



DDS BRADY FARMS LIMITED

Ecological Baseline Data Report

Report for: Environmental Protection Agency

Ref. P0408-02 Licence Review

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1. INTRODUCTION

Ricardo Energy & Environment Ltd (Ricardo) was appointed by the Environmental Protection Agency (EPA) in July 2022 to prepare on its behalf a Baseline Ecological Report to inform a future Natura Impact Statement (NIS) as required.

This baseline report relates to a pig farm installation located at the DDS Brady Farms Limited, Carrickboy Farms, Ballyglassin, Edgeworthstown, Longford in Ireland.

1.1 BACKGROUND

As per latest letter from the EPA¹, the EPA is currently undertaking a review of the licence P0408-01 in relation to the DDS Brady Farms Limited, to ensure that the licence is up to date with current legislative requirements. The review was initiated in December 2014, and in order to be completed, requires '*an appropriate assessment in accordance with the Habitats Directive*'.

The project is classified as 6.2(b) – intensive agriculture, in accordance with the EPA Act 1992, as amended: '*the rearing of pigs in an installation where the capacity exceeds (b) 2,000 places for production pigs which are over 30kg*'. The EPA has carried out an Appropriate Assessment Screening in March 2022 and has determined that an '*Appropriate Assessment is required for the activity, as the project, individually or in combination with other plans or projects, is likely to have a significant effect on a European site(s)*'. The Screening assessment considered 30 European designated sites as listed in the letter dated 14 March 2022² and determined that: '*the activities are not directly connected with or necessary to the management of any European site and that it cannot be excluded, on the basis of objective information, that the activities, individually or in combination with other plans or projects, will have a significant effect on any European site and accordingly that an Appropriate Assessment of the activities is required*'. It has been concluded that '*air emissions from the installation have the potential for adverse impact on sensitive receptors due to elevated ammonia levels and/or nitrogen deposition at European sites*'.

1.2 DETAILS OF THE LICENCE P0408-01

The licence P0408-01 is for an existing integrated unit of pig production which includes 456 farrowing/suckling sows, 1,539 dry sows, 288 maiden gilts, 22 boars, 7,084 weaners and 10,120 finishers. These numbers exclude suckling pigs maintained on site and can be varied providing the overall number of units remains unchanged. All pigs are fully housed indoors for the entire year, with no outdoor access.

Data regarding animal numbers and types per house, as well as ventilation for each house was taken from the scanned document "Application Form" (Page 57 titled "Attachment 9"), provided by the client (**Figure 1-1**) below. The "Application Form" also confirmed floor type as "*Fully Slatted Floor*".

¹ Letter dated 5 April 2022 from the EPA, in response to the letter sent by DDS Brady Farms Limited on 7 January 2022.

² Letter dated 14 March 2022 from the EPA, to confirm the requirement for an Appropriate Assessment in respect of a licence review.

Figure 1-1. Animal house use, capacity, and ventilation information

Attachment 9

Current use and relevant management features of all the pig houses on the farm.

House	Use	Part	Rooms	Pens / Room	Pen Area	No./ Pen	Vent. System	Opt Temp °C	Feed System	Clean freq.
A1	1 W 1	All	9	24	1.8	10	A-24V	28-23	Man	Batch
A2	1 W 2	Part	5	20	1.8	10	A220V	28-23	Man	Batch
A2	FW 1	Part	6	18	3.5	1	A220V	24	Man	Each use
A2	FW 2	Part	4	18	3.5	1	A220V	24	Comp	Each use
A2	FW 2	Part	2	12	3.6	1	Man	24	Comp	Each use
A3	1 W 3	All	2	10	1.8	10	A220V	28-23	Man	Batch
A4	GT 1	All	1	6	12.7	6	Nat	21	Comp	Batch
A5	GT 2	Part	1	44	10.0	5	ACNV	21	Comp	Batch
A5	SA 1	Most	1	300	1.4	1	ACNV	21	Comp	Batch
A6	DS 1	Part	1	600	1.4	1	ACNV	21	Comp	Batch
A7	2 W 2	Most	4	16	5.8	18	A220V	23-26	Comp	2/3batch
A7	2 W 2	Most	1	12	5.8	18	A220V	23/26	Comp	2/3batch
A8-A	2 W 1	All	1	17	10.8	24	ACNV	23-26	Comp	2/3batch
A8-B	2 W 1	All	1	15	10.8	24	ACNV	23-26	Comp	2/3 batch
A9	FW 3	Part	12	12	3.6	1	Man	24	Comp	Each use
A10	GT 3	Part	1	44	10.0	5	ACNV	21	Comp	Batch
A11	DS 2	Part	1	325	1.3	1	A-24	21	Comp	Batch
A12	FW 4	Part	10	12	3.6	1	Man	24	Man	Each use
A13	1 W 4	All	10	6	7.2	40	A-24	28-33	Man	Batch
A14	SA 2	Not	Yet in	Use						
A15	DS 3	Not	Yet in	Use						
B1	FT 1	All	8	18	14.4	18	ACNV	22	Comp	Yearly
B2	FT 2	All	1	26	14.4	18	ACNV	22	Comp	Yearly
B3	FT 3	All	5.5	12	12.6	18	A220V	22	Comp	Yearly
B4	FT 4	Most	5.5	14	12.6	18	A220V	22	Comp	Yearly
B5	FT 5	All	3	22	12.6	20	A-24V	22	W+D	Yearly
B6	FT 6	All	3	22	12.6	20	A-24V	22	W+D	Yearly
B7	FT 7	All	2	22	19.2	20	A-24V	22	W+D	Yearly
C1	FT 8	Part	1	3	76.8	100	Nat	22	M,W+D	Yearly
C1	FT 9	Part	1	6	38.4	50	Nat	22	M,W+D	Yearly
C2	GT 4	Part	1	2	72.0	25	Nat	21	Man	Batch

1.2.1 Study area and location

The licence P0408-01 is in relation to installation located at DDS Brady Farms Limited, Carrickboy Farms, Ballyglassin, Edgeworthstown, Longford in Ireland. The farm is centred on Irish National Grid reference E221284, N265702 (see **Figure 1-2**).

The site comprises a number of buildings and four slurry/manure storages which are referred to as ‘the site’ within this report. A site map provided by the Client, is presented in **Appendix 1** and includes the surface water drainage network.

The site is confined to the boundaries included buildings and hardstanding surfaces (road access, parking and storage areas) and bordered by hedgerows and line of trees creating a screening barrier. The wider environs are dominated by open grassland fields and arable fields, with the presence of a large woodland to the west of the site and the N55 road to the south-east.

Figure 1-2. Location of DDS Brady Farms Limited and surrounding habitats (Google Satellite©)



1.3 PURPOSE OF THE REPORT

This report is to provide the baseline ecological information of the existing licence P0408-01 boundary only, to inform an Appropriate Assessment of any likely significant effects on European designated sites from the existing licence.

This report only includes relevant information for the Competent Authority (in the case the EPA) in order for them to determine whether the continuance of use of the licence P0408-01 is likely to have a significant effect on the integrity of any European designated sites, within its zone of influence either on its own or in combination with other plans and projects.

Therefore, the purpose of this report is to identify and describe the baseline value of the ecological features present, or potentially present, within the Zone of Influence (Zoi), in particular the European designated sites.

1.4 EVIDENCE OF TECHNICAL COMPETENCE AND EXPERIENCE

This report has been prepared by Emilie Gorse MCIEEM and has been technically reviewed by Steve Coates MCIWEM and MBiol.

Emilie Gorse holds a BSc in Environmental Sciences and a MSc in Freshwater Ecology from the Lorraine University (France) and is a full member of the Chartered Institute for Ecology and Environmental Management (CIEEM). She is a Senior Consultant Ecologist at Ricardo and has 7 years' experience as an ecologist.

Steve Coates holds a BSc in Aquatic Bioscience from the University of Glasgow and is a full member of the Chartered Institution of Water and Environmental Management, the Royal Society of Biology and the Institute of Fisheries Management. He is a Principal Ecological Consultant with Ricardo and has over 30 years' experience as an ecologist.

1.5 LEGISLATION

Legislation relating to biodiversity that has been considered in this assessment is detailed in **Appendix 2**.

1.6 REQUIREMENTS FOR HABITATS REGULATIONS ASSESSMENTS

The Appropriate Assessment of Plans and Projects in Ireland³ provides national guidance for planning authorities, it was published in 2009 and updated in 2010 by replacing the term ‘Statement for Appropriate Assessment’ with ‘NIS’. The guidance is intended to assist in the application of Article 6(3) and 6(4) of the Habitats Directive. It preceded but anticipated, the legislation which now transposes the Birds and Habitats Directives in Ireland, i.e. the European Communities (Birds and Natural Habitats) Regulations 2011, and parallel provisions relating to Appropriate Assessment in planning legislation (i.e. Part XAB of the Planning and Development Act, 2000 as amended and associated Regulations).

Article 6(3) of the Habitats Directive states that the ‘*competent national authorities*’ will make an appropriate assessment and ‘*agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned*’, subject to Articles 6(4) or paragraph 105 of the Habitats Directive.

Article 6(4) of the Habitats Directive states:

64. — (1) *If the competent authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), they may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be).*

(2) *Where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either —*

- (a) *reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; or*
- (b) *any other reasons which the competent authority, having due regard to the opinion of the Appropriate Authority, consider to be imperative reasons of overriding public interest.*

Regulation 105 of the Habitats Regulations states:

105. — (1) *Where a land use plan —*

- (c) *is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and*
- (d) *is not directly connected with or necessary to the management of the site, the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site’s conservation objectives.*

(2) *The plan-making authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specify.*

(3) *They must also, if they consider it appropriate, take the opinion of the general public, and if they do so, they must take such steps for that purpose as they consider appropriate.*

(4) *In the light of the conclusions of the assessment, and subject to regulation 103 (considerations of overriding public interest), the plan-making authority or, in the case of a regional strategy, the Secretary of State must give effect to the land use plan only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).*

(5) *A plan-making authority must provide such information as the appropriate authority may reasonably require for the purposes of the discharge of the obligations of the appropriate authority under this Chapter.*

(6) *This regulation does not apply in relation to a site which is —*

- (a) *a European site by reason of regulation 8(1)(c), or*

³ Environment, Heritage and Local Government, 2010. The Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.

(b) a European offshore marine site by reason of regulation 15(c) of the 2007 Regulations (site protected in accordance with Article 5(4) of the Habitats Directive).

1.7 LIMITATIONS

No site visit was conducted to prepare this report which is entirely based on the available information provided by the Client and include publicly available information analysed to support the ecological baseline value of the site.

This report deals with matters of legal significance but does not constitute professional legal advice. The Client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document, which is summarised in **Appendix 2**.

2. METHODOLOGY

This section of the report sets out the methods of gathering and assessing the information to support the preparation of this report.

2.1 BASELINE DATA COLLECTION

Baseline information was gathered through a combination of desk-based study, technical assessments and modelling consistent with current standard methodologies and published best practice guidelines, in order to provide relevant data to allow an assessment of likely significant effects of the licence P0408-01 on any individual European site, or within the zone of influence of the licence.

Documents provided by the Client⁴ were reviewed to inform the report and included:

- Application form dated 9 March 1998, as filled by the licence holder (Donal Brady);
- Site maps for the licence P0408-01, including details of the structures, overall site map and surface water drainage network; and
- Environmental Impact Statement dated November 1993⁵.

The principal source of information on Natural 2000 sites and key qualifying features has been data collected through information publicly available through the National Parks & Wildlife Service (NPWS)⁶.

Statutory designated sites considered within this report include:

- Special Protection Area (SPAs) are classified under the European Council Directive 'on the conservation of wild birds' (2009/147/EC; 'Birds Directive') for the protection of wild birds and their habitats (including particularly rare and vulnerable species listed in Annex 1 of the Birds Directive, and migratory species).
- Special Area of Conservation (SACs) are designated under the Habitats Directive (92/43/EEC) and target particular habitats (Annex 1) and/or species (Annex II) identified as being of European importance.
- The Government also expects, as a matter of policy, potential SPAs (pSPAs), candidate SACs (cSACs) and compensation habitat (under IROPI derogation).

Publicly available information for each designated site was compiled and information included:

- Site description
- Qualifying features
- Current conservation status: the information was taken from Article 17 report in 2019⁷ and Article 12 report in 2019⁸.
- Conservation objectives: they aim to achieve the 'favourable conservation status' of the habitat and species features for which a European site is designated. Conservation objectives for SPAs and SACs in Ireland have been developed by the NPWS and provide a description of what is considered to be the favourable conservation status of the feature within the whole site area.

The initial list of European sites for screening has been derived by adopting a distance-based threshold of 15km from the licence P0408-01 location, plus exceptional, longer impact pathways. The use of a '15km threshold plus exceptional pathways' approach is based on the guidance on Appropriate Assessment for Planning Authorities. It is based on the premise that most significant effects on qualifying species and habitats will occur within a maximum 15km radius of the source of impact, except where there are exceptional pathways such as major downstream or coastal dispersion effects, or larger foraging and dispersal distances for mobile species (e.g., bats, migratory fish).

⁴ Email from the EPA on 15 August 2022.

⁵ Teagasc, Wilkinson B., November 1993. Environmental Impact Statement for Donal Brady, Carrickboy Co. Longford.

⁶ <https://www.npws.ie/> - Accessed in August 2022.

⁷ Department of Culture, Heritage and the Gaeltacht, 2019. The Status of EU Protected Habitats and Species in Ireland: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol1_Summary_Article17.pdf - Accessed in August 2022.

⁸ NPWS, 2019. Article 12 2019 Reporting Breeding Distributions and Ranges (web tool: <https://nature-art12.eionet.europa.eu/article12/report?period=3&country=IE>)

2.2 SCAIL SCREENING

With regards to the baseline levels of air emissions from the DDS Brady Farms site, in particular ammonia and nitrogen, a screening assessment was undertaken as detailed in Ricardo, 2022⁹. The Simple Calculation of Atmospheric Impact Limits screening tool SCAIL Agriculture¹⁰, hereafter referred to as SCAIL was run in conservative mode with no mitigation included and the full existing animal numbers onsite, based on the licensed animal numbers.

Details of the inputs and assumptions are detailed within the Air Quality Screening and Dispersion Modelling report which will be issued in October 2022 (Section 2.1.1) and the limitation are details in Section 2.1.2 of the same report. The number of designated sites selected (i.e. the extent of the search radius) within SCAIL was restricted and therefore the model did not run beyond 17km (17 habitat sites).

The outputs of the SCAIL Screening are summarised in **Section 3.1**, below to inform the ecological baseline report.

⁹ Ricardo, 2022. DDS Brady Farms Limited: Air Quality Screening and Dispersion Modelling. Prepared for the EPA and to be issued in October 2022.

¹⁰ <https://www.scail.ceh.ac.uk/cgi-bin/agriculture/input.pl> - Accessed in August 2022.

3. BASELINE ECOLOGICAL CONDITIONS

This section identifies the European designated sites potentially impacted by the licence P0408-01 and provides the baseline ecological value of the site.

A review of all documents available on the EPA portal¹¹ was carried out to understand the history of the licence P0408-01. The initial application for the licence is dated 18 December 2014 and activity is classified as ‘6.2(b) intensive agriculture’.

3.1 SCAIL SCREENING

The SCAIL outputs show that the following can be concluded:

- The baseline impact from the licence P0408-01 is above 0.3kgN/ha/annum of nitrogen deposition at Glen Lough SPA and Mount Jessop Bog NHA and SAC habitats.
- The Process Contribution (PC) from DDS Brady Farm is above 4% of the critical levels of 1 and 3µg/m³ for ammonia at all habitats in the 17km radius. The PC from the site for nitrogen deposition is below 5% of the critical load (5 kgN/ha/annum) for all sites with sensitive habitats or species.

Additionally, one habitat (Glen Lough SPA) shows an exceedance of the critical load (3µg/m³) for ammonia due to emissions from the licensed activities alone, although this is predicted using a worst-case approach.

Following the EPA License Application Guidance Assessment of the Impact of Ammonia and Nitrogen on Natura 2000 sites from Intensive Agriculture Installations¹² on the basis of the first point (impact above 0.3kgN/ha/annum of nitrogen deposition), an Appropriate Assessment would be required (Proceed to Step 3). This would involve re-running SCAIL in conservative mode including mitigation (and proceeding to detailed modelling and an Appropriate Assessment if the PC is still greater than 0.3kgN/ha/annum of nitrogen deposition; greater than 4% of the critical level for ammonia, and greater than 5% of the critical load for nitrogen deposition). However, as DDS Brady Farms Limited is an existing installation, this step has been considered outside of the scope of this report.

Appendix 3 provides a summary of PC, Predicted Environmental Concentration/Deposition and a Percentage of the Critical Load for ammonia, nitrogen deposition and acid deposition at habitats within a 25km buffer of the site due to the licensed activities.

3.2 HABITATS WITHIN THE SITE BOUNDARIES

The site is confined to the licence boundary as presented in **Figure 1-2**. Habitats present within the site include buildings utilised to house the pigs, hard standing and hedgerows and/or line of trees as well as surface water drainage network which bordered the site boundaries.

The hardstanding is considered of negligible ecological value. The buildings, due to their utilisation for farming processes and due to the design¹³, are considered of lower ecological value.

Only the borders of the sites which include hedgerows/line of trees and drains may provide a low ecological value to the site. As per the Environmental Impact Statement (1993), ‘the surface water around the pig unit itself will be separated clean and dirty as indicated by the site layout’, ‘the quality of the surface water near the spreading areas will be kept pollution free’. A review of the site map (**Appendix 1**), topography maps and aerial photography did not identify the presence of watercourses in the vicinity of the site nor any watercourses connected to the drainage network. The line of trees which include a mixture of black alder *Alnus glutinosa*, beech *Fagus* sp., oak *Quercus* sp., rowan *Sorbus aucupernia*. and poplar *Populus* sp. were planted to create a screening and reduce visual impacts of the farm.

¹¹ Licence details: <https://epawebapp.epa.ie/terminalfour/ipcc/ipcc-view.jsp?regno=P0408-02> – Accessed in August 2022.

¹² EPA, 2021. Licence Application Guidance : Assessment of the impact of ammonia and nitrogen on Natura 2000 sites from intensive agriculture installations: <https://www.epa.ie/publications/licensing--permitting/industrial/ied/Assessment-of-Impact-of--Ammonia-and-Nitrogen-on-Natura-sites-from-Intensive-Agriculture-Installations.pdf> Accessed August 2022. Pages 8 and 11.

¹³ Application form submitted in 1998 mentions that the ‘external faces of walls of pig house’ shall be made of cement plaster and that the ‘roofs to pig houses’ shall be covered with fibre cement sheeting.

3.3 EUROPEAN DESIGNATED SITES

A desk study was carried to identify the European sites likely to be affected by the licence. The licence P0408-01 does not lie within a European designated site, though the site is located within 15km of European sites. A total of nine designated sites (i.e., SAC and SPA) have been identified within 15km of the farm.

As the SCAIL modelling was completed up to 17km with a critical load for ammonia above 4% for all designated sites up to 17km, the baseline ecological section below includes all designated sites up to 17km. It should be noted that effects could potentially affect further designated sites, however the model did not run over 17km. This includes five additional designated sites located between 15 and 17km from the site. **Table 3.1** below sets out the European sites located within 17km of the farm.

Table 3-1. List of European sites within 17km of the farm

European designated sites	Site code	Distance at closest point from farm and direction
Glen Lough SPA	004045	6.3km, north-east
Mount Jessop Bog SAC	002202	8.6km, north-west
Lough Iron SPA	004046	12km, east
Ardagullion Bog SAC	002341	13.1km, north-east
Garriskil Bog SAC	000679	13.5km, north-east
Garriskil Bog SPA	004102	13.5km, north-east
Lough Ree SAC	000440	14.2km, south-west
Lough Ree SPA	004064	14.2km, south-west
Brown Bog SAC	002346	14.7km, north-east
Ballymore Fen SAC	002313	16.3km, south-east
Lough Forbes Complex SAC	001818	16.7km, north-west
Ballykenny-Fisherstown Bog SPA	004101	16.7km, north-west
Lough Owel SAC	000688	17km, south-east
Lough Owel SPA	004047	17km, south-east

The Appropriate Assessment Screening Determination prepared by the EPA, identified 16 additional Natura 2000 sites located up to 30km from the site as listed in **Table 3.2**. For the purpose of this report, due to the lack of hydrological connectivity and due to the lack of information provided by the SCAIL screening, these additional Natura 2000 sites have not been included in this baseline report. It would be expected that baseline levels of ammonia and nitrogen deposition at these sites due to the licensed activities would be lower than those identified at sites closer to the DDS Brady Ltd farm.

Table 3-2. List of additional Natura 2000 sites within 30km of the farm, as identified by the EPA

European designated sites	Site code	Distance at closest point from farm and direction
Lough Derravaragh SPA	004043	17.8km, east
Fortwilliam Turlough SAC	000448	19.6km, west
Scragh Bog SAC	000692	21.6km, south-east
Lough Kinale and Derragh Lough SPA	004061	21.7km, north-east
Clooneed Bog SAC	002348	21.8km, north-west
Derragh Bog SAC	002201	22.3km, north-east
Lough Ennell SAC	000685	24.3km, south-east
Lough Ennell SPA	004044	24.3km, south-east
Carn Park Bog SAC	002336	25.2km, south
Lough Sheeling SPA	004065	25.6km, north-east
Moneybeg and Clareisland Bogs SAC	002340	25.6km, north-east
Corbo Bog SAC	002349	26.1km, west
Crosswood Bog SAC	002337	27.9km, south

European designated sites	Site code	Distance at closest point from farm and direction
Lough Lene SAC	002121	28.1km, east
Wooddown Bog SAC	002205	29.5km, south-east
Split Hills and Long Hill Esker SAC.	001831	29.5km, south

3.3.1 Special Area of Conservation (SAC)

3.3.1.1 Ardagullion Bog SAC (002341), Brown Bog SAC (002346) and Garriskil Bog SAC (000679)

3.3.1.1.1 Site description

Ardagullion Bog SAC is located 5 km north-east of Edgeworthstown, mainly in the townlands of Cloonshannagh (Coolamber Manor Demesne) and Ardaguillon in Co. Longford. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded in the north-east by the local road running to Coolagherty.

Brown Bog SAC is located 5 km north-west of Longford town, mainly in the townlands of Tully, Lissanurlan and Cartronlebagh. The site comprises a raised bog that includes both areas of high bog and cutover bog. The bog margins are mainly surrounded by scrub/woodland.

Garriskil Bog SAC consists of two areas of raised bog:

- Garriskil Bog, which covers 324.81 ha and lies 3 km east of Rathowen in Co. Westmeath; and
- a small outlier, within the townland of Derrya, which covers 22.9 ha and lies 2.2 km to the east on the northern shore of Lough Derravaragh.

Both bogs are remnants of the large river floodplain bogs which developed where the River Inny enters and leaves Lough Derravaragh. Garriskil Bog SAC is bounded to the south-east and south-west by the rivers Inny and Riffey and by the Dublin-Sligo railway line to the north. It is considered an exceptional example of a midland raised bog and includes 170.26 ha of uncut raised bog and 154.55 ha of surrounding areas which includes 109 ha of cutover bog. The section at Derrya (which comprises part of Lough Derravaragh Bog NHA - site code 000684) has been restored as part of an EU LIFE project. The bedrock geology of both sites is carboniferous limestone.

3.3.1.1.2 Qualifying features

Ardagullion Bog SAC, Brown Bog SAC and Garriskil Bog SAC were selected as a SAC for the following habitat types listed under Annex I of the EU Habitats Directive:

- 7110 Raised bog (active): areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses is high, and where some or all of the following features occur – hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks.
- 7120 Degraded raised bog: areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration.
- 7150 *Rhynchosporion* Vegetation: occurs in wet depression, pool edges and erosion channels where the vegetation includes species such as white beak-sedge and/or brown beak-sedge, and at least some of the following associated species, bog asphodel, sundews, deergrass and carnation sedge.

These three habitats are considered to be water dependant¹⁴.

3.3.1.1.3 Current conservation status

The conservation status as detailed within Article 17 report in 2019 are:

- 7110 Raised bog (active):
 - Overall assessment of conservation status: Unfavourable - bad (range: unfavourable - bad, area: unfavourable - bad, structure and function: unfavourable – bad, future prospects: unfavourable - bad).
 - Overall trend in conservation status: Deteriorating.
 - Main pressure: peat extraction, drainage, afforestation, burning and climate change.
- 7120 Degraded raised bog:

¹⁴ UK Technical Advisory Group on the Water Framework Directive, 2003. Guidance on the Identification of Natura Protected Areas. Version v3.

- Overall assessment of conservation status: Unfavourable - bad (range: unfavourable - bad, area: unfavourable - bad, structure and function: unfavourable – bad, future prospects: unfavourable - bad).
- Overall trend in conservation status: Deteriorating.
- Main pressure: peat extraction, drainage, afforestation, burning and climate change.
- 7150 *Rhynchosporion* Vegetation:
 - Overall assessment of conservation status: Unfavourable - bad (range: favourable, area: unfavourable - inadequate, structure and function: unfavourable - bad, future prospects: unfavourable - bad).
 - Overall trend in conservation status: Deteriorating.
 - Main pressure: overgrazing, burning, peat extraction, drainage and conversion to forestry.

3.3.1.1.4 Conservation objectives

The conservation objective for Ardagullion Bog SAC, Brown Bog SAC and Garriskil Bog SAC is to restore the favourable conservation condition of active raised bog, which is defined by the list of attributes and targets as detailed in the Conservation Objectives Series for the SAC^{15,16,17}.

The long-term aim for degraded raised bogs still capable of regeneration is that peat-forming capability is re-established, therefore the conservation objective for this habitat is inherently linked to that of active raised bogs. Depressions on peat substrates of the *Rhynchosporion* is an integral part of good quality active raised bogs and thus a separate conservation objective has not been set for the habitat in the SACs.

3.3.1.2 Lough Ree SAC (000440)

3.3.1.2.1 Site description

Lough Ree is the third largest lake in Ireland and is situated in an ice-deepened depression in Carboniferous limestone on the River Shannon system between Lanesborough and Athlone. The site spans Counties Longford, Roscommon and Westmeath. Some of its features (including the islands) are based on glacial drift. It has a very long, indented shoreline and hence has many sheltered bays. Although the main habitat, by area, is the lake itself, interesting shoreline, terrestrial and semi- aquatic habitats also occur.

3.3.1.2.2 Qualifying features

Lough Ree SAC was selected as a SAC for the following habitat types listed under Annex I of the EU Habitats Directive and species listed under Annex II of the EU Habitats Directive:

- 3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation: the greater part of Lough Ree is less than 10m in depth, but there are six deep troughs running from north to south, reaching a maximum depth of about 36m. The lake has been classified as mesotrophic in quality but the size of the system means that a range of conditions prevail depending upon, for example, rock types. This gives rise to local variations in nutrient status and pH, which in turn results in variations in the phytoplankton and macrophyte flora.
- 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites): dry calcareous grassland occurs scattered around the lake shore. This supports typical species such as yellow-wort, carline thistle and quaking-grass. Orchids also feature in this habitat e.g. bee orchid and common spotted-orchid.
- 7110 Active raised bogs: small areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses is high, and where some or all of the following features occur – hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Results from surveys of the raised bog habitat in 2003 indicate the presence of 5.9ha of active raised bog
- 7120 Degraded raised bogs still capable of natural regeneration: typically the degraded bog areas have a low cover of peat-forming bog mosses. The current extent of DRB as estimated using a recently developed hydrological modelling technique, based largely on Light Detection And Ranging (LiDAR) data, is 44.7ha

¹⁵ NPWS, 2015. Conservation Objectives Series: Ardagullion Bog SAC 002341. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002341.pdf

¹⁶ NPWS, 2015. Conservation Objectives Series: Brown Bog SAC 002346. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002346.pdf

¹⁷ NPWS, 2015. Conservation Objectives Series: Garriskil Bog SAC 000679. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000679.pdf

- 7230 Alkaline fens
- 8240 Limestone pavements: occurs occasionally around the lake shore.
- 91D0 Bog woodland: associated with the extensive raised bog system, there are at least two small areas of woodland which occur on the raised bog domes. However it would appear that this habitat is in the early stages of development.
- 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)
- 1355 Otter *Lutra lutra*

With the exception of semi-natural dry grasslands and scrubland facies on calcareous substrates (6210) and limestone pavement (8240), all habitats and species listed above are considered to be water dependant.

3.3.1.2.3 Current conservation status

The conservation status as detailed within Article 17 report in 2019 are:

- 3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation:
 - Overall assessment of conservation status: Unfavourable - inadequate (range: favourable, area: favourable, structure and function: unfavourable – inadequate, future prospects: unfavourable - inadequate).
 - Overall trend in conservation status: Stable.
 - Main pressure: eutrophication, anthropogenic enrichment.
- 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites):
 - Overall assessment of conservation status: Unfavourable - bad (range: favourable, area: unfavourable - bad, structure and function: unfavourable – inadequate, future prospects: unfavourable - bad).
 - Overall trend in conservation status: Deteriorating.
 - Main pressure: habitat losses associated with agricultural intensification, abandonment of farmland.
- 7110 Active raised bog: as per **Section 3.3.1.1.3**.
- 7120 Degraded raised bog: as per **Section 3.3.1.1.3**.
- 7230 Alkaline fens:
 - Overall assessment of conservation status: Unfavourable - bad (range: favourable, area: unfavourable - inadequate, structure and function: unfavourable – bad, future prospects: unfavourable - bad).
 - Overall trend in conservation status: Deteriorating.
 - Main pressure: land abandonment, overgrazing, drainage and pollution.
- 8240 Limestone pavements:
 - Overall assessment of conservation status: Unfavourable - inadequate (range: favourable, area: unfavourable - inadequate, structure and function: unfavourable – inadequate, future prospects: unfavourable - inadequate).
 - Overall trend in conservation status: Stable.
 - Main pressure: conversion to agricultural land and housing construction, scrub encroachment caused by undergrazing.
- 91D0 Bog woodland:
 - Overall assessment of conservation status: Favourable (range: favourable, area: favourable, structure and function: favourable, future prospects: favourable).
 - Overall trend in conservation status: Stable.
 - Main pressure: drainage, invasive species and burning.
- 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*):
 - Overall assessment of conservation status: Unfavourable - bad (range: favourable, area: unfavourable - bad, structure and function: unfavourable – inadequate, future prospects: unfavourable - bad).
 - Overall trend in conservation status: Deteriorating.

- Main pressure: invasive species.
- **1355 Otter *Lutra lutra*:**
 - Overall assessment of conservation status: Favourable (range: favourable, area: favourable, structure and function: favourable, future prospects: favourable).
 - Overall trend in conservation status: Improving.
 - Main pressure: pollution particularly organic pollution resulting in fish killing and accidental deaths (road traffic and fishing gear).

3.3.1.2.4 Conservation objectives

The conservation objectives for Lough Ree SAC are:

- To restore the favourable conservation condition of natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation, semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*), degraded raised bogs still capable of natural regeneration and bog woodland
- To maintain the favourable conservation condition of alkaline fens, limestone pavements and otter.

The status of Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles as a qualifying Annex I habitat for the Lough Ree SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this habitat

The conservation objectives is defined by the list of attributes and targets as detailed in the Conservation Objectives Series for the SAC¹⁸.

3.3.1.3 Mount Jessop Bog SAC (002202)

3.3.1.3.1 Site description

Mount Jessop Bog SAC occurs within the larger raised bog system that is designated as Mount Jessop Bog Natural Heritage Area (NHA) (001450). It is situated 5 km south-west of Longford Town in the townland of Mount Jessop, Co. Longford. The site is part of a basin raised bog that includes both areas of high bog and cutover bog. The site is bordered by open high bog on its northern and western sides and by agricultural land on its eastern side and southern side. The underlying geology is carboniferous limestone.

3.3.1.3.2 Qualifying features

The Mount Jessop SAC was selected as a SAC for the following habitat types listed under Annex I of the EU Habitats Directive:

- **7120 Degraded raised bog:** Areas of high bog where the hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration to Active Raised Bog within 30 years.
- **91D0 Bog woodland:** Habitat develops on wet peaty soils, with a permanently high-water level and it is generally dominated by downy birch *Betula pubescens* or Scots pine *Pinus sylvestris*, with the ground layer dominated by bog mosses and other characteristic species. It is a very rare habitat covering less than 150ha in Ireland.

Both habitats are considered to be water dependant¹⁹.

3.3.1.3.3 Current conservation status

The conservation status as detailed within Article 17 report in 2019 are:

- **7120 Degraded raised bog:** as per **Section 3.3.1.1.3.**
- **91D0 Bog woodland:** as per **Section 3.3.1.2.3.**

3.3.1.3.4 Conservation objectives

The conservation objective for the Mount Jessop SAC is to maintain or restore the favourable conservation condition of the Annex I habitats(s) and/or Annex II species for which the SAC has been selected.

¹⁸ NPWS, 2016. Conservation Objectives Series: Lough Ree SAC 000440. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000440.pdf

¹⁹ UK Technical Advisory Group on the Water Framework Directive, 2003. Guidance on the Identification of Natura Protected Areas. Version v3.

3.3.1.4 Ballymore Fen SAC (002313)

3.3.1.4.1 Site description

Ballymore Fen occupies a relatively wide and deep depression in the surrounding drift which is fed on both the east and west by springs. The site lies approximately 17 km west of Mullingar adjacent to the Mullingar to Ballymore road (R390) in Co. Westmeath. Ballymore Fen is interesting due to the overall variety of habitats and species in a relatively small area, and also due to the richness of the transition mire/scraw. Parts of the site have been cut for turf in the past, as evidenced by parallel heather covered ridges and banks. Peat cutting has not occurred for a long time and regeneration of vegetation is occurring in these areas and the ground underfoot is very wet and soft.

3.3.1.4.2 Qualifying features

Ballymore Fen SAC was selected as a SAC for the following habitat types listed under Annex I of the EU Habitats Directive:

- 7140 Transition mires and quaking bogs: In the wetter areas towards the centre and south of this site the vegetation is characterised by a scraw (i.e. floating vegetation).

3.3.1.4.3 Current conservation status

The conservation status as detailed within Article 17 report in 2019 are:

- 7140 Transition mires and quaking bogs:
 - Overall assessment of conservation status: Unfavourable - bad (range: favourable, area: unfavourable - inadequate, structure and function: unfavourable – bad, future prospects: unfavourable - bad).
 - Overall trend in conservation status: Stable.
 - Main pressure: afforestation, water pollution, drainage and hydrological changes.

3.3.1.4.4 Conservation objectives

The conservation objective for Ballymore Fen SAC is:

- To maintain the favourable conservation condition of transition mires and quaking bogs.

The conservation objectives is defined by the list of attributes and targets as detailed in the Conservation Objectives Series for the SAC²⁰.

3.3.1.5 Lough Forbes Complex SAC (001818)

3.3.1.5.1 Site description

Lough Forbes Complex consists of a number of different habitats and is centred around Lough Forbes, a lake formed by a broadening of the River Shannon. As well as the lake itself, there is also a series of raised bogs, callow grasslands and a variety of other aquatic and terrestrial habitats to the west of Newtown Forbes on the Longford/Roscommon boundary.

3.3.1.5.2 Qualifying features

Lough Forbes Complex SAC was selected as a SAC for the following habitat types listed under Annex I of the EU Habitats Directive:

- 3150 Natural eutrophic lakes: Lough Forbes is a medium sized lake underlain by limestone. It has extensive swamps of common reed which provide good cover for wildfowl, although numbers have declined recently, possibly due to the increase in cruisers and other pleasure boats. Freshwater marshes are also a common feature along the lakeshore.
- 7110 Active raised bogs: small areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses is high, and where some or all of the following features occur – hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. The raised bogs, located on the south-eastern shore of Lough Forbes, are known as the Ballykenny-Fishertown complex. These bogs are of international importance as unique examples of Shannon River edge bogs and they are also the most

²⁰ NPWS, 2016. Conservation Objectives Series: Ballymore Fen SAC 002313. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002313.pdf

northerly intact bogs adjacent to the River Shannon. The central core areas of the bogs are quite wet and spongy, with a good complement of bog mosses and well-developed hummocks.

- 7120 Degraded raised bog: typically the degraded bog areas have a low cover of peat-forming bog mosses. Degraded raised bog is largely confined to the marginal areas of uncut high bog where drainage effects from adjoining turbary are most pronounced. The plant species composition of degraded raised bog is generally similar to that of active raised bog, however species typical of very wet bog conditions are either much reduced in abundance or absent.
- 7150 *Rhynchosporion* Vegetation: occurs in wet depression, pool edges and erosion channels where the vegetation includes species such as white beak-sedge and/or brown beak-sedge, and at least some of the following associated species, bog asphodel, sundews, deergrass and carnation sedge. Sometimes found in the wetter areas of the bog surface.
- 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*): the wet woodland type present include willow woodland, ash-alder woodland on slightly higher ground, ash-oak woodland at the highest levels and birch woodlands on dried-out or cut-away bog.

All habitats listed above are considered to be water dependant.

3.3.1.5.3 Current conservation status

The conservation status as detailed within Article 17 report in 2019 are:

- 3150 Natural eutrophic lakes: as per **Section 3.3.1.2.3**.
- 7110 Active raised bogs: as per **Section 3.3.1.1.3**.
- 7120 Degraded raised bog: as per **Section 3.3.1.1.3**.
- 7150 *Rhynchosporion* Vegetation: as per **Section 3.3.1.1.3**.
- 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*): as per **Section 3.3.1.2.3**.

3.3.1.5.4 Conservation objectives

The conservation objective for Lough Forbes Complex SAC is:

- To restore the favourable conservation condition of natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation, active raised bog and alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*.

The long-term aim for degraded raised bogs still capable of regeneration is that peat-forming capability is re-established, therefore the conservation objective for this habitat is inherently linked to that of active raised bogs. Depressions on peat substrates of the *Rhynchosporion* is an integral part of good quality active raised bogs and thus a separate conservation objective has not been set for the habitat in the SACs.

The conservation objectives is defined by the list of attributes and targets as detailed in the Conservation Objectives Series for the SAC²¹.

3.3.1.6 Lough Owel SAC (000688)

3.3.1.6.1 Site description

Lough Owel is a large hard water lake located approximately 4km north-west of Mullingar in Co. Westmeath. It is a relatively shallow lake with a rocky, marl-covered bottom.

3.3.1.6.2 Qualifying features

Lough Owel SAC was selected as a SAC for the following habitat types listed under Annex I of the EU Habitats Directive and species listed under Annex II of the EU Habitats Directive

- 3140 Hard water lakes: Lough Owel is one of the most important fishing lakes in the midlands, also important for invertebrates and bird population.
- 7140 Transition mires and quaking bogs: two areas of wetland vegetation of particular interest occur at the north-west (Bunbrosna) and south-west (Tullaghan) of the lake. These areas contain a mosaic of

²¹ NPWS, 2016. Conservation Objectives Series: Lough Forbes Complex SAC 001818. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001818.pdf

vegetation types of varying degrees of wetness, with quaking bog, alkaline fen, wet grassland and wet woodland all present.

- 7230 Alkaline fens: in places the quaking mire grades into alkaline fen. Some characteristic species such as black bog-rush *Schoenus nigricans* and long-stalked yellow-sedge *C. lepidocarpa* occur, as well as brown fen mosses. Scarce fen species have been recorded here, including fen bedstraw *Galium uliginosum* and marsh fern *Thelypteris palustris*.
- 1092 White-clawed Crayfish *Austropotamobius pallipes*

All habitats and species listed above are considered to be water dependant.

3.3.1.6.3 Current conservation status

The conservation status as detailed within Article 17 report in 2019 are:

- 3140 Hard water lakes:
 - Overall assessment of conservation status: Unfavourable - bad (range: favourable, area: favourable, structure and function: unfavourable – bad, future prospects: unfavourable - bad).
 - Overall trend in conservation status: Decreasing.
 - Main pressure: eutrophication (nutrient and organic pollution from agriculture and municipal and industrial wastewaters).
- 7140 Transition mires and quaking bogs: as per **Section 3.3.1.4.3**.
- 7230 Alkaline fens: as per **Section 3.3.1.2.3**.
- 1092 White-clawed Crayfish *Austropotamobius pallipes*:
 - Overall assessment of conservation status: Unfavourable - bad (range: unfavourable - inadequate, area: unfavourable - inadequate, structure and function: favourable, future prospects: unfavourable - bad).
 - Overall trend in conservation status: Decreasing.
 - Main pressure: threat from twin impacts of non-indigenous crayfish species and crayfish plague, direct predation and competition.

3.3.1.6.4 Conservation objectives

The conservation objective for Lough Owel SAC is:

- To maintain the favourable conservation condition of hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp., transition mires and quaking bogs, alkaline fens and white-clawed crayfish.

The conservation objectives is defined by the list of attributes and targets as detailed in the Conservation Objectives Series for the SAC²².

3.3.2 Special Protection Areas (SPA)

3.3.2.1 Garriskil Bog SPA (004102) and Ballykenny-Fisherstown Bog SPA (004101)

3.3.2.1.1 Site description

Garriskil Bog SPA, a raised bog, is located 3 km west of Lough Derravaragh and 3 km east of Rathowen in Co. Westmeath. It is bounded to the south-east and south-west by the rivers Inny and Riffey. The bog is underlain by calcareous shales with a low permeability. A substantial area of uncut high bog remains though much of this is classified as degraded raised bog.

Ballykenny-Fisherstown Bog SPA is located on the border between Counties Longford and Roscommon in the north-central midlands and is underlain by Carboniferous limestone. It is centered around Lough Forbes, a naturally eutrophic lake on the River Shannon system which is fed also from the north by the River Rinn. The lake has well-developed swamp vegetation and displays natural transitions to seasonally flooded grassland, marsh and raised bog.

²² NPWS, 2018. Conservation Objectives Series: Lough Owel SAC 000688. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000688.pdf

3.3.2.1.2 Qualifying features

Garriskil Bog SPA and Ballykenny-Fisherstown Bog SPA were selected as a SPA being utilised by part of an internationally important population of:

- A395 Greenland white-fronted goose *Anser albifrons flavirostris*.

Garriskil Bog SPA is within the range of the midland lakes Greenland white-fronted goose flock, which is centred on four major lakes (Derravaragh, Iron, Owel and Ennell). The last record of Greenland white-fronted goose at this site was in 1986/87 (43 individuals).

Ballykenny-Fisherstown Bog SPA was regularly utilised during the 1980s. The last record of Greenland White-fronted Goose at this site was in 1990/91 (111 individuals).

3.3.2.1.3 Current conservation status

The conservation status as detailed within Article 12 report in 2019 are, for the wintering population of Greenland white-fronted goose (estimated as 9500 individuals):

- Short-term trend: declining between 2008 and 2018.
- Long-term trend: declining between 1985 and 2018.

3.3.2.1.4 Conservation objectives

The conservation objective for Garriskil Bog SPA Ballykenny-Fisherstown Bog SPA is to maintain or restore the favourable conservation condition of the bird species listed as a Special Conservation Interests for this SPA.

3.3.2.2 Glen Lough SPA (004045)

3.3.2.2.1 Site description

Glen Lough SPA is situated about 5 km north-west of Lough Iron on the border of Co. Westmeath and Co. Longford. Extensive drainage in the 1960s has resulted in a dramatic drop in the water table, with the result that there is now little open water, except during flooding in the winter months. Sedge-dominated freshwater marsh now occupies the majority of what was once open water.

3.3.2.2.2 Qualifying features

Glen Lough SPA was selected as a SPA for the presence of an internationally important population of:

- A038 Whooper swan *Cygnus cygnus*.: the flock (mean peak of 327 individuals between 1995/96 and 1999/2000) also uses Lough Iron SPA and a range of grassland feeding areas in the vicinity.

3.3.2.2.3 Current conservation status

The conservation status as detailed within Article 12 report in 2019 are, for the wintering population of whooper swan (estimated as 11,852 individuals):

- Short-term trend: increasing between 2005 and 2015.
- Long-term trend: increasing between 1986 and 2015.

3.3.2.2.4 Conservation objectives

The conservation objective for Glen Lough SPA is to maintain or restore the favourable conservation condition of the bird species listed as a Special Conservation Interests for this SPA.

3.3.2.3 Lough Iron SPA (004046)

3.3.2.3.1 Site description

Lough Iron is a small- to moderately-sized midland lake, located some 12 km north-west of Mullingar. It is situated on the Inny River, which flows from Lough Derravaragh approximately 5 km to the north-east. Lough Owel occurs a few kilometres to the south-east and is connected to Lough Iron by a small stream. The underlying geology is limestone and the lake is mesotrophic in character.

3.3.2.3.2 Qualifying features

Lough Iron SPA was selected as a SPA for the presence of an internationally important population of wintering waterfowl including (numbers given for the five-year mean peak between 1994/95 and 1998/99):

- A038 Whooper swan *Cygnus cygnus*: five-year mean peak of 214 individuals.
- A050 Wigeon *Anas penelope*: five-year mean peak of 1,229 individuals.
- A052 Teal *A. crecca*: five-year mean peak of 759 individuals.
- A056 Shoveler *A. clypeata*: five-year mean peak of 164 individuals.
- A125 Coot *Fulica atra*: five-year mean peak of 293 individuals.
- A140 Golden plover *Pluvialis apricaria*: five-year mean peak of 2,200 individuals.
- A395 Greenland white-fronted goose *Anser albifrons flavirostris*: the SPA is a traditional haunt for the species with a five-year mean peak of 426 individuals.
- A999 Wetland and waterbirds

3.3.2.3.3 Current conservation status

The conservation status as detailed within Article 12 report in 2019 is set out in **Table 3-3** below.

Table 3-3. Conservation status, as extracted from Article 12

Species	Estimated population (individuals)	Short-term trend	Short-term period	Long-term trend	Long-term period
Whooper swan	11,852	Increasing	2005-2015	Increasing	1986-2015
Wigeon	50,452	Decreasing	2004-2016	Decreasing	1987-2016
Teal	27,644	Decreasing	2004-2016	Unknown	1987-2016
Shoveler	1,65	Decreasing	2004-2016	Unknown	1987-2016
Coot	13,303	Decreasing	2004-2016	Unknown	1987-2016
Golden plover	80,707	Decreasing	2004-2016	Unknown	1987-2016
Greenland white-fronted goose	9,500	Decreasing	2008-2018	Decreasing	1985-2018

3.3.2.3.4 Conservation objectives

The conservation objective for Lough Iron SPA is to maintain or restore the favourable conservation condition of the bird species listed as a Special Conservation Interests for this SPA.

3.3.2.4 Lough Ree SPA (004064)

3.3.2.4.1 Site description

Situated on the River Shannon between Lanesborough and Athlone, Lough Ree is the third largest lake in the Republic of Ireland. It lies in an ice-deepened depression in Carboniferous Limestone. Some of its features (including the islands) are based on glacial drift. The main inflowing rivers are the Shannon, Inny and Hind, and the main outflowing river is the Shannon. The greater part of Lough Ree is less than 10m in depth, but there are six deep troughs running from north to south, reaching a maximum depth of about 36m just west of Inchmore. The lake has a very long, indented shoreline and hence has many sheltered bays. It also has a good scattering of islands, most of which are included in the site.

3.3.2.4.2 Qualifying features

Lough Ree SPA was selected as a SPA for the presence of a nationally important population of wintering waterfowl including (numbers given for the three-year mean peak between 1997/98 and 1999/00):

- A004 Little grebe *Tachybaptus ruficollis*: three-year mean peak of 52 individuals.

- A053 Mallard *A. platyrhynchos*: three-year mean peak of 1,087 individuals.
- A061 Tufted duck *Aythya fuligula*: three-year mean peak of 1,012 individuals.
- A067 Goldeneye *Bucephala clangula*: three-year mean peak of 205 individuals.
- A142 Lapwing *Vanellus vanellus*: three-year mean peak of 5,793 individuals.
- A038 Whooper swan *Cygnus cygnus*: three-year mean peak of 139 individuals.
- A050 Wigeon *A. penelope*: three-year mean peak of 2,070 individuals.
- A052 Teal *A. crecca*: three-year mean peak of 1,474 individuals.
- A056 Shoveler *A. clypeata*: three-year mean peak of 54 individuals.
- A125 Coot *Fulica atra*: three-year mean peak of 338 individuals.
- A140 Golden plover *Pluvialis apricaria*: three-year mean peak of 3,058 individuals.

The SPA also supports a nationally important population of breeding waterfowl, including:

- A193 Common tern *Sterna Hirundo*: 90 pairs in 1995.
- A065 Common scoter *Melanitta nigra*

The SPA is important for other wintering species including great crested grebe *Podiceps cristatus*, cormorant *Phalacrocorax carbo*, curlew *Numenius arquata*, black-headed gull *Chroicocephalus ridibundus* and mute swan *Cygnus olor*. The SPA is also noted as a breeding site for tufted duck and great crested grebe.

The SPA is also recognised for the presence of wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

3.3.2.4.3 Current conservation status

The conservation status as detailed within Article 12 report in 2019 is set out in **Table 3-4** below.

Table 3-4. Conservation status, as extracted from Article 12

Species	Estimated population (individuals)	Short-term trend	Short-term period	Long-term trend	Long-term period
Little grebe (W)	1,594	Increasing	2004-2016	Unknown	1987-2016
Mallard (W)	18,810	Decreasing	2004-2016	Unknown	1987-2016
Tufted duck (W)	16,927	Decreasing	2004-2016	Unknown	1987-2016
Goldeneye (W)	1,256	Decreasing	2004-2016	Decreasing	1987-2016
Lapwing (W)	69,823	Decreasing	2004-2016	Decreasing	1987-2016
Whooper swan (W)	11,852	Increasing	2005-2015	Increasing	1986-2015
Wigeon (W)	50,452	Decreasing	2004-2016	Decreasing	1987-2016
Teal (W)	27,644	Decreasing	2004-2016	Unknown	1987-2016
Shoveler (W)	1,65	Decreasing	2004-2016	Unknown	1987-2016
Coot (W)	13,303	Decreasing	2004-2016	Unknown	1987-2016
Golden plover (W)	80,707	Decreasing	2004-2016	Unknown	1987-2016
Common tern (B)	5,058	Increasing	2015-2018	Increasing	1984-2018
Common scoter (B)	31	Decreasing	2012-2018	Decreasing	1987-2018

3.3.2.4.4 Conservation objectives

The conservation objective for Lough Ree SPA is to maintain or restore the favourable conservation condition of the bird species listed as a Special Conservation Interests for this SPA.

3.3.2.5 Lough Owel SPA (004047)

3.3.2.5.1 Site description

Lough Owel is a medium- to large-sized lake in Co. Westmeath, with a length of circa 6km along its long axis and a maximum width of 3km. It is fed by a number of small streams and the main outflow is to the Royal Canal. Water is relatively shallow, with a maximum depth of 22m.

3.3.2.5.2 Qualifying features

Lough Owel SPA was selected as a SPA for the presence of a nationally important population of wintering waterfowl including (numbers given for the five-year mean peak between 1995/96 and 1999/00):

- A056 Shoveler *A. clypeata*: five-year mean peak of 142 individuals.
- A125 Coot *Fulica atra*: five-year mean peak of 1,825 individuals.

The SPA is also recognised for the presence of wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

3.3.2.5.3 Current conservation status

The conservation status as detailed within Article 12 report in 2019 is set out in **Table 3-5** below.

Table 3-5. Conservation status, as extracted from Article 12

Species	Estimated population (individuals)	Short-term trend	Short-term period	Long-term trend	Long-term period
Shoveler (W)	1,65	Decreasing	2004-2016	Unknown	1987-2016
Coot (W)	13,303	Decreasing	2004-2016	Unknown	1987-2016

3.3.2.5.4 Conservation objectives

The conservation objective for Lough Owel SPA is to maintain or restore the favourable conservation condition of the bird species listed as a Special Conservation Interests for this SPA.

3.4 BASELINE CRITICAL LOAD FOR NITROGEN

A review of the Conservation Objectives identified the critical load for ammonia for relevant European designated sites, in particular for bog habitats. This information was not available for all designated sites. For European sites designated for their bird population (SPA), no information regarding the critical load was available. However, exceeding critical load may have negative impacts upon habitats required for the designated bird species.

The critical load for nitrogen, is set between 5 and 10kg N/ha/year²³ and site-specific target aims for a total of nitrogen deposition not exceeding 5kg N/ha/year.

Where available, the information regarding the current critical load of nitrogen, as provided by the Conservation Objectives reports, is presented in **Table 3-6**.

Table 3-6. Baseline critical load for nitrogen, where available for the European sites

European designated sites	Site code	Distance at closest point from farm	Current level
Ardagullion Bog SAC	002341	13.1km	12.3kg N/ha/year
Garriskil Bog SAC	000679	13.5km	19.3kg N/ha/year

²³ Bobbink, R. & Hettelingh, J.P., 2011. Review and revision of empirical critical loads and doseresponse relationships. Proceedings of an expert workshop, Noordwijkerhout, 23-25 June 2010. RIVM report 680359002, Coordination Centre for Effects, National Institute for Public Health and the Environment (RIVM).

European designated sites	Site code	Distance at closest point from farm	Current level
Lough Ree SAC	000440	14.2km	14.2kg N/ha/year
Brown Bog SAC	002346	14.7km	16.0kg N/ha/year
Lough Forbes Complex SAC	001818	16.7km	15.5kg N/ha/year

It should be noted that the nitrogen deposition level is currently exceeded for these five SAC identified within 17km of the farm. While no information is available for the other European designated sites, it should be considered that the critical load is also exceeded.

4. CONCLUSION

The baseline desk study carried out in relation to this ecological baseline report identified 14 designated sites (i.e., SAC and SPA) within 17km of the farm. The sites were designated for their habitats and species as summarised in **Table 4-1**.

Table 4-1. Summary of the qualifying features for each designated site

European designated sites	Qualifying features
Glen Lough SPA	Whooper swan
Mount Jessop Bog SAC	Degraded raised bog and bog woodland.
Lough Iron SPA	Whooper swan, wigeon, teal, shoveler, coot, golden plover, Greenland white-fronted goose and associated habitats
Ardagullion Bog SAC	Active raised bog, degraded raised bog and <i>Rhynchosporion</i> Vegetation
Garriskil Bog SAC	Active raised bog, degraded raised bog and <i>Rhynchosporion</i> Vegetation
Garriskil Bog SPA	Greenland white-fronted goose
Lough Ree SAC	Natural eutrophic lakes, semi-natural dry grasslands and scrubland facies on calcareous substrates, active raised bog, degraded raised bog, alkaline fens, limestone pavements, alluvial forests and otter
Lough Ree SPA	Little grebe, mallard, tufted duck, goldeneye, lapwing, whooper swan, wigeon, teal, shoveler, coot, golden plover, common tern (breeding), common scoter (breeding) and associated habitats
Brown Bog SAC	Active raised bog, degraded raised bog and <i>Rhynchosporion</i> Vegetation
Ballymore Fen SAC	Transition mires and quaking bogs
Lough Forbes Complex SAC	Natural eutrophic lakes, active raised bog, degraded raised bog, <i>Rhynchosporion</i> Vegetation and alluvial forests
Ballykenny-Fisherstown Bog SPA	Greenland white-fronted goose
Lough Owel SAC	Hard water lakes, transition mires and quaking bogs, alkaline fens and white-clawed crayfish
Lough Owel SPA	Shoveler, coot and associated habitats

The licenced site itself is not located within any European designated site; therefore the licence does not result in direct impacts through habitat loss.

The operational activities of the licence have resulted in emissions to air of ammonia, which contributes to deposition of nitrogen. A review of the licence did not identify additional emissions that would occur over and above baseline levels; however it is recommended to implement mitigation measures to contribute towards the Conservation Objectives and aim to reduce the critical load which is already exceeded at the designated sites. This is outside the scope of this report.

It is considered that impacts from the site alone or in-combination with existing developments will remain unchanged as no additional emissions from the licence have been identified.

As per the letter from the EPA dated 16 March 2022, the EPA undertook an Appropriate Assessment Screening Determination in March 2022 and assessed the licence against 30 SAC and SPA sites located within 30km of the site. The Appropriate Assessment Screening Determination stated:

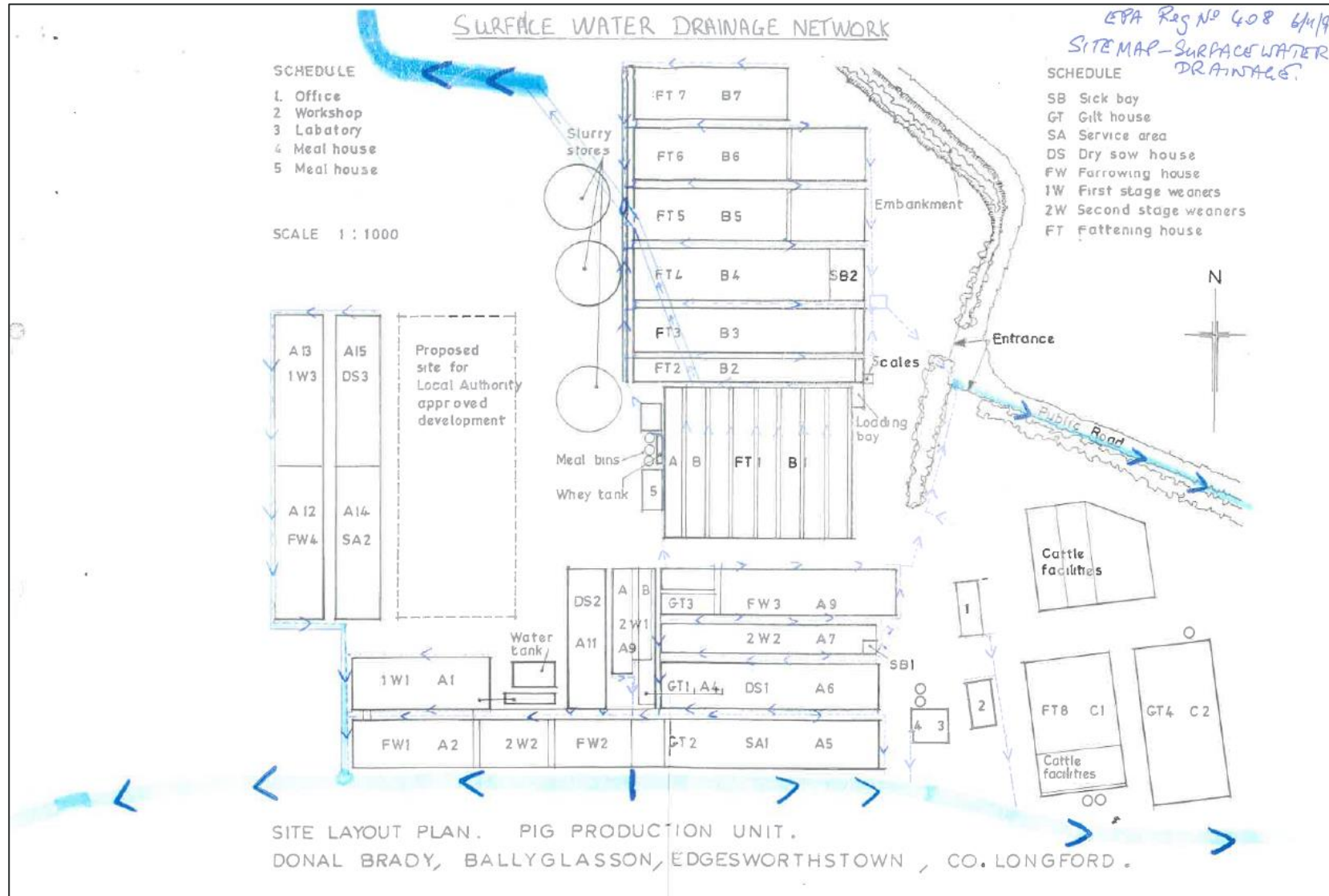
That the activities are not directly connected with or necessary to the management of any European site and that it cannot be excluded, on the basis of objective information, that the activities, individually or in combination with other plans or projects, will have a significant effect on any European site and accordingly determined that an Appropriate Assessment of the activities is required.

- *Air emissions from the installation have the potential for adverse impact on sensitive receptors due to elevated ammonia levels and/or nitrogen deposition at European sites.*

This report presents the baseline information required to undertake an Appropriate Assessment and produce a NIS with regards to the European, if this should be required.

APPENDICES

Appendix 1. Site map for the DDS Brady Farms Limited, as provided by the Client



Appendix 2. Legislation and Planning Policies

European Council Directives

Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) (The Habitats Directive)

The main aim of the Directive is to promote the maintenance of biodiversity through the conservation of natural habitats and wild species listed on the Annexes of the Directive. Member States are required to take measures to maintain or restore, at favourable conservation status, biodiversity whilst taking account of economic, social, cultural requirements and regional and local characteristics.

It gives effect to site and species protection measures through establishment of the Natura 2000 network and designation of European Sites including Special Areas of Conservation (SAC) and Special Protected Areas (SPA). It also establishes a list of species (other than birds) whose habitats must be protected to secure their survival. These priority species and habitats are subject to a higher level of protection.

The Directive also requires appropriate assessment of any plan or project not directly connected with or necessary to the management of a European Site, but likely to have significant effects upon a European site, either individually or in combination with other plans or projects.

Council Directive on the Conservation of Wild Birds (2009/147/EC) (The Birds Directive)

The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It makes provisions for the maintenance of the wild bird populations across their natural range; conserves the habitats for rare or vulnerable species listed in Annex I and of migratory species through the classification of SPAs and provides protection for all wild birds.

National Legislation

European Communities (Birds and Natural Habitats) Regulations 2011-2021

The Regulations give effect to requirements relating to the designation of protected sites under the Birds Directive and Habitats Directive. The Regulations provide for the protection and management of European Sites and place obligations on all public authorities to have regard to the requirements of the Habitats Directive beyond the realms of planning related consents issued under the Planning and Development Act 2000, as amended (the PDA). The Regulations also provide for the protection of species of European importance.

Wildlife Acts 1976 to 2021

The Acts provide for inter alia the protection of wildlife. The Acts prohibit the intentional killing, taking or injuring of certain wild birds or wild animals; or the intentional destruction, uprooting or picking of certain wild plants.

Appendix 3. SCAIL Outputs (taken from Air Quality Screening and Dispersion Modelling²⁴)

Table 3-A. Summary of SCAIL outputs (PC = Process Contribution at receptor edge, PEC = Predicted Environmental Concentration, CL = Critical Load, PED = Predicted Environmental Deposition).

Habitat	Distance from source (km)	NH ₃ (CL (lower) = 3µg/m ³)			Odour PC (O _u m-3)	Nitrogen (CL = 5 (kg/ha/yr))			Acid			
		PC (µg/m ³)	PEC (µg/m ³)	PC as a % of CL		PC (kg/ha/yr)	PED (kg/ha/yr)	PC as a % of CL	PC (kg/ha/yr)	PED (kg/ha/yr)	CL (kEqH ⁺ /ha/yr)	PC as a % of CL
Glen Lough SPA	6.216	1.2	3.4	41%	1.2	5.8	18.4	*	0.4	2.5	*	*
Mount Jessop Bog NHA	8.644	0.6	3	60%	0.6	3.4	16.2	68%	0.2	2.4	0.4	64%
Mount Jessop Bog SAC	8.653	0.6	3	60%	0.6	3.4	16.2	*	0.2	2.4	*	*
Lough Garr NHA	11.836	0.4	2.7	12%	0.4	2	14.8	40%	0.1	2.3	0.4	31%
Lough Iron SPA	12.062	0.4	2.8	36%	0.4	1.9	15.1	*	0.1	2.4	*	*
Ardagullion Bog SAC	13.124	0.3	2.7	10%	0.3	1.7	14.8	34%	0.1	2.4	0.5	23%
Garriskil Bog SAC	13.499	0.3	2.6	9%	0.3	1.6	14.3	32%	0.1	2.2	0.5	24%
Garriskil Bog SPA	13.515	0.3	2.6	9%	0.3	1.6	14.3	*	0.1	2.2	*	*
Lough Ree SAC	14.311	0.3	2.3	25%	0.3	2.2	6.3	44%	0.2	1	1	16%
Lough Ree SPA	14.344	0.3	2.3	25%	0.3	1.5	12.3	*	0.1	2	*	*
Brown Bog SAC	14.847	0.2	2.4	24%	0.2	1.4	13.1	28%	0.1	2.2	0.5	19%
Ballymore Fen SAC	16.004	0.2	2.7	22%	0.2	1.2	14.5	12%	0.1	2.3	1.1	7%
Forthill Bog NHA	16.048	0.2	2.3	22%	0.2	1.2	12.2	24%	0.1	2	1.1	8%
Ballykenny-Fisherstown Bog SPA	16.563	0.2	2.3	21%	0.2	1.1	12.9	*	0.1	2.2	*	*
Lough Forbes Complex SAC	16.57	0.2	2.3	21%	0.2	1.1	12.9	22%	0.1	2.2	0.4	19%
Lough Owel SPA	16.69	0.2	2.7	21%	0.2	1.1	14.8	*	0.1	2.4	*	*
Lough Owel SAC	16.691	0.2	2.7	21%	0.2	1.1	14.8	11%	0.1	2.4	1.2	6%

*Environmental Assessment Level or Critical Load / Level not applicable as this site does not have sensitive habitats or species.

²⁴ Ricardo, 2022. DDS Brady Farms Limited: Air Quality Screening and Dispersion Modelling. Prepared for the EPA and to be issued in October 2022.



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