated list of attributes and targets.

8240 Limestone pavements*

To restore the favourable conservation condition of Limestone pavements* in Castletaylor Complex SAC, which is defined by a stated list of attributes and targets.

Site Synopsis

The Castletaylor Complex is situated approximately 4 km south-east of Kilcolgan in Co. Galway and lies in a gently undulating limestone topography. Although relatively small in area, the site contains a diverse range of habitats. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [3180] Turloughs* [4060] Alpine and Subalpine Heaths [5130] Juniper Scrub [6210] Orchid-rich Calcareous Grassland* [8240] Limestone Pavement* Caranavoodaun turlough dominates the north-western half of the site.

It occupies a shallow basin set among ridges of limestone outcrop and thin glacial drift and is an excellent example of a calcareous and extremely oligotrophic (nutrient-poor) turlough. It has a

limited throughput of water, with a considerable precipitation of marl and some accumulation of peat.

Some stands of Black Bog-rush (*Schoenus nigricans*), with sparse Variegated Horsetail (*Equisetum variegatum*), occur at the upper levels, surrounded by patches of Buckthorn (*Rhamnus catharticus*) and Hawthorn (*Crataegus monogyna*) scrub. To the south-east the scrub includes Ash (*Fraxinus excelsior*), Yew (*Taxus baccata*), Whitebeam (*Sorbus aria*) and Irish Whitebeam (*Sorbus hibernica*).

Below this there is an extensive area of sedge fen vegetation with species such as Tawny Sedge (*Carex hostiana*), Carnation Sedge (*C. panicea*), Purple Moor-grass (*Molinia caerulea*), Meadow Thistle (*Cirsium dissectum*) and Devil's-bit Scabious (*Succisa pratensis*). Along the western and south-western sides the low-lying ground supports a community of Shoreweed (*Littorella uniflora*), Spike-rushes (*Eleocharis palustris* and *E. multiflora*) and Bulbous Rush (*Juncus bulbosus*) growing in shallow water that persists into June.

The deeper pools are colonised by Pondweeds (*Potamogeton gramineus*, *P. polygonifolius* and *P. coloratus*). North of the turlough and to the south of the site there is a mosaic of other habitats. The limestone pavement occurs mainly as scattered boulders with no extensive areas of flat pavement. It has a rich flora with species such as Bloody Crane's-bill (*Geranium sanguinum*), Herb-Robert (*G. robertianum*), Burnet Rose (*Rosa pimpinellifolia*), Wood Sage (*Teucrium scordonia*), Quaking-grass (*Briza media*) and the scarce species Spring Gentian (*Gentiana verna*) and Mountain Avens (*Dryas octopetala*). Limestone pavement breaks through the turlough floor in places, and supports scrub vegetation with Dewberry (*Rubus caesius*), Dog Rose (*Rosa canina*), stunted Ash and Blackthorn (*Prunus spinosa*).

The Red Data book species Alder Buckthorn (*Frangula alnus*) occurs amongst this community. Limestone outcrops also occur within the wooded area of the site. The dry calcareous grassland that occurs amongst the limestone pavement and heath is species-rich, particularly with orchids, including Autumn Lady's tresses (*Spiranthes spiralis*), Early Marsh-orchid (*Dactylorhiza incarnata*), Lesser Butterflyorchid (*Platanthera bifolia*), Fragrant Orchid (*Gymnadenia conopsea*), Broad-leaved Helleborine (*Epipactis helleborine*) and the scarce Dense-flowered Orchid (*Neotinea maculata*).

The heath at this site is characterised by the presence of Juniper (*Juniperus communis*) and Mountain Avens. The presence of Bearberry (*Arctostaphylos uva-ursi*) indicates that some of the heath is similar to the *Arctostaphylos-Dryas* vegetation of the Burren limestone area, a rare lowland alpine type heath. The eastern and much of the southern parts of the site are dominated by dry broadleaved woodland.

Species present include Downy Birch (*Betula pubescens*), Ash, Yew, Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*) and Spindle (*Euonymus europaeus*). Some mature planted conifers are found to the south of the road. The turlough does not hold any significant wintering populations of birds, owing to the extreme oligotrophic conditions. Three pairs of Lapwing bred at the site in 1996.

The main land use within the open areas of the site is light grazing by cattle. Some clearance of scrub within parts of the woodland has caused some damage and is a further threat. This site is of high conservation interest, in particular for the presence in a relatively small area of good examples of five habitats that are listed on Annex I of the E.U. Habitats Directive. The transition from the wetland to the surrounding habitats is particularly well shown.

Qualifying Interests

Turloughs [3180]

Conservation Objectives

3180 Turloughs

To restore the favourable conservation condition of Turloughs in Kiltiernan Turlough SAC, which is defined by a stated list of attributes and targets.

Site Synopsis

Kiltiernan Turlough lies in a linear depression running south-westwards from the main Galway-Limerick road, north-west of Ardrahan in Co. Galway. It has a flattish basin which lies approximately 2 m below road level, and includes about eight further depressions which are joined in times of high water. The site includes a low ridge on the south-eastern side. Towards the west the topography becomes flatter and the basin breaks into separate hollows.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [3180] Turloughs* This site comprises a relatively dry turlough with a limited, though regular, flood in winter. The vegetation is mostly species-poor grassland dominated by White Clover (*Trifolium repens*), Silverweed (*Potentilla anserina*) and Creeping Bent (*Agrostis stolonifera*), with some areas of species-rich grassland found in the western half.

Beside the road, the rocky outcrops support limestone grassland and there are narrow fringes of scrub along each side of the basin. The scrub is predominantly of Blackthorn (*Prunus spinosa*), but some Buckthorn (*Rhamnus catharticus*) and Alder Buckthorn (*Frangula alnus*), a rare Red Data Book species, also occur. The grassland occurring in the main depressions of this site have been modified by trampling and over-grazing. Here the main species found are Northern Bedstraw (*Galium boreale*) and Creeping Cinquefoil (*Potentilla reptans*), which grow in clumps with much Silverweed and Greater Plantain (*Plantago major*). Hollows in this vegetation contain Common Sedge (*Carex nigra*) and Amphibious Bistort (*Polygonum amphibium*).

In the less intensified eastern section of the site the Red Data Book species Fen Violet (*Viola persicifolia*) occurs. Lapwing, Pochard, Teal and Wigeon have been recorded at the site, and other bird species may visit from the nearby Tullaghnafrankagh Lough. Land use on the site comprises grazing, particularly in the eastern half, with some areas of tillage found in the west. Kiltiernan Turlough is an example of a partly modified, relatively dry turlough, without any accumulation of peat. It includes a variety of typical dry turlough vegetation types and is notable for the presence of the rare plant species, Alder Buckthorn and Fen Violet. Turloughs are important habitats that are listed with priority status on Annex I of the E.U. Habitats Directive and, as such, are of considerable conservation significance.

Cahermore Turlough SAC [site code: 002294]

Qualifying Interests

Turloughs [3180]

Conservation Objectives

3180 Turloughs

To restore the favourable conservation condition of turloughs in Cahermore Turlough SAC, which is defined by a stated list of attributes and targets.

Site Synopsis

Cahermore Turlough SAC is situated in the limestone lowlands of south Co. Galway, about 5 km north-west of Gort and 5.5 km south-east of Kinvara. It is part of a series of lakes and turloughs in the region, most of which are Special Areas of Conservation (SACs) or Natural Heritage Areas (NHAs). The nearest is Caherglassaun Turlough, the water levels of which are slightly higher than Cahermore.

The site is mostly covered by drift which is mounded into hillocks in the south-eastern parts. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [3180] Turloughs* The turlough is on the dry end of the spectrum, and there is no standing water in summer except for a few small ponds dug for cattle.

A few collapse features occur in the drift on the southern side with a regular swallow-hole at the edge of the flooded area. Another hole occurs in the south-east corner. The turlough appears to flood largely from the southern side. The site has quite a uniform grassland cover. Creeping Bent (*Agrostis stolonifera*), Rough Meadow-grass (*Poa trivialis*), Smooth Meadow-grass (*Poa pratensis*), Red Fescue (*Festuca rubra*) and Couch Grass (*Elymus repens*) are the main constituents. Hairy Sedge (*Carex hirta*) and Common Sedge (*C. nigra*) are widespread over the site. Marsh Foxtail (*Alopecurus geniculatus*) grows in the southern half.

Pools dug into the drift have a varied flora, some have Pond Water-crowfoot (*Ranunculus peltatus*) and Common Duckweed (*Lemna minor*) while others have Amphibious Bistort (*Polygonum amphibium*), Floating Sweet-grass (*Glyceria fluitans*), Water Forget-me-not (*Myosotis scorpioides*) and Common Spike-rush (*Eleocharis palustris*). Two areas of limestone pavement which are largely scrub-covered occur. The one in the east is grazed by sheep and has grassland plant species such as Wild Thyme (*Thymus praecox*) and Downy Oat-grass (*Avenula pubescens*).

The shrubs on this pavement include Blackthorn (*Prunus spinosa*), Burnet Rose (*Rosa pimpinellifolia*), Juniper (*Juniperus communis*) and the exotic species Small-leaved Cotoneaster (*Cotoneaster microphyllus*). A larger area of turlough scrub in the northern part is impenetrable and consists of Hawthorn (*Crataegus monogyna*), Buckthorn (*Rhamnus catharticus*), Blackthorn and Spindle (*Euonymus europaeus*). There is some Crested Dog's-tail (*Cynosurus cristatus*) grassland on the fringes of this scrub.

The site holds a diverse population of wintering water birds at times of flood. Dunlin are not common inland but occurred throughout the 1998/99 winter season. The following counts were made on 15th December 1998 and, in parentheses, 30th November 2000: Whooper Swan 49 (35); Mute Swan 9 (5); Wigeon 180 (160); Teal 10 (-); Mallard 6 (22); Pochard 86 (12); Tufted Duck - (8); Lapwing 250 (150); Curlew 25 (-); Dunlin 120 (70); Redshank - (4). Bewick's Swan (7, winter 1995/96) and Golden Plover (60) have been recorded. Cahermore Turlough supports a wide range of turlough habitats with well-developed plant communities. The amount and quality of the developing woodland is a special feature of this turlough. Whooper Swan, Bewick's Swan and Golden Plover are listed on Annex I of the E.U. Birds Directive, and their presence at the site adds further to its importance and value.

Ballinduff Turlough SAC [site code: 002295]

Qualifying Interest

Turloughs [3180]

Conservation Objective

3180 Turloughs

To maintain the favourable conservation condition of Turloughs in Ballinduff Turlough SAC, which is defined by a stated list of attributes and targets.

Site Synopsis

Ballinduff Turlough is situated in a narrow basin in the limestone lowlands of south Co. Galway, 5 km north-east of Gort. It is part of the Coole Lough complex of lakes and turloughs, most of which are Special Areas of Conservation (SACs) or Natural Heritage Areas (NHAs). There are rock outcrops around the northern half and glacial drift in the south. There is a low hill to the south outside the site. The boundary in the south-west is the Galway-Limerick railway line. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [3180] Turloughs* The turlough is late-draining and a pool persists into June or July and re-floods easily.

There is a marshy hollow in the middle of the southern section which receives an inflow of water from the south. The hydrology of the site is probably controlled by a complex of swallow holes and subsidence near Coolfin. During floods the turlough drains overland towards Coole Lough. The main habitats on the site are various types of turlough grassland and turlough scrub which are related to the flooding regime.

The turlough grassland types vary. In the wettest parts plant species such as Marsh Horsetail (*Equisetum fluviatile*), Amphibious Bistort (*Polygonum amphibium*) and Common Spike-rush (*Eleocharis palustris*) occur with some Common Club-rush (*Scirpus lacustris subsp. lacustris*). Higher up Long-stalked Yellow-sedge (*Carex lepidocarpa*), Marsh Pennywort (*Hydrocotyle vulgaris*) and Jointed Rush (*Juncus articulatus*) occur on marly rises, while the common community includes Common Sedge (*Carex nigra*), Creeping Bent (*Agrostis stolonifera*), Creeping Cinquefoil (*Potentilla reptans*) and Silverweed (*Potentilla anserina*). There is also a wide band of nutrient-poor grassland with Purple Moor-grass (*Molinia careulea*), Common Sedge, Long-stalked Yellow-sedge and Tawny Sedge (*C. hostiana*).

An unusual feature of the vegetation at this turlough is that Shoreweed (*Littorella uniflora*) is very widespread and prominent throughout the turlough and is present in all of the above plant communities. Low dense woodland which is liable to flood is the other main habitat on the site, mostly along the north-western edge of the basin. Ash (*Fraxinus excelsior*), Buckthorn (*Rhamnus catharticus*) and Hawthorn (*Crataegus monogyna*) are the main constituents, with other shrubs such as Guelder-rose (*Viburnum opulus*) and Spindle (*Euonymus europaeus*).

The vicinity of the swallow-holes has a good woodland edge with tall herbs such as Yellow Loosestrife (*Lysimachia vulgaris*), Dewberry (*Rubus caesius*) and a large colony of Common Meadow-rue (*Thalictrum flavum*). Other habitats include scrub not subject to flooding and the inflowing drain from the south-east which contains abundant water-cress (*Nasturtium sp.*), around which wet

grassland with Sharp-flowered Rush (*Juncus acutiflorus*) occurs. The rest of the site is mainly improved grassland, which is included for water quality protection reasons. In winter, Whooper Swans and Bewick's Swans have been recorded at the site. These feed mainly on improved pasture on Corker Hill to the south, but roost on the open water of the turlough. They are considered to be part of the large swan population that is centred at Coole Lough.

In winters 1996/97 and 1997/98, between 200 and 300 Whooper Swans were recorded, and 10-50 Bewick's Swans. Lower numbers of Whooper Swans occurred in subsequent winters and Bewick's Swans are now rarely recorded in south Galway (a trend reflected throughout Ireland). Both of these swan species are listed on Annex I of the E.U. Birds Directive, and the numbers of Whooper Swans recorded in the above years were of international importance.

Numbers of other waterbirds using the site in winter are low. The rare invertebrate *Eurycercus glacialis* (Order Cladocera), which was first found in Ireland in 1985, occurs at Ballinduff Turlough. In Ireland, the species is seen to be a turlough specialist of the east Galway region, and it is rare elsewhere in Atlantic Europe. Its presence at the site adds to the ecological interest. Grazing intensity on the turlough grassland is very low. Some clearance of dry scrub has taken place recently.

Ballinduff Turlough offers a wide range of turlough habitats with plant communities well-developed and with little grazing. The widespread presence of Shoreweed within different plant communities is an unusual turlough feature. The development of Buckthorn woodland and the swallow-hole vegetation are other unusual features. The presence of a rare turlough invertebrate adds to the ecological interest.

Rahasane Turlough SAC [site code: 000322]

Qualifying Interests

Turloughs [3180]

Conservation Objectives

To maintain the favourable conservation condition of Turloughs in Rahasane Turlough SAC, which is defined by a stated list of attributes and targets.

Site Synopsis

Rahasane Turlough lies in gently undulating land, approximately 2 km west of Craughwell, Co. Galway. It consists of two basins which are connected at times of flood but separated as the waters decline. The larger of these, the northern basin, takes the Dunkellin River westwards. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [3180] Turloughs* Rahasane Turlough was formerly the natural sink of the Dunkellin River, but now an artificial channel takes some of the water further downstream.

Water escapes the artificial channel to sweep around the northern basin, and again in the west, where it flows into an active swallow-hole system. The main swallow-holes here are constantly changing, but reach 5 m in diameter and 2-3 m deep. Some minor collapses are found elsewhere in the turlough, as well as a small number of more permanent pools. Mostly, the edges of the turlough rise gradually into the surrounding land, but in places, rocks mark a more sudden transition. The

southern basin is an impressive feature, with high rocky sides above an undulating base, strewn with boulders.

There is a low hill on the south side of the main basin, and another on the north-east, near Shanbally Castle, where smooth limestone pavement is evident. The major part of the turlough is open, flat and grassy, with occasional depressions and dry channels. The substrate consists largely of silty clay with shell fragments, reaching over 3 m in thickness. Locally in the main basin there are signs of marl, but peat is absent everywhere. Like the southern basin, the eastern end of the main (northern) basin is distinguished by the presence of large rocks scattered over the floor.

The vegetation of Rahasane is divided between dry and wet communities. Because of its large catchment, the turlough is naturally eutrophic and this, together with a lack of peat, limits the sedges (*Carex spp.*) which are usually abundant in turlough vegetation. In places with outcropping limestone, the vegetation is predominantly dry grassland with Red Fescue (*Festuca rubra*) and Crested Dog's-tail (*Cynosurus cristatus*), among a generally calcicole community.

Large areas in the drier parts of the turlough are covered by a community characterised by an abundance of Creeping Cinquefoil (*Potentilla reptans*), with Common Sedge (*Carex nigra*), Silverweed (*Potentilla anserina*) and Creeping Bent (*Agrostis stolonifera*). Where the soil is less well-drained, Creeping Cinquefoil disappears from this community and the rare species, Fen Violet (*Viola persicifolia*), which is listed in the Irish Red Data Book, occurs.

In these areas, the presence of Common Spike-rush (*Eleocharis palustris*) suggests that water is close to the surface. Wet communities are associated with the river channels and pools. Fully aquatic communities include such species as Fan-leaved Water Crowfoot (*Ranunculus circinatus*), Fennel Pondweed (*Potamogeton pectinatus*), Lesser Pondweed (*P. pusillus*), Fat Duckweed (*Lemna gibba*), Whorled Water-milfoil (*Myriophyllum verticillatum*) and Needle Spike-rush (*Eleocharis acicularis*).

Semi-aquatic communities fringe the main channel of the river and colonise muddy pools in the basin. Species such as Lesser Water-parsnip (*Berula erecta*), Fool's Water-cress (*Apium nodiflorum*), River Waterdropwort (*Oenanthe fluviatilis*) and Amphibious Bistort (*Polygonum amphibium*) occur, along with the rare species, Northern Yellow-cress (*Rorippa islandica*), which is listed in the Irish Red Data Book.

There are also some narrow fields with Yellow Iris (*Iris pseudacorus*). There are small areas of scrub on the southern and north-western sides of the turlough, but the area of flooded woodland is small. The scrub is made up of Buckthorn (*Rhamnus cathartica*), Ash (*Fraxinus excelsior*) and Hazel (*Corylus avellana*). The trees support a range of epiphytic mosses such as *Leskea polycarpa*, *Amblystegium riparium*, *Isopterygium elegans*, *Isothecium myosuroides* and *Thuidium tamariscinum*.

Rahasane Turlough is renowned for its wintering wildfowl populations, but it also supports nesting waders in summer, which include Lapwing, Redshank, Snipe and Dunlin. Figures stated in the following account represent mean (and peak) counts obtained during the three seasons, 1984/85 to 1986/87. Internationally important numbers of Whooper Swan 179, Golden Plover 17680, Wigeon 7760 and Shoveler 498 are found. The first two species, together with Bewick's Swan, below, are listed on Annex I of the E.U. Birds Directive.

Species recorded in nationally important numbers are Bewick's Swan 132, Mute Swan 125, Teal 3005, Mallard 777, Pintail 102, Pochard 356, Tufted Duck 381, Coot 1289, Lapwing 3995, Dunlin 3569 (5653), Blacktailed Godwit 170 and Curlew 1205. Small numbers of the internationally important Greenland White-fronted Goose regularly overwinter at Rahasane (average count, as above, 59), but

numbers have been declining over the years. There is a small run of Atlantic Salmon (*Salmo salar*) through the Dunkellin River when it is flowing overground. The fish pass through the turlough but do not use it for spawning.

This species is listed on Annex II of the E.U. Habitats Directive. The Fairy Shrimp (*Tanymastix stagnalis*, Class Crustacea) was first recorded in Ireland from the southern basin at Rahasane, though it has since been recorded elsewhere. It requires isolation from predators to grow to reproductive age and so cannot occur in permanent waterbodies.

The turlough is closely grazed by cattle, sheep and horses. Grazing is a critical factor in maintaining a balance between open swards and woodland development at the edges of the turlough. Drainage is a major threat to turloughs, but the Dunkellin River has not been arterially drained. The river was straightened many years ago where it crosses the turlough, and the artificial channel was dredged again in 1992, but this does not appear to have affected winter flooding.

Some degree of artificial enrichment of the basin is occurring from the farming areas upstream, and local enrichment is associated with grazing practices. Eutrophication is among the major threats to turlough systems in general. Rahasane Turlough is of major ecological significance as one of only two large turloughs in the country which still function naturally. It is the most important turlough in Ireland for birdlife. In a relatively recent national survey, it was also rated very highly for its vegetation, and supports two rare species listed in the Irish Red Data Book. Turloughs are a rare habitat type and are given priority status under Annex I of the E.U. Habitats Directive.

Lough Corrib SAC [site code: 000297]

Qualifying Interests

- 1029 Freshwater Pearl Mussel *Margaritifera margaritifera*
- 1092 White-clawed Crayfish *Austropotamobius pallipes*
- 1095 Sea Lamprey *Petromyzon marinus*
- 1096 Brook Lamprey *Lampetra planeri*
- 1106 Salmon *Salmo salar*
- 1303 Lesser Horseshoe Bat *Rhinolophus hipposideros*
- 1355 Otter *Lutra lutra*
- 1393 Slender Green Feather-moss *Drepanocladus vernicosus*
- 1833 Slender Naiad *Najas flexilis*
- 3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)
- 3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*
- 3140 Hard oligo-mesotrophic waters and benthic vegetation of *Chara* species

3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)(*important orchid sites)

6410 *Molinia meadowson* calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)

7110 Active raised bogs*

7120 Degraded raised bogs still capable of natural regeneration

7150 Depressions on peat substrates of the *Rhynchosporion*

7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae**

7220 Petrifying springs with tufa formation (*Cratoneurion*)*

7230 Alkaline fens

8240 Limestone Pavements*

91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles

91D0 Bog woodland*

Conservation Objectives

3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)

To restore the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) in Lough Corrib SAC, which is defined by the list of attributes and targets under the NPWS webpage: www.npws.ie/sites/default/files/protected-sites/synopsis/SY000297.pdf.

This SAC overlaps with Lough Corrib SPA (site code: 004042).

Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland, with an area of approximately 18,240 hectares (the entire site is 20,556 hectares). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south, and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones to the north. The surrounding lands to the south and east are mostly pastoral farmland, while bog and heath predominate to the west and north. A number of rivers are included in the designation as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan, and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site.

The shallow, lime-rich waters of the southern basin of Lough Corrib support one of the most extensive beds of stoneworts (*Charophytes*) in Ireland, with species such as *Chara aspera*, *C. hispida*,

C. delicatula, *C. contraria* and *C. desmacantha* mixed with submerged pondweeds (*Potamogeton perfoliatus*, *P. gramineus* and *P. lucens*), Shoreweed (*Littorella uniflora*) and Water Lobelia (*Lobelia dortmanna*). These Chara beds are an important source of food for waterfowl. In contrast, the northern basin contains more oligotrophic and acidic waters, without *Chara* species, but with Shoreweed, Water Lobelia, Pipewort (*Eriocaulon aquaticum*), Quillwort (*Isotes lacustris*), Alternate Water-milfoil (*Myriophyllum alternifolium*) and Slender Naiad (*Najas flexilis*). The last-named is listed under the Flora (Protection) Order, 2015, and is an Annex II species under the E.U. Habitats Directive.

Otter and Irish Hare have been recorded regularly within this site. Both of these species are listed in the Red Data Book and legally protected by the Wildlife Act, 1976. Otter is also listed on Annex II of the E.U. Habitats Directive. Lough Corrib is considered one of the best sites in the country for Otter, due to the sheer size of the lake and associated rivers and streams, and also the generally high quality of the habitats. Atlantic Salmon (*Salmo salar*) use the lake and rivers as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the E.U. Habitats Directive. Lough Corrib is also a well-known fishing lake with a very good Trout (*Salmo trutta*) fishery. The lake has a population of Sea Lamprey (*Petromyzon marinus*), a scarce, though probably under-recorded species listed on Annex II of the E.U. Habitats Directive. Brook Lamprey (*Lampetra planeri*), also listed on Annex II, are also known from a number of areas within the site.

A population of Freshwater Pearl Mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs within the site. White-clawed Crayfish (*Austropotamobius pallipes*), also listed on Annex II, is well distributed throughout Lough Corrib and its in-flowing rivers over limestone. A summer roost of Lesser Horseshoe Bat, another Annex II species, occurs within the site – approximately 100 animals were recorded here in 1999.

The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localised eutrophication of the lake, and housing and boating development, which is causing the loss of native lakeshore vegetation. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning. Peat cutting threatens Addergoole Bog and already a substantial area of it has been cut away. Fishing and shooting occur in and around the lake. Introduction of exotic crayfish species or the crayfish fungal plague (*Aphanomyces astaci*) could have a serious impact on the native crayfish population. The bat roost is susceptible to disturbance or development.

Despite these ongoing issues, however, Lough Corrib is one of the best examples of a large lacustrine catchment system in Ireland, with a range of habitats and species still well represented. These include 15 habitats which are listed on Annex I of the E.U. Habitats Directive, six of which are priority habitats, and nine species which are listed on Annex II. The lake is also internationally important for birds and is designated as a Special Protection Area.

Lough Corrib SPA [site code: 004042]

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

Bird Code	Common Name	Scientific Name
A051	Gadwall	<i>Anas strepera</i>
A056	Shoveler	<i>Anas clypeata</i>
A059	Pochard	<i>Aythya farina</i>
A061	Tufted Duck	<i>Aythya fuligula</i>
A065	Common Scoter	<i>Melanitta nigra</i>
A082	Hen Harrier	<i>Circus cyaneus</i>
A125	Coot	<i>Fulica atra</i>
A140	Golden Plover	<i>Pluvialis apricaria</i>
A179	Black-headed Gull	<i>Chroicocephalus ridibundus</i>
A182	Common Gull	<i>Larus canus</i>
A193	Common Tern	<i>Sterna hirundo</i>
A194	Arctic Tern	<i>Sterna paradisaea</i>
A395	Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, "Wetland and Waterbirds" may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest. Thus, a second objective is included as follows: to maintain or restore the favourable conservation condition of the wetland habitat at Lough Corrib SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

