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NATURA IMPACT STATEMENT

**WOODVILLE PIG FARMS LIMITED,
BALLYMACKEY,
KENNAGH,
CO. TIPPERARY**

2021

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EXECUTIVE SUMMARY

This report has been prepared by Panther Environmental Solutions Ltd to provide for the assessment of the proposed development, comprising of the construction of agricultural buildings and all associated site works at Woodville Pig Farms Ltd, Ballymackey, Co. Tipperary.

This report identified the presence of European sites within the potential zone of influence of the proposed development due to hydrological connectivity / potential hydrological connectivity and distances from the proposed development site. The potential for impacts to European sites as a result of the proposed development such as potential surface water quality impacts, introduction of invasive species, habitat destruction and impacts from noise and dust were considered and the level of risk posed assessed.

During Stage 1 Screening for Appropriate Assessment, it was considered that there may be potential for impacts upon the qualifying interests of Scohaboy (Sopwell) Bog SAC (Site Code: 002206) and would be hydrologically connected Lough Derg, North-east Shore SAC (Site Code: 002241) and the Lough Derg (Shannon) SPA (Site Code: 004058) due to a potential deterioration in water and air quality during the construction and operational phases. Therefore, a Natura Impact Statement was prepared.

Due to the recommended control measures and standard practice during the construction and operational phases, it is considered that there would be no significant risks to the conservation objectives of the habitats and species for which the aforementioned designated sites have been designated.

It is considered that there would be no significant risk of negative impact, either alone or in combination with other plans or projects, to the integrity of the Natura 2000 network.

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1.0 INTRODUCTION

This Natura Impact Statement (NIS) has been prepared by Panther Environmental Solutions Ltd., to accompany an application for planning permission to Tipperary County Council for the proposed demolition of three old pig housing units, the construction of one pre-finisher house, an extension to two existing farrowing units, the construction of one main large building to house weaner stage pigs, the construction of an uncovered slurry reception tank and all associated site development works at Woodville Pig Farms Ltd, Ballymackey, Co. Tipperary.

The principal aim of this study is to assess whether significant effects to European sites (the Natura 2000 network) are likely to occur as a result of this project in accordance with Article 6(3) of the Habitats Directive and the Planning and Development (Amendment) Act, 2001, as amended.

A study was undertaken by Ms Lorraine Wyse (BSc Environmental Science and Health, Diploma in Field Ecology) and Dr Ross Donnelly-Swift (BSc (Hons) Biology, MSc Environmental Science, PhD Biosystems Engineering) of Panther Environmental Solutions Limited. This comprised a review of the proposed development, a site visit on the 25th of September 2019 to examine the ecological context of the proposed development, a desk study of the information on European sites within the potential zone of influence of the site and an analysis of the information in the context of the guidance to determine if a Natura Impact Statement is required.

This report has been prepared with regard to;

- DoEHLG (2009) “*Appropriate Assessment of Plans & Projects in Ireland*”
- Environment DG, European Commission (2002) “*Assessment of plans and projects significantly affecting Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*” Oxford Brookes University, 2001
- Department of the Environment Heritage and Local Government (DoEHLG) Circular Letter SEA 1/08 and NPWS 1/08.
- Department of the Environment Heritage and Local Government (DoEHLG) Circular letter NPWS 1/10 and PSSP 2/10

2.0 LEGISLATIVE CONTEXT

The EU Habitats Directive (92/43/EEC) on the conservation of natural habitats and of wild fauna and flora, as amended by council directive 97/62/EC, 2006/105/EC, and Regulation EC1882/2003 of September 2003, as transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/11), provides the framework for legal protection for habitats and species of European importance.

Article 6(3) and 6(4) of the Habitats Directive lays down the procedure to be followed when planning new developments that might affect a Natura 2000 site. Article 6(3) of the Habitats Directive states;

“Any plan or project not directly connected with, or necessary to the management of the site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site, and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

Article 6(4) would come into force following a determination that a plan or project may adversely affect the integrity of a Natura 2000 site.

In Ireland, the implementation of these provisions of the EU Habitats Directive occurs in four stages:

Stage 1: Screening for Appropriate Assessment

This stage involves an initial screening assessment of the potential impacts of the project, either alone or in combination with other projects, upon a Natura 2000 site. If it can be concluded that there would be no significant impacts upon Natura 2000 sites, the assessment stops at this stage. If not, or if further assessment is required, the assessment proceeds to Stage 2.

Stage 2: Appropriate Assessment / Natura Impact Statement (NIS)

This stage assesses the impact of the project, alone or in combination with other projects or plans, on the integrity of the Natura 2000 site, with respect to the site's conservation objectives, the site's ecological structure and function and its overall integrity. The output of this stage is an NIS, which also includes any mitigation measures required to avoid, reduce or offset negative impacts of the project. If this stage determines that adverse effects on the Natura 2000 site cannot be excluded, then the plan or project should proceed to Stage 3 or be abandoned.

Stage 3: Assessment of Alternative Solutions

A detailed investigation is undertaken in this stage to determine whether alternative ways of achieving the objectives of the project or plan exist. Where no alternatives exist, the project or plan must proceed to Stage 4 or must be abandoned.

Stage 4: Assessment where no Alternatives Exist and where Adverse Impacts Remain

This is the final stage of the process, and is an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

These safeguards are intended to ensure that future plans or projects are not authorised if they are likely to adversely affect the integrity of a Natura 2000 site. Significant impacts may include, but are not exclusive to, a loss of habitat area, fragmentation of the habitat, disturbance to species using the site and changes in water resources or quality.

3.0 METHODOLOGY

Stage 1 - Screening

Screening is the first stage in the Appropriate Assessment process, and is carried out to determine whether a Stage 2 Appropriate Assessment and a Natura Impact Statement (NIS) is required. Screening addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3);

1. Whether a plan or project is directly connected to or necessary for the management of the European (Natura 2000) site; and
2. Whether a plan or project, alone or in combination with other plans or projects, is likely to have significant effects on a European (Natura 2000) site, in view of its conservation objectives.

Screening should be undertaken without the inclusion of mitigation measures. If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 AA and an NIS.

The findings and conclusions of the screening process should be documented, with the necessary supporting evidence and objective criteria. This is of particular importance in the cases where the Appropriate Assessment process ends at the screening stage because the conclusion is that no significant effects are likely.

Following Stage 1 Screening, it was considered that there may be potential for an indirect impact upon the qualifying interests of a European site, therefore, the assessment progressed to Stage 2.

Stage 2 – Natura Impact Assessment

The scope of this assessment follows the appropriate assessment statement methodology as defined within the European Commission guidance document “*Assessment of plans and projects significantly affecting Natura 2000 sites*” (2002), Section 3, Part 2. Guidance from the Department of the Environment, Heritage and Local Government “*Appropriate Assessment of Plans and Projects in Ireland*” (2009) and “*Managing Natura 2000 sites: The provisions of Article 6 of the ‘Habitats’ Directive*” (2018) have also been used in the preparation of this report. In accordance with this guidance, the following methodology has been used to produce this Natura Impact Statement:

Step 1: Information Required

Identifying the conservation objectives of the Natura 2000 site and the aspects of the project, alone or in combination with other projects or plans, which have the potential to affect those conservation objectives.

This process involves gathering information for the Natura 2000 site, including the conservation objectives of the site, factors contributing to conservation value, aspects sensitive to change and the existing baseline condition of the site. The principal source of information used for Natura 2000 sites, their qualifying interests and conservation objectives is the National Parks and Wildlife Service (NPWS). Information is also required for the

project including the size and scale of the project, the relationship (distance, connectivity etc.) of the project to the Natura 2000 site and the characteristics of existing, proposed or other projects which have the potential to affect the Natura 2000 site.

Step 2: Impact Prediction

This process predicts and identifies the likely impacts of the project on the Natura 2000 site. Potential impacts are identified as; direct and indirect; short or long-term duration; construction, operational or decommissioning; and isolated, interactive and cumulative effects.

Step 3: Conservation Objectives

Once the potential impacts of the project have been predicted and identified, it will be necessary to assess whether these impacts will adversely impact upon the integrity of the Natura 2000 site, as defined by the site's conservation objectives and status of the site. Where it cannot be demonstrated that there will be no adverse impacts upon the Natura 2000 site, mitigation measures must be proposed for the project.

Step 4: Mitigation Measures

Upon the identification of potential impacts, the project will have on the Natura 2000 site (alone or in combination with other projects or plans), mitigation measures will be proposed to eliminate, reduce or offset these negative impacts. Mitigation measures should be considered with preference to the hierarchy of preferred options outlined in the guidance document "*Assessment of plans and projects significantly affecting Natura 2000 sites*".

3.1 METHODOLOGY BACKGROUND

This Appropriate Assessment has been carried with reference to the following guidelines:

- *Appropriate Assessment of Plans and Projects in Ireland. Guidelines for Planning Authorities.* DoEHLG, 2009.
- Circular NPWS 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities
- *Managing Natura 2000 sites – The Provisions of Article 6 of The Habitats Directive 92/43/EEC.* European Commission, 2000.
- Circular L8/08 Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments 2 September 2008
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites. Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.* European Commission, 2002.
- Commission Notice "Managing Natura 200 sites The provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission, 21.11.2018
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

3.2 DESKTOP RESEARCH

Desktop research was carried out to gather information on the ecology of the site and surrounding areas. The locations of the Natura 2000 sites within 15km of Woodville Pig Farms Ltd, Ballymackey, Co. Tipperary were identified from National Parks and Wildlife Service (NPWS) online map viewer. Other Natura sites beyond 15km were also reviewed and considered for the potential for the project to have a negative effect.

- Water quality data from the EPA was reviewed for the assessment of biological and environmental data collected on waterbodies in Ireland (Water Quality in Ireland 2013-2018 (2019))
- Information on the characteristics of the Natura 2000 sites within the potential zone of influence was reviewed from the conservation objectives documents, site synopses and Standard Natura 2000 data forms available on the NPWS website.

3.3 SITE SURVEY

A site characterisation assessment was undertaken on the 25th of September 2019 to examine the ecological context of the development site, by systematically walking the site, adjacent land and boundaries and determining the habitats present. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt's "*A Guide to Habitats in Ireland*", a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, "*Best Practice Guidance for Habitat Survey and Mapping*", (Smith *et al.*, 2011).

Bird species and signs of fauna activity and dwellings were also noted. Particular attention was given to the possible presence of habitats and/or species, which are legally protected under Irish and European legislation and to assessing any potential ecological connectivity with Natura 2000 sites or supplementary or stepping stone habitats of relevance to Natura 2000 sites.

4.0 DESCRIPTION OF PROPOSED DEVELOPMENT AND EXISTING SITE

4.1 PROPOSED DEVELOPMENT

The applicant, Woodville Pig Farms Ltd., operates an existing pig facility at the Ballymackey site, located approximately 2.7km to the north-east of Ballymackey village, Co. Tipperary, as shown in Figure 4.1 below. The facility is located in a rural and agricultural area, with intermittent residential development predominantly aligned along the existing road network.

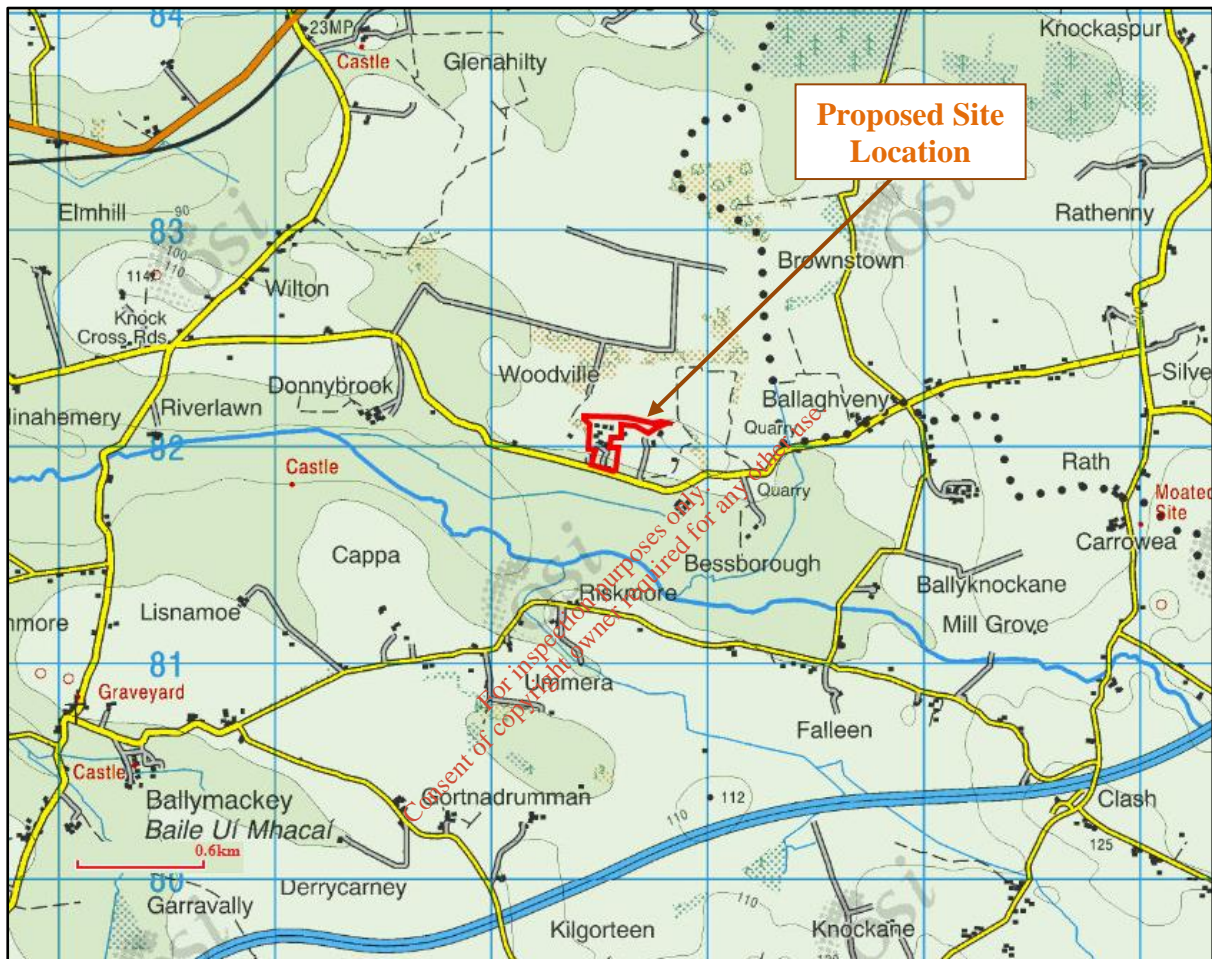


Figure 4.1: Location of Proposed Development at Ballymackey, Co. Tipperary.

The applicant's site measures approximately 5.55 hectares, and includes a site office and canteen, dwelling house, sow house, farrowing houses, gilt houses, weaner house, stores and yard areas.

An IPPC License Reg. No. P0467-01 was issued by the Environmental Protection Agency (EPA) in March 2000 to the Woodville Pig Farms Ltd. for 147 farrowing sows, 473 dry sows, 75 gilts, 8 boars, 2400 weaners and 3000 fattening pigs. In 2002, Woodville Pig Farms Ltd. purchased an existing pig facility at Ballyknockane with a capacity for 8000 fattening pigs. Following communication with the EPA, approval was issued to adjust the stock numbers of this IPPC License to 220 farrowing sows, 700 dry sows, 109 gilts, 12 boars, 3850 weaners and finishing stock would be transferred to the associated pig finishing unit in Ballyknockane. The revised IPPC licence (Ref. No. P0467-02) was issued in July 2012,

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allowing 220 farrowing sows, 700 dry sows, 109 gilts, 12 boars, 3,850 weaners and 8,000 finishing pigs.

The proposed development would include the demolition of a gilt house, two weaner houses and one first stage weaner house, and the construction of a second stage weaner house, an extension to Farrowing House Unit 1 with additional farrowing sow accommodation, the conversion of Farrowing House Unit 2 to loose sow accommodation, the extension of Unit 2 to provide additional weaner accommodation, the construction of a new pre-finisher house for slow-growing pigs and the construction of a slurry reception tank, and all associated site development works at the Woodville Pig Farms Ltd. site. The proposed development would occur on the Woodville property alone. There would be no alterations to structures at the Ballyknockane site as a result of this proposed development. The site's EPA license would be required to be reviewed by the EPA if planning permission is granted for this proposal.

The current number of pigs at both the Woodville site and Ballyknockane site, in addition to the proposed numbers, are included within the table below.

Table 4.1: Current and Proposed Maximum Animal Numbers.

ANIMAL CLASS	EXISTING EPA LICENSED NO. OF PIGS <small>NOTE 1, 2</small>	PROPOSED NO. OF PIGS
Woodville		
Dry Sows / Farrows / Suckling Sows	920	1,650
Weaners	3,850	8,400
Fattener Pigs		4,200
Ballyknockane		
Finisher Pigs	8,000	8,000

Note 1: This excludes suckling pigs maintained on site.

Note 2: A 20% increase in the number of production pigs (finishers) held on site, for a period not exceeding 2 weeks, is permissible. The frequency of such occurrences must be kept to a minimum. Any other variation in any of the animals numbers specified requires prior agreement from the Agency.

The demolition stage of the proposed development would involve the demolition of the gilt house, two weaner houses and one first stage weaner house, with a total approximate footprint of 1,390 m². The proposed structures / extensions to structures and their associated footprints are provided in the table below.

Table 4.2: Proposed Structures / Extensions and Associated Footprints.

PROPOSED STRUCTURE / EXTENSION	APPROX. FLOOR AREA (M ²)
Farrowing House	792
Weaner House	359
Second Stage Weaner House	4,517
First Stage Weaner House	(part of the Second Stage Weaner House)
Pre-finisher House	1,190
Slurry Reception Tank	316.2
Total	7,174.2

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Stormwater from the site, comprised of rainwater run-off from roofs, is directed to a central stormwater pipe which discharges to the Wilton Stream. There is one surface water monitoring point located on this system, SW2. In accordance with the site's Industrial Emissions Licence, surface water is inspected weekly at SW2 and sampled quarterly. Stormwater from the proposed structures would connect to this existing stormwater network.

The site currently produces pig slurry as an animal by-product. The storage and use of animal slurry and manure as a fertiliser is controlled under European Union (Good Agricultural Practice for Protection of Waters) Regulations (S.I. 605 of 2017) (commonly referred to as the Nitrates Regulations).

Slurry generated at the existing structures onsite is directed to one of four slurry reception locations onsite, comprising of underground slurry storage tanks. Slurry produced by animals in the proposed structures would be collected and stored within slurry tanks beneath the structures. For the Second Stage Weaner House and the Pre-Finisher House, additional storage would be provided by proposed external slurry storage tanks.

All soiled water produced on site (i.e. rainwater on dirty yards and water which has been used to clean down pig pens between batches) is diverted to the nearest slurry tank where it is treated as slurry. Pig pens would be washed down at least once a week between batches. There would be no discharge of any soiled water or any effluent from the site to any watercourse or to groundwater.

The existing and proposed slurry tanks conform to a recognised design standard for slurry storage, i.e. The Irish Department of Agriculture and Food Specifications S123 (*Minimum Specification for Bovine Livestock units and Reinforced Tanks*) March 2006.

The existing slurry tanks are fitted with leak detection systems. The new slurry tanks would also include an approved sub-floor leak detection system as a method of monitoring to ensure there is no source of pollution in the vicinity from the slurry tanks. The subfloor leak detection system would consist of slotted drains (100 mm PVC pipes laid to falls in a herring bone arrangement beneath the floor of the slurry tank. These pipes would feed to an inspection chamber of standard manhole construction with fully plastered impervious internal walls. Integrity assessment of the slurry tank would be carried out through periodic sampling and analysis of liquid contained in specifically constructed monitoring chambers.

Given the capacity of existing slurry storage tanks and the proposed storage tanks, the current and proposed storage facilities would have sufficient capacity to accommodate the increase in slurry due to the proposed development, in compliance with Article 10 of the European Union (Good Agricultural Practice for Protection of Waters) Regulations (S.I. No. 605 of 2017).

Slurry from the site is currently, and would continue to be, collected periodically by customers (i.e. local farmers) for the purpose of land spreading. The spreading of by-product pig slurry on land to supply fertiliser nutrients is provided for and is controlled under the European Union (Good Agricultural Practice for Protection of Waters) Regulations (S.I. 605 of 2017 and Directive 91/676/EEC), a.k.a. the Nitrates Regulations.

The applicant intends to avail of a new modern design for low atmospheric emissions in the new weaner and finisher structures. The units would include shallow slatted tanks beneath the

new units with frequent slurry removal to external covered storage tanks in accordance with BAT recommendations.

The estimated timeframe for the construction of the proposed development is 3-6 months. Construction works would be confined to the proposed development footprint. During the construction phase, site clearance works would be undertaken, which would involve the removal of a small area of scrub habitat from the proposed development footprint and earth-moving activities. During excavation works, subsoil and topsoil would be segregated and temporarily stored onsite. Excavated soils would be re-used in landscaping and reinstatement works.

4.2 EXISTING ENVIRONMENT

The development site is located within a rural area, in an area primarily dominated by pasture, arable land and peatland. The nearest watercourse to the development site is the Wilton Stream, located approximately 135m to the south of the site. A number of one-off residences and farmyard complexes exist in the area.

According to the Preliminary Flood Risk Assessment (PFRA) Mapping prepared by the OPW, the development site is not located within an area of groundwater flood, pluvial flood or fluvial flood, indicative of 1% AEP (100-yr) event or 0.1% AEP (1000-yr) event. However, it should be noted that this map is based on broad-scale simple analysis and may not be accurate for a specific location.

The development site is located within the Ballysteen Formation, comprising of Lower Impure Limestone, with Kelly (2003) noting that “groundwater movement is mainly restricted to the weathered and shallow subsurface zone... Flow paths are thought to be short, with groundwater discharging to nearby streams and springs. The limited fracturing restricts groundwater storage and movement...”

A site characterisation assessment was undertaken on the 25th of September 2019 to examine the ecological context of the development site, by systematically walking the site and boundaries and determining the habitats present. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt’s “A Guide to Habitats in Ireland”, a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, “Best Practice Guidance for Habitat Survey and Mapping”, (Smith *et al.*, 2011).

Bird species and signs of fauna activity and dwellings were also noted. Particular attention was given to the possible presence of habitats and/or species, which are legally protected under Irish and European legislation.

During the site walkover, eight main habitats were identified. The dominant habitat onsite was identified as buildings and artificial surfaces (BL3) habitat, comprising of the site office and canteen, dwelling house, sow house, farrowing houses, gilt houses, weaner houses, stores and yard areas (both gravel and hardstanding). Little to no vegetation was present.

Small sections of recolonising bare ground (ED3) habitat were noted adjacent the piggery houses and along access ways, in addition to an area to the front of the site office and canteen building. Flora present included abundant Short-fruited Willowherb (*Epilobium obscurum*), and occasionally recorded Common Field-speedwell (*Veronica persica*), Common Mouse-ear (*Cerastium fontanum*), Daisy (*Bellis perennis*), Dandelion (*Taraxacum* spp.), Dove's-foot Crane's-bill (*Geranium molle*), Groundsel (*Senecio vulgaris*), Redshank (*Persicaria maculosa*), Sow-thistle (*Sonchus* spp.), Thistle (*Cirsium* spp.), White Clover (*Trifolium repens*) and various grasses.

A section of recolonising bare ground (ED3) habitat was also recorded to the east of the existing piggery houses, where an area has disturbed in recent times. Flora recorded was similar to that recorded within ED3 habitat elsewhere onsite, and included frequently recorded Bramble (*Rubus fruticosus*), Nettle (*Urtica dioica*) and Willow (*Salix* spp.), and occasionally recorded Common Mouse-ear, Herb-Robert (*Geranium robertianum*), Rosebay Willowherb (*Chamerion angustifolium*), Short-fruited Willowherb and Thistle.

Amenity grassland (improved) (GA2) habitat is present within the southern portions of the development site, adjacent the site office / canteen building and dwelling house. This habitat is dominated by cultivated grass species, with some Buttercup (*Ranunculus* spp.), Daisy, Ribwort Plantain (*Plantago lanceolata*) and Red and White Clover (*Trifolium pratense* and *T. repens*).

An area of grassland was noted in the northern portion of the development site, best characterised by wet grassland (GS4) habitat, mainly comprised of various grasses, including Bent grasses (*Agrostis* spp.), Ryegrasses (*Lolium* spp.) and Yorkshire Fog (*Holcus lanatus*), Nettle, Soft Rush (*Juncus effusus*) and Thistle. Other flora present in lower abundance included Cleavers (*Galium aparine*), Creeping Buttercup (*Ranunculus repens*), Dock (*Rumex* spp.) and Short-fruited Willowherb.

A small section of scrub (WS1) is present within the wet grassland area, dominated by Willow and with some occasional Ash (*Fraxinus excelsior*) also present. Ground and field layer flora was comprised of the same flora recorded for the wet grassland area.

Sections of hedgerows (WL1) habitat are present in the southern section of the development site. The section of hedgerow running in a north-south orientation between the site office and the dwelling house was comprised of a mixture of native and garden-variety species, including Apple (*Malus domestica*), Ash, Cherry Laurel (*Prunus laurocerasus*), Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Leyland Cypress (*Cuprocyparis leylandii*) and Snowberry (*Symphoricarpos albus*). Ground and field flora included Bramble, Cleavers, Dandelion, Dog-rose (*Rosa canina* agg.), Ivy (*Hedera helix*) and Nettle.

Hedgerows (WL1) habitat along the southern site boundary, adjacent the roadway, was mainly comprised of native species, and included Ash, Elm (*Ulmus* sp.), Hawthorn and Hazel. Two mature trees were noted in this section, one mature Ash tree and one mature Beech (*Fagus sylvatica*) tree. Other flora species recorded included Bramble, Cow Parsley (*Anthriscus sylvestris*), Dock, Dog-Rose and Nettle.

The remainder of hedgerows (WL1) habitat onsite was comprised entirely of Leyland Cypress, with Bramble and Ivy recorded in low abundance.

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Treelines (WL2) habitat was noted along the eastern site boundary, mainly comprised of Elder (*Sambucus nigra*), Sitka Spruce (*Picea sitchensis*) and Scot's Pine (*Pinus sylvestris*), with a recently planted row of Cherry Laurel. Other tree / shrub species noted included Beech, Hawthorn, Hazel, Holly (*Ilex aquifolium*), Sycamore (*Acer pseudoplatanus*) and Willow. Other flora included Bramble, Cleavers, Dock, Herb-Robert, Ivy, Nettle, Ribwort Plantain, Thistle and Vetch (*Vicia* spp.).

Areas of woodland were recorded to the west and east of the existing piggery buildings. These areas of woodland are best characterised as broadleaved woodland (WD1) habitat, being mainly comprised of Beech, with occasionally recorded Ash, Elder and Sycamore. Tree / shrubs recorded in lower abundance included Holly, Horse-chestnut (*Aesculus hippocastanum*), Leyland Cypress, Lime (*Tilia* spp.) and Willow. Other flora encountered included Bramble, Cow Parsley, Dock, Dog-Rose, Herb-Robert, Hogweed (*Heracleum sphondylium*), Ivy, Nettle and Thistle.

The majority of the site, comprising of buildings and artificial surfaces, amenity grassland and recolonising bare ground, can be considered to be modified and of low ecological value. The remainder of the habitats at the site, including hedgerows, treelines, woodland, scrub and wet grassland, can be considered to be of moderate to high ecological value. No plant species of conservation significance or invasive plant species were noted during the site assessment.

The identified habitats at the proposed development site, as per the Fossitt habitat classification scheme, are summarised in Table 4.3 below.

Table 4.3: Summary of Habitats Identified at the Proposed Development Site

HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	LEVEL 2	LEVEL 3
G – Grassland and marsh	GA – Improved grassland	GA2 – Amenity grassland (improved)
	GS – Semi-natural grassland	GS4 – Wet grassland
W – Woodland and scrub	WD – Highly modified / non-native woodland	WD1 – Broadleaved woodland
	WS – Scrub / transitional woodland	WS1 – Scrub
	WL – Linear woodland / scrub	WL1 – Hedgerows WL2 – Treelines
E – Exposed rock and disturbed ground	ED – Disturbed ground	ED3 – Recolonising bare ground
B – Cultivated and built land	BL – Built land	BL3 – Buildings and artificial surfaces

Given the agricultural land use of the surrounding area, it would be expected that common grassland and hedgerow species would be present in the area. Bird species noted during the site walkover included Blackbird (*Turdus merula*), Blue Tit (*Parus caeruleus*), Chaffinch (*Fringilla coelebs*), Collard Dove (*Streptopelia decaocto*), Dunnock (*Prunella modularis*), Great Tit (*Parus major*), Magpie (*Pica pica*), Pied Wagtail (*Motacilla alba*), Robin (*Erithacus rubecula*), Rook (*Corvus frugilegus*), Starling (*Sturnus vulgaris*), Swallow

(*Hirundo rustica*), Woodpigeon (*Columba palumbus*) and Wren (*Troglodytes troglodytes*). No species are red listed under the BoCCI classification, while three species are amber listed: Robin, Starling and Swallow. None of the bird species recorded are listed under Annex I of the E.U. Birds Directive.

Mammals, typical of that found throughout the rest of Ireland, which would be expected to be found in the general area include Badger (*Meles meles*), Fox (*Vulpes vulpes*), Otter (*Lutra lutra*), Pine Marten (*Martes martes*), Stoat (*Mustela erminea hibernica*), American Mink (*Mustela vison*), Irish Hare (*Lepus timidus hibernicus*), Rabbit (*Oryctolagus cuniculus*), Hedgehog (*Erinus europaeus*), Red Squirrel (*Sciurus vulgaris*), Wood Mouse (*Apodemus sylvaticus*), Pygmy Shrew (*Sorex minutus*), Greater White-toothed Shrew (*Crocidura russula*), Brown Rat (*Rattus norvegicus*), Bank Vole (*Myodes glareolus*), and Fallow Deer (*Dama dama*).

No fauna, or evidence of fauna, were observed during the site walkover. In the absence of aquatic habitats within the development site itself, the site would have limited potential to support aquatic species. There was no evidence of otter, including spraints, tracks or holts, at the development site.

In addition to the site walkover, flora and fauna records were reviewed on the National Biodiversity Data Centre (NBDC) website for the proposed development site and vicinity. No protected flora species under the Flora (Protection) Order 2015 (S.I. No. 356 of 2015) were recorded for the thirty years previous for the 10km square (R98) in which the proposed development site is located, while records were returned for three invasive flora species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011); Giant-rhubarb (*Gunnera tinctoria*), Japanese Knotweed (*Fallopia japonica*) and *Rhododendron ponticum*.

Fauna records for the previous thirty years were reviewed on the NBDC website for the two 2km squares (R98Q and R98R) in which the proposed development is located. Bird species of note recorded include Swallow, House Martin (*Delichon urbicum*), Sand Martin (*Riparia riparia*), Starling, House Sparrow (*Passer domesticus*), Great Black-backed Gull (*Larus marinus*), Herring Gull (*Larus argentatus*) and Woodpigeon. Fauna of note include the protected species Freshwater White-clawed Crayfish (*Austropotamobius pallipes*), Marsh Fritillary (*Euphydryas aurinia*), Badger and Hedgehog.

4.2.1 Water Quality

The proposed development is located within the Lower Shannon catchment (25C) and the Ollatrim_SC_010 sub-catchment.

As noted above, the Wilton Stream (also referred to as the Ballaghveny Stream) and Ollatrim River are located approximately 125m and 350m south of the site respectively. Stormwater drainage from the development site is directed to a field drain, which travels for approximately 135m prior to joining with the Wilton Stream. From here, the Wilton Stream travels approximately 1.27km before joining with the Ollatrim River. The Ollatrim River converges with the Nenagh River approximately 10.75km downstream from the Wilton confluence, which in turn flows to Lough Derg approximately 10.25km from the confluence with the Nenagh River.

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The Ollatrim River, Nenagh River or Lough Derg are not designated as a Salmonid Water under EC (Quality of Salmonid Waters) Regulations (S.I. No. 293 of 1988).

Lough Derg is designated as the Lough Derg, North-east Shore Special Area of Conservation (SAC) (Site Code: 002241). The proposed development site is therefore located approximately 22.4km upstream from the Lough Derg, North-east Shore SAC.

The Environmental Protection Agency (EPA) undertake surface water monitoring along the River Ollatrim. The results for the nearest monitoring stations with available information (as per Table 4.4) for the period 1996 – 2018 are summarised in Figure 4.2 below for indicative purposes.

Table 4.4: Monitoring Stations of the Ollatrim River within the Vicinity of the Development

STATION NO.	STATION LOCATION	EASTING	NORTHING	APPROX. LOCATION RELATIVE TO WILTON CONFLUENCE
RS25O010150	Bridge d/s Ollatrim Br	198849	180965	4.1km Upstream
RS25O010250	Bridge Nr Riverlawn House	194208	181932	1.1km Upstream

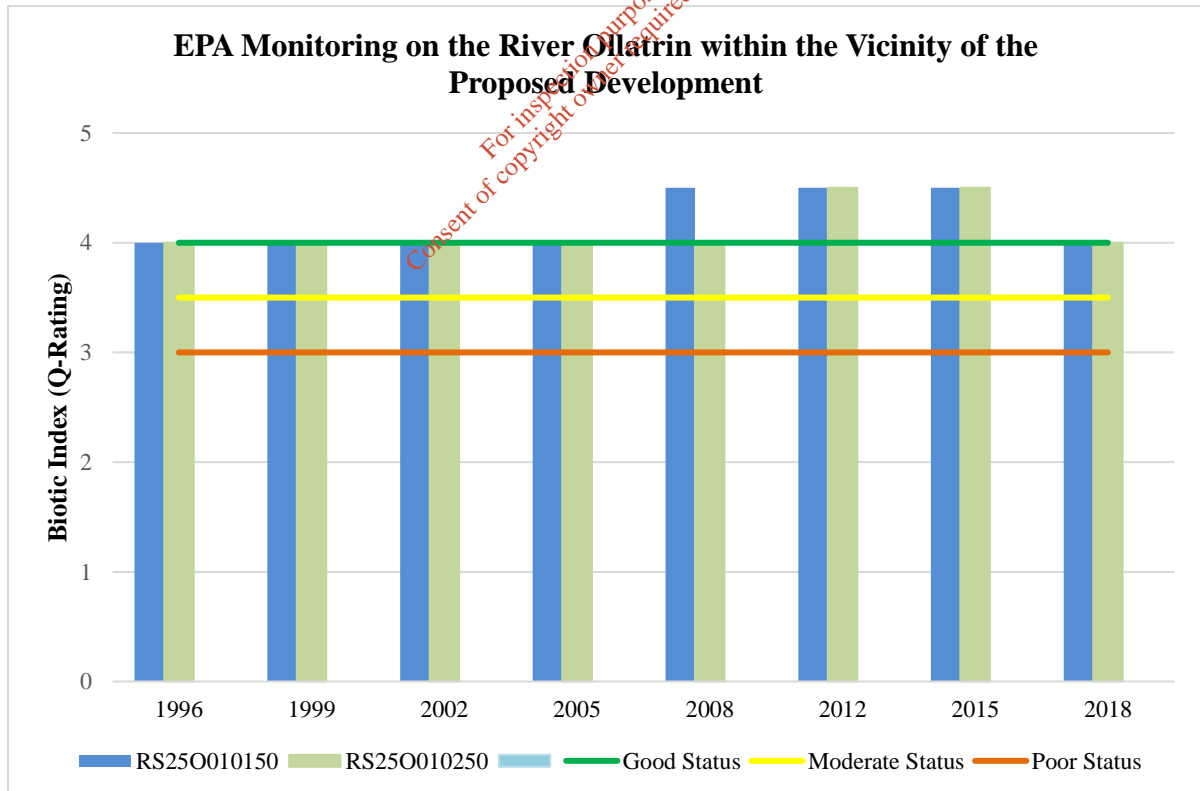


Figure 4.2: EPA Ecological Monitoring of the River Ollatrim from 1996 – 2018
 As can be seen in Figure 4.2 above, the River Ollatrim at the two monitoring stations has achieved a water quality status ranging between Q4 (good) to Q4-5 (high) from 1996 – 2018, with recent monitoring showing a water quality status of Q4 (good).

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The EPA, 2013 “*Report on Water Quality in Tipperary 2013*” report notes that agriculture is the key pressure on water quality of the Ollatrim River.

As part of water quality monitoring at the adjacent Ballaghveny Landfill site (Industrial Emissions Licence No. W0078-03), Conservation Services, Ecological & Environmental Consultants were commissioned by Tipperary County Council to undertake biological monitoring of surface water quality on the Wilton Stream (also referred to as the Ballaghveny Stream) and the Ollatrim River. The results for the years 2016, 2017 and 2019 is available on the EPA website. A summary of the results, in addition to the distance relative to the Woodville Pigs Ltd. site where possible, is included in the table below.

Table 4.4: Biological Monitoring within the Vicinity of the Development

SAMPLING LOCATION	LOCATION RELATIVE TO DEVELOPMENT SITE	Q-RATING		
		2016	2017	2019
Site A (Wilton Stream)	Upstream of Woodville Pig Farms Ltd. stormwater discharge	Q2-3	Q3	Q3
Site A1 (Wilton Stream)	Upstream of Woodville Pig Farms Ltd. stormwater discharge	Q3	Q3	Q3
Site B (Wilton Stream)	1.12km Downstream of Woodville Pig Farms Ltd. stormwater discharge	Q3	Q3	Q3
Site 1 (Ollatrim River)	130m (approx.) upstream of Wilton / Ollatrim confluence	Q4-5	Q4-5	Q4-5
Site 2 (Ollatrim River)	1.1km (approx.) downstream of Wilton / Ollatrim confluence	Q4-5	Q4-5	Q4-5

As can be seen from the results, the Wilton Stream has been mostly achieving a Q3 (poor) water quality status, while the Ollatrim River has been achieving a Q3-4 (moderate) water quality status. As the sampling sites on the Wilton Stream upstream of the development site’s existing stormwater discharge point are returning similar results to the downstream sampling site, it is considered that the site’s stormwater discharge is unlikely to be having an adverse impact upon water quality.

4.2.2 Air Quality

An Air Quality and Odour Impact Assessment Report was carried out by Odour Monitoring Ireland Ltd to perform a predictive odour and ammonia impact assessment of an existing and proposed extension to pig production facility utilising library emission data and dispersion-modelling software Aermid Prime (19191). This assessment is to ascertain whether the levels of emissions from the proposed pig production facility will result in ground level impact in the vicinity of the site operations and on Natura 2000 sites.

Following requested further information (RFI) from the EPA, model results were updated as per “270721 RFI EPA Cullinan Farms Rev 1” submitted with the RFI response.

The model assessed the potential impacts for the farm as standard slatted type animal houses. Potential ammonia reductions as a result of proposed slurry removal system was not accounted for in the model.

Predicted Annual average max Ground level NH₃ concentration for Proposed Pig Production Facility (µg/m³) Year 2017 was measured for the following Natura 2000 sites:

Table 4.5: Summary Results of Air Quality Modelling for Natura 2000 sites.

NATURA 2000 SITE	Predicted Annual average max Ground level NH ₃ conc.
<i>Limit Value</i>	3.000 µg/m³
Sohaboy (Sopwell) Bog SAC	0.049 µg/m ³
Kilduff, Devilsbit Mountain SAC	0.009 µg/m ³
Slievefelim to Silvermines Mountains SPA	0.010 µg/m ³
Sharavogue Bog SAC	0.027 µg/m ³
Lough Derg, North-east Shore SAC	0.050 µg/m ³

The max predicted value of Ammonia at a Natura 2000 site is 0.05 µg/m³ at Lough Derg, North-East Shore SAC.

5.0 EUROPEAN SITES (NATURA 2000 SITES)

In assessing the zone of influence of this project upon European sites, the following factors must be considered:

- Potential impacts arising from the project;
- The location and nature of European sites;
- Pathways between the development and European sites.

There is no standard radius that can be used to select which European sites are to be analysed. This can only be determined by looking at the zone of influence of the project at hand. A rule of thumb often used is to include all European sites within a distance of 15km. One Special Protection Area (SPA) site and four Special Area of Conservation (SAC) sites occur within 15km of the proposed development.

While the rule of thumb is to include all European sites within a distance of 15km, an additional SPA site has been included as part of the assessment, as it falls just outside the distance band and is also hydrologically connected with the proposed development. The following table details the European sites chosen for assessment:

SITE NAME	DESIGNATION	SITE CODE	DISTANCE
Scohaboy (Sopwell) Bog	SAC	002206	9.6km N
Kilduff, Devilsbit Mountain	SAC	000934	11.5km S-E
Sharavogue Bog	SAC	000585	13.5km N-E
Slievefelim to Silvermines Mountains	SPA	004165	13.3km S-SW
Lough Derg, North-east Shore	SAC	002241	14.5km N-W
Lough Derg (Shannon)	SPA	004058	15.8km N-W

Maps detailing European sites within 2km and 15km of the proposed site are included as Appendix A below.

Given the distances of the above designated sites to the proposed development site, and given that the development site is located within the Ballysteen Formation, with likely short flow paths and groundwater mainly restricted to the subsurface zone (Kelly, 2003), it is not considered that the development site would have a groundwater connection with the designated sites.

For this assessment, the sites considered to be within the potential zone of influence of the proposed development were the Lough Derg, North-east Shore SAC (Site Code: 002241) and the Lough Derg (Shannon) SPA (Site Code: 004058), due to hydrological connectivity with the proposed development.

Scohaboy (Sopwell) Bog SAC (Site Code: 002206), while within the same river catchment as the development site, is located upstream of the proposed development, and therefore is not hydrologically connected with the development. However, while unlikely to be within the potential zone of influence, Scohaboy (Sopwell) Bog SAC has been included for assessment due to distance.

The proposed development is not located within the same river catchment as Sharavogue Bog SAC (Site Code: 000585), and thus is not hydrologically connected to this SAC. While small portions of the Kilduff, Devilsbit Mountains SAC (Site Code: 000934) and Slievefelim to Silvermines Mountains SPA (Site Code: 004165) are within the same river catchment as the development, these sites are located upstream of the development site. Therefore, in the absence of a source-pathway-receptor relationship, and given the distances from the development, these sites have been screened out.

5.1 SCOHABOY (SOPWELL) BOG SAC (SITE CODE: 002206)

Scohaby (Sopwell) Bog SAC occurs within the larger raised bog system that is designated as Scohaby Bog NHA (000937). It is situated 4 km north-west of Cloughjordan in Co. Tipperary. It lies within the townland of Sopwell. The site is a Special Area of Conservation (SAC) selected for the following habitat listed on Annex I of the E.U. Habitats Directive:

ANNEX I HABITATS	
CODE	DESCRIPTION
7120	Degraded Raised Bog

The conservation objectives for the SAC site are to maintain or restore the favourable conservation condition of the qualifying interest. An excerpt from the Natura 2000 Data Form for the Scohaby (Sopwell) SAC is included below while further details are available within the site's site synopsis (NPWS, 2016).

“Scohaby (Sopwell) Bog SAC (002206) comprises 71.91 ha of raised bog (62.36 ha of high bog and over 9.55 ha cutover) which occupies the central section of the northern end of Scohaby Bog NHA (000937). Scohaby Bog is a Midland type raised bog developed in a basin. The site is bounded by peatland on all margins, apart from the north where a stream flows along the northern margin. Cutover bog occurs in the south-east of the site and an area of approximately 19 ha of clear-felled coniferous plantation is present on the high bog to the north of the site. Over 43 ha of the high bog was never afforested but a considerable proportion of that area was subjected to intensive, but shallow drainage. That drainage was not maintained and in some areas has naturally partly infilled by bog moss *Sphagnum* species regrowth over the years. The afforested area was planted in the 1980s and was all clearfelled by 2013. Much of the unafforested high bog has vegetation typical of Midland Raised Bog type. The two scarce hummock forming bog mosses, *Sphagnum fuscum (sensu lato)* and *S. austinii* occur with the latter being locally frequent in places. Some of the recovering pool systems are quite large with Bog Bean (*Menyanthes trifoliata*) and Great Sundew (*Drosera anglica*) present.

When the conifer plantation in the SAC were removed the intensive drainage system associated with it was blocked by 2014 as part of an EU funded LIFE project so as to raise the water table and restore Active raised bog (ARB) on the site... Much of the cutover to the south-east of the site is dominated by Purple Moor-grass (*Molinia caerulea*) with scattered scrub of Gorse (*Ulex europaeus*) and Downy Birch (*Betula pubescens*) in places. Peat cutting ceased in the area in 2015 and the cutover drains were all blocked in late 2015. The area has now rewetted and should eventually support raised bog communities and species. It is estimated that approximately 1.6 ha of this cutover has the potential to support Active Raised Bog in the medium to long term (i.e. over 30 years period).

Scohaby (Sopwell) Bog SAC is a site of considerable conservation significance comprising raised bog, a rare habitat in the EU and one that is becoming increasingly scarce and under threat in Ireland. It contains good examples of the EU Habitats Directive Annex I habitat Degraded raised bog (capable of regeneration) which is being restored to the priority Annex I habitat Active raised bog. The site already supports a good diversity of raised bog microhabitats including some hummock/hollow complexes, tear pools and rewetted cutover bog and is one of the more southerly raised bogs in the south Midlands which adds significantly to its ecological importance... The site is being actively managed for conservation as part of the Coillte EU LIFE Project and most of the required restoration measures have already been carried out. Those measures that remain, or are ongoing, should be achievable with average effort. An After LIFE management plan is being developed by Coillte for the future conservation management of the SAC. The SAC is located within the raised bog Scohaby Bog NHA (000937) the conservation management of which should support the redevelopment of Active Raised Bog in the SAC.

The presence of White-clawed Crayfish (*Austropotamobius pallipes*), a species listed in Annex II of the EU Habitats Directive, adds to the diversity and scientific value of the site. The population at this site is considered to have a favourable conservation status with the presence of adults and juveniles. The presence of this species increases the overall scientific interest of the site.”

The main site vulnerabilities, including any key pressures or trends within and around Scohaby (Sopwell) Bog SAC that have been identified as impacting upon the site, may be summarised as peat extraction and human induced changes in hydraulic conditions.

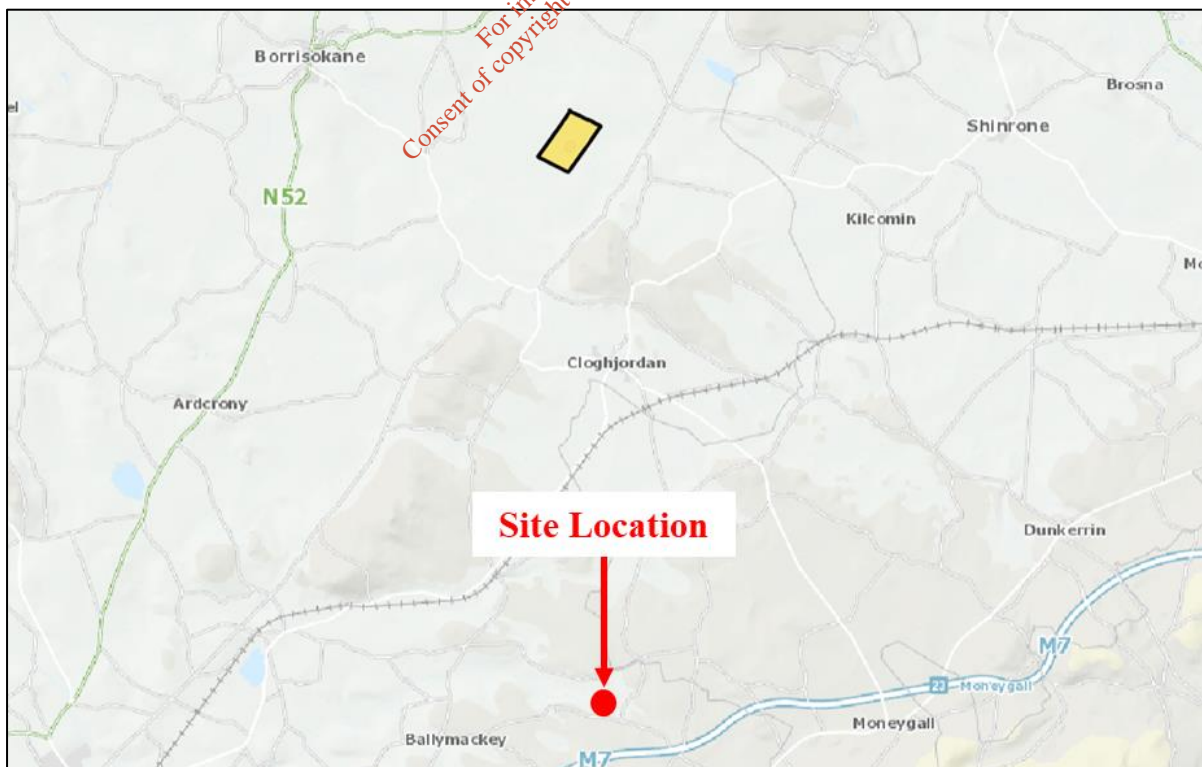


Figure 5.1: Scohaby (Sopwell) Bog SAC

Schoaboy (Sopwell) Bog SAC Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development “in view of the site’s conservation objectives”. While there are currently no site specific conservation objectives (SSCOs) for the qualifying interest of Schoaboy (Sopwell) SAC, the NPWS document “*Conservation Objectives: Schoaboy (Sopwell) SAC 002206*” (NPWS, 2018) notes that the conservation objectives for the SAC are to maintain or restore the favourable conservation condition of the qualifying interest.

Schoaboy (Sopwell) Bog SAC Conservation Status

According to the Habitat’s Directive, favourable conservation status of a habitat is achieved when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined below.

The conservation status for the qualifying interest of Schoaboy (Sopwell) SAC is outlined below.

CODE	QUALIFYING INTEREST	NATIONAL CONSERVATION STATUS*	SITE LEVEL CONSERVATION STATUS**
7120	Degraded Raised Bog	Bad	Good

*Sourced from the *Status of EU Protected Habitats in Ireland* (NPWS, 2019b)

**Sourced from NPWS (2017)

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5.2 LOUGH DERG, NORTH-EAST SHORE SAC (SITE CODE: 002241)

Lough Derg, the lowest order lake on the River Shannon, is one of the largest bodies of freshwater in Ireland. This SAC, however, only includes the northern shore of the lake from the mouth of the Cappagh River in the north-west to just below Black Lough at the north-eastern shore. The greater part of this site lies on Carboniferous limestone, although there is Old Red Sandstone on the southern shores of the eastern section. The site is a Special Area of Conservation (SAC) selected for the following habitats listed on Annex I of the E.U. Habitats Directive:

ANNEX I HABITATS	
CODE	DESCRIPTION
5130	Juniper Scrub
7210	<i>Cladium</i> Fens*
7230	Alkaline Fens
8240	Limestone Pavement*
91E0	Alluvial Forests*
91J0	Yew Woodlands*

* denotes a priority habitat

The conservation objectives for the SAC site are to maintain or restore the favourable conservation condition of the qualifying interests. An excerpt from the Natura 2000 Data Form for the Lough Derg, North-east Shore SAC is included below, while further details are available within the site's site synopsis (NPWS 2014).

“This site incorporates part of the water body of Lough Derg and includes most of the northern lake shore and approximately one-third of the northeast shoreline. Lough Derg itself is the lowest order lake on the River Shannon and is one of the largest freshwater bodies in Ireland. Most of the lake overlies Carboniferous Limestone, which outcrops along the shores, but some old Red Sandstone occurs on the eastern side. The site is of high scenic value and is a well-known angling and tourism area.

This site supports a wide range of habitats, including Alkaline fens, Juniper scrub formations, limestone pavement, Yew woodlands, alluvial woodlands and *Cladium* fen. It also supports the only known population in the country for the Irish Red Data Book species Irish Fleabane (*Inula salicina*). Other scarce plant species found here include Whitebeam (*Sorbus aria*) and Buckthorn (*Rhamnus catharticus*). The endangered fish species Pollan (*Coregonus autumnalis*) has its European stronghold in Lough Derg. The open water areas of the lake itself are important for wintering wildfowl. Goat island holds a breeding colony of Common Tern (*Sterna hirundo*). A subflock of Greenland White-fronted Goose (*Anser albifrons flavirostris*) uses the callow lands around Slevoir Bay in Winter. A good population of Mute Swan (*Cygnus olor*) occurs.”

The main site vulnerabilities, including any key pressures or trends within and around the Lough Derg, North-east Shore SAC that have been identified as impacting upon the site, may be summarised as:

- Fertilisation;
- Mining and quarrying;

- Transportation and service corridors;
- Outdoor sports and leisure activities, recreational activities;
- Pollution to surface waters;
- Invasive non-native species;
- Human induced changes in hydraulic conditions;
- Eutrophication.

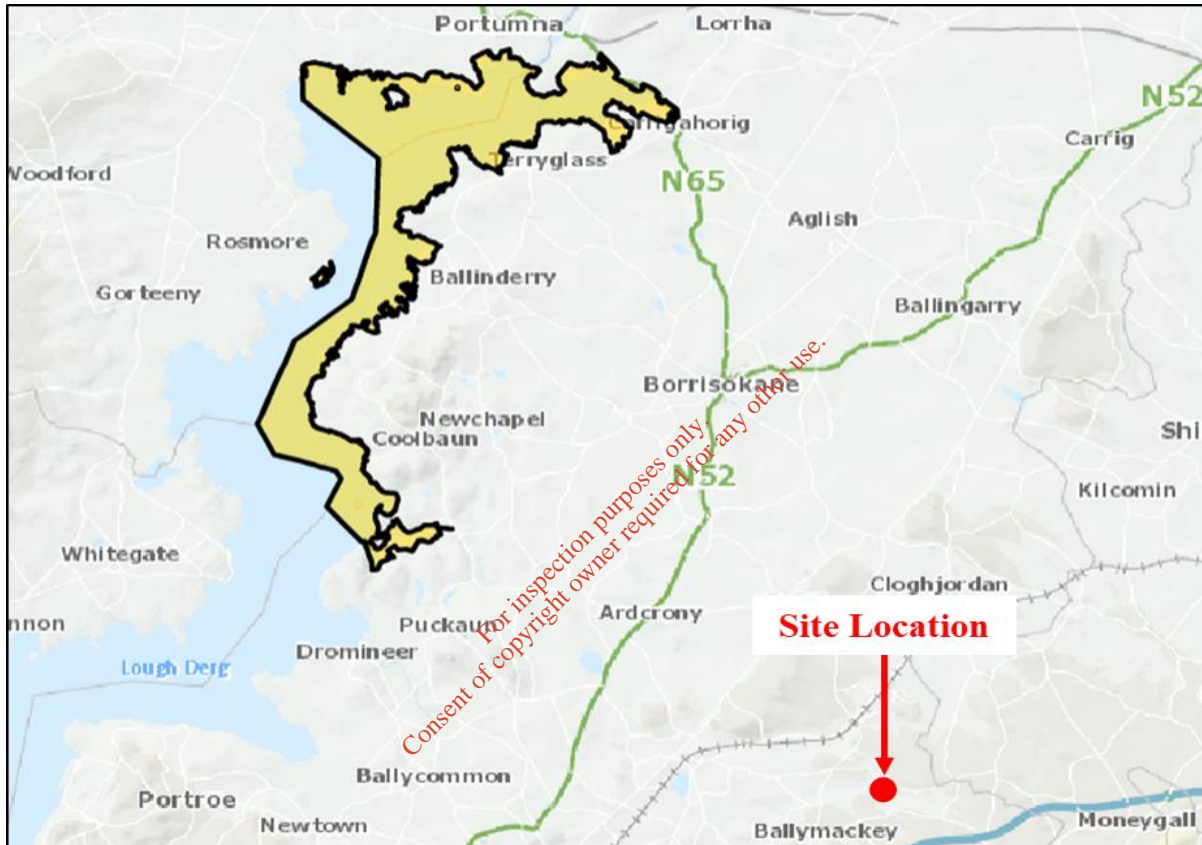


Figure 5.2: Lough Derg, North-east Shore SAC

Lough Derg, North-east Shore SAC Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development “in view of the site’s conservation objectives”. Site specific conservation objectives (SSCOs) for the qualifying interests of the Lough Derg, North-east Shore SAC are provided in the table below, where available from the NPWS document “Conservation Objectives: Lough Derg, North-east Shore SAC 002241” (NPWS, 2019).

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ATTRIBUTE	MEASURE	TARGET
[5130] Juniper Scrub		
Habitat area	Hectares	Area stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline, subject to natural processes
Juniper formation size	Number and proximity of juniper plants	At least 50 juniper plants present with each plant separated by no more than 20m
Vegetation structure: female fruiting plants	Percentage in a representative number of 5m x 5m monitoring stops or in an <i>ad hoc</i> count of 50 plants	Fruiting females comprise at least 10% of juniper plants rooted in plot in at least 50% of stops or in an <i>ad hoc</i> count of 50 plants
Vegetation structure: seedling recruitment	Presence in a representative number of 5m x 5m monitoring stops	At least one seedling recorded in at least one monitoring stop
Vegetation structure: live juniper	Percentage in a representative number of 5m x 5m monitoring stops or across the site as a whole	At least 90% of juniper plants rooted in plot alive in at least 75% of stops or across the site as a whole
Vegetation composition: negative indicator species	Percentage in a representative number of 5m x 5m monitoring stops	Total cover of negative indicator species to be less than 10% in at least 50% of stops
Physical structure: germination niches	Percentage in a representative number of 5m x 5m monitoring stops	At least 5% bare soil and/or at least 5% bare rock in at least 50% of stops
Formation structure: browning/die-back of plants	Percentage of juniper cover in a representative number of 5m x 5m monitoring stops	Browning or dead juniper branches (excluding fully dead plants) comprise no more than 20% of total juniper cover in plot in at least 75% of stops
Formation structure: evidence of browsing and bark stripping	Occurrence across a representative number of 5m x 5m monitoring stops	Recent browsing of juniper plants and bark stripping and trampling due to browsers evident in no more than 50% of stops
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat
[7210] Cladium Fens		
Habitat area	Hectares	Area stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline, subject to natural processes
Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate
Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat
Ecosystem function: hydrology -	Drain density and form	Maintain, or where necessary restore, as close as possible to natural or semi-natural, drainage

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ATTRIBUTE	MEASURE	TARGET
surface water flow		conditions
Ecosystem function: water quality	Water chemistry measures	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat
Vegetation composition: typical species	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical species, including brown mosses and vascular plants
Vegetation composition: native negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of native negative indicator species at insignificant levels
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%
Vegetation composition: trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes
[7230] Alkaline Fens		
Habitat area	Hectares	Area stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline, subject to natural processes
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil pH and nutrient status within natural ranges
Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate
Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat
Ecosystem function: hydrology - surface water flow	Drain density and form	Maintain, or where necessary restore, as close as possible to natural or semi-natural drainage conditions
Ecosystem function: water quality	Water chemistry measures	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes

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ATTRIBUTE	MEASURE	TARGET
Vegetation composition: brown mosses	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical brown moss species
Vegetation composition: typical vascular plants	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical vascular plant species
Vegetation composition: native negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of native negative indicator species at insignificant levels
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%
Vegetation composition: soft rush and common reed cover	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of soft rush (<i>Juncus effusus</i>) and common reed (<i>Phragmites australis</i>) less than 10%
Vegetation structure: litter	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of litter not more than 25%
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground not more than 10%
Physical structure: tufa formations	Percentage cover in local vicinity of a representative number of monitoring stops	Disturbed proportion of vegetation cover where tufa is present is less than 1%
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes
[8240] Limestone Pavement		
Habitat area	Hectares	Area stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline
Vegetation composition: positive indicator species	Number at a representative number of monitoring stops	At least seven positive indicator species present
Vegetation composition: bryophyte layer	Percentage at a representative number of monitoring stops	Bryophyte cover at least 50% on wooded pavement

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ATTRIBUTE	MEASURE	TARGET
Vegetation composition: negative indicator species	Percentage at a representative number of monitoring stops	Collective cover of negative indicator species on exposed pavement not more than 1%
Vegetation composition: non-native species	Percentage at a representative number of monitoring stops	Cover of non-native species not more than 1% on exposed pavement; on wooded pavement not more than 10% with no regeneration
Vegetation composition: scrub	Percentage at a representative number of monitoring stops	Scrub cover no more than 25% of exposed pavement
Vegetation composition: bracken cover	Percentage at a representative number of monitoring stops	Bracken (<i>Pteridium aquilinum</i>) cover no more than 10% on exposed pavement
Vegetation structure: woodland canopy	Percentage at a representative number of monitoring stops	Canopy cover on wooded pavement at least 30%
Vegetation structure: dead wood	Occurrence in a representative number of monitoring stops	Sufficient quantity of dead wood on wooded pavement to provide habitat for saproxylic organisms
Physical structure: disturbance	Occurrence in a representative number of monitoring stops	No evidence of grazing pressure on wooded pavement
Indicators of local distinctiveness	Occurrence	Indicators of local distinctiveness are maintained
[91E0] Alluvial Forests		
Habitat area	Hectares	Area stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size
Woodland structure: cover and height	Percentage; metres; centimetres	Total canopy cover at least 30%; median canopy height at least 7m; native shrub layer cover 10-75%; native herb/dwarf shrub layer cover at least 20% and height at least 20cm; bryophyte cover at least 4%
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types
Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes of target species for 91E0* woodlands and other native tree species occur in adequate proportions to ensure survival of woodland canopy
Hydrological regime: flooding depth/height of water table	Metres	Appropriate hydrological regime necessary for maintenance of alluvial vegetation
Woodland structure: dead wood	Number per hectare	At least 19 stems/ha of dead wood at least 20cm diameter
Woodland structure: veteran trees	Number per hectare	No decline
Woodland structure: indicators of local distinctiveness	Occurrence	No decline
Woodland structure: indicators of overgrazing	Occurrence	All five indicators of overgrazing absent

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ATTRIBUTE	MEASURE	TARGET
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover at least 90% of canopy; target species cover at least 50% of canopy
Vegetation composition: typical species	Occurrence	At least 1 target species for 91E0* woodlands present; at least 6 positive indicator species for 91E0* woodlands present
Vegetation composition: negative indicator species	Occurrence	Negative indicator species cover not greater than 10%; regeneration of negative indicator species absent
Vegetation composition: problematic native species	Percentage	Cover of common nettle (<i>Urtica dioica</i>) less than 75%
[91J0] Yew Woodlands		
Habitat area	Hectares	Area stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size
Woodland structure: cover and height	Percentage; metres; centimetres	Total canopy cover at least 30%; median canopy height at least 10m; native shrub layer cover 10-75%; native herb/dwarf shrub layer cover at least 20% and height at least 20cm; bryophyte cover at least 4%
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types
Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes of yew (<i>Taxus baccata</i>) and other native tree species occur in adequate proportions to ensure survival of woodland canopy
Woodland structure: dead wood	Number per hectare	At least 19 stems/ha of dead wood at least 20cm diameter
Woodland structure: veteran trees	Number per hectare	No decline
Woodland structure: indicators of local distinctiveness	Occurrence	No decline
Woodland structure: indicators of overgrazing	Occurrence	All four indicators of overgrazing absent
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover at least 90% of canopy; yew (<i>Taxus baccata</i>) cover at least 50% of canopy
Vegetation composition: typical species	Occurrence	Yew (<i>Taxus baccata</i>) present; at least 6 positive indicator species for 91J0* woodlands present
Vegetation composition: negative indicator species	Occurrence	Negative indicator species cover not greater than 10%; regeneration of negative indicator species absent

Lough Derg, North-east Shore SAC Conservation Status

According to the Habitat's Directive, favourable conservation status of a habitat is achieved when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined below.

The conservation statuses for the qualifying interests of the Lough Derg, North-east Shore SAC are outlined below.

CODE	QUALIFYING INTEREST	NATIONAL CONSERVATION STATUS*	SITE LEVEL CONSERVATION STATUS**
5130	Juniper Scrub	Favourable	Excellent
7210	<i>Cladium</i> Fens	Inadequate	Good
7230	Alkaline Fens	Bad	Good
8240	Limestone Pavement	Inadequate	Reduced
91E0	Alluvial Forests	Bad	Reduced
91J0	Yew Woodlands	Bad	Good

*Sourced from the Status of EU Protected Habitats in Ireland (NPWS, 2019b)

**Sourced from NPWS (2017)

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5.3 LOUGH DERG (SHANNON) SPA (SITE CODE: 004058)

The site is a SPA under the E.U. Birds Directive, of special conservation interest for the species listed in the table below. 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.

SPECIAL CONSERVATION INTERESTS		
CODE	COMMON NAME	SCIENTIFIC NAME
A017	Cormorant	<i>Phalacrocorax carbo</i>
A061	Tufted Duck	<i>Aythya fuligula</i>
A067	Goldeneye	<i>Bucephala clangula</i>
A193	Common Tern	<i>Sterna hirundo</i>
A999	Wetlands	-

An excerpt from the site's Natura 2000 Data Form is included below.

“Lough Derg is the largest of the Shannon Lakes, being some 40km long. Its maximum breadth across the Scarriff Bay-Youghal Bay transect is 13km but for most of its length it is less than 5 km wide. The lake is relatively shallow at the northern end being mostly 6m in depth but in the middle region it has an axial trench and descends to over 25m in places. The narrow southern end of the lake has the greatest average depth, with a maximum of 34m. The greater part of the lake lies on Carboniferous limestone but the narrow southern section is underlain by Silurian strata. Most of the lower part of the lake is enclosed by hills on both sides, the Slieve Aughty Mountains to the west and the Arra Mountains to the east. The northern end is bordered by relatively flat agricultural country. The lake shows the high hardness levels and alkaline pH to be expected from its mainly limestone catchment basin and it has most recently been classified as a mesotrophic system. The lake has many small islands, especially on its western and northern sides. The shoreline is often fringed with swamp vegetation. Aquatic vegetation includes a range of charophyte species.

Lough Derg is of importance for both breeding and wintering birds. The islands support nationally important breeding colonies of Common Tern (*Sterna Hirundo*), Cormorant (*Phalacrocorax carbo*), Great Crested Grebe (*Podiceps cristatus*) and probably Tufted Duck (*Aythya fuligula*). It is a traditional site for nesting Black-headed Gull (*Larus ridibundus*) but there is no recent survey information. In winter, the lake is particularly important for diving ducks, with nationally important populations of Tufted Duck and Goldeneye (*Bucephala clangula*) occurring. Mute Swan (*Cygnus olor*) also has a population of national importance, whilst a range of other species occur in lesser numbers, including Whooper Swan (*Cygnus cygnus*), Teal (*Anas crecca*), Coot (*Fulica atra*) and Lapwing (*Vanellus vanellus*). A flock of White-fronted Goose (*Anser albifrons flavirostris*) has traditionally used the site, where they feed on grassy islands, but birds have seldom been recorded in recent years.”

The main site vulnerabilities, including any key pressures or trends within and around the Lough Derg (Shannon) SPA that have been identified as impacting upon the site, may be summarised as fertilisation, leisure fishing, hunting and nautical sports.

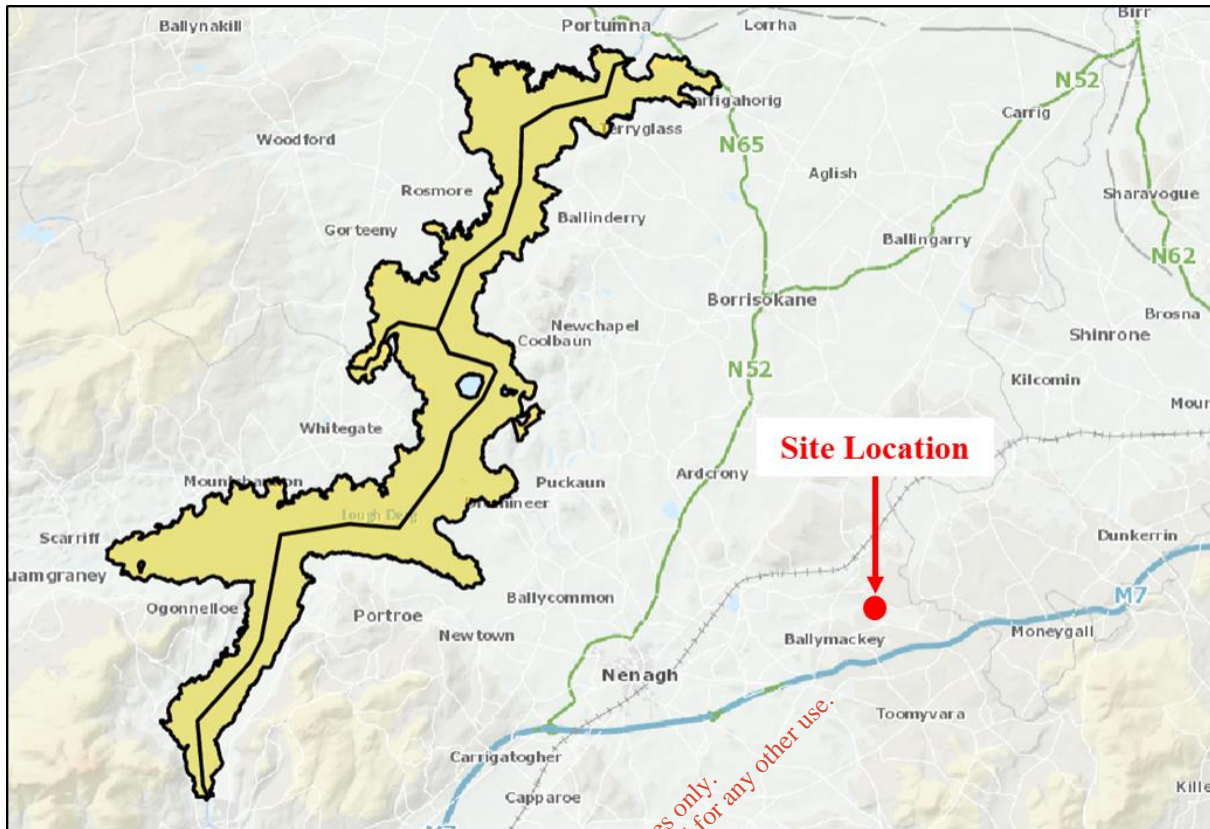


Figure 5.3: Lough Derg (Shannon) SPA

Lough Derg (Shannon) SPA Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development “in view of the site’s conservation objectives”. While there are currently no site specific conservation objectives (SSCOs) for the special conservation interests of the Lough Derg (Shannon) SPA, the NPWS document “*Conservation Objectives: Lough Derg (Shannon) SPA 004058*” (NPWS, 2018) notes that the conservation objectives for the SPA site are to maintain or restore the favourable conservation condition of the bird species and habitat listed as Special Conservation Interests for this SPA.

To acknowledge the importance of wetlands to wintering waterbirds, a second objective has been included for the SPA site, which is to maintain or restore the favourable conservation condition of the wetland habitat at Lough Derg (Shannon) SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

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Lough Derg (Shannon) SPA Conservation Status

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation statuses for the special conservation interests of the Lough Derg (Shannon) SPA are outlined below.

CODE	SPECIAL CONSERVATION INTEREST	NATIONAL CONSERVATION STATUS*	SITE LEVEL CONSERVATION STATUS**
A017	Cormorant	Amber	Resident: Excellent Wintering: Good
A061	Tufted Duck	Red	Resident: Good Wintering: Excellent
A067	Goldeneye	Red	Excellent
A193	Common Tern	Amber	Good
A999	Wetlands	-	-

*Sourced from *Birds of Conservation Concern in Ireland 2014-2019 (Colhoun and Cummins, 2013)*

**Sourced from NPWS (2017)

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6.0 ASSESSMENT OF LIKELY EFFECTS: STAGE 1 SCREENING

6.1 DISTURBANCE TO PROTECTED HABITATS AND SPECIES

The proposed development does not directly impinge on any part of a European site, and as such would not be expected to have any in-situ effects upon a protected site through loss or destruction of habitat, fragmentation of habitat, disturbance of habitat or direct reduction in species density or diversity.

The closest protected site to the development is Scohaboy (Sopwell) Bog SAC, located approximately 9.6km to the north. Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA are hydrologically connected to the development and are located approximately 14.5km and 15.8km respectively from the development site. Given the presence of designated sites within the vicinity of the development, potential ex-situ impacts must also be considered.

It is not considered that the proposed development site would contain the habitats or species for which the Scohaboy (Sopwell) Bog SAC, Lough Derg, North-East Shore SAC or Lough Derg (Shannon) SPA are designated for.

No areas of peatland or fens exist on the development site, therefore the site does not contain any habitat which would have potential links to degraded raised bog [7120], cladium fens [7210] and alkaline fens [7230]. While broadleaved woodland was identified at the site, this is considered to be modified, containing many non-native species, and therefore it is not considered that this woodland has any potential links to alluvial forests [91E0] or yew woodlands [91J0]. Scrub habitat is present onsite, however this is primarily comprised of Willow (*Salix* spp.) and Ash (*Fraxinus excelsior*). Therefore, this scrub habitat does not have potential links with juniper scrub [5130]. No areas of limestone are present on the site, therefore the site does not contain any habitat with potential links to limestone pavement [8240].

With regards wildfowl species, none of the special conservation interests of the Lough Derg (Shannon) SPA were recorded during the site walkover. There are no NBDC records for the special conservation interests for the two 2km squares (Tetrads - R98Q and R98R) in which the development is located. While it is noted that the Wilton Stream and Ollatrim River are located approximately 125m and 350m from the development site respectively, no aquatic habitats of note are present within the development site itself. Therefore, it is unlikely that the development site would be of importance to the special conservation interests, given the distances from the SPA site and given that no areas of fens, marshes, swamps, lakes or other open bodies of water are present on the proposed development site.

It is not envisaged that protected species would be adversely impacted upon by the proposed development due to noise generated by the proposed development or by noise generated from the associated site traffic, given the nature of the proposed development and the distances to the designated sites (approximately 9.6km). While there would be increased noise emissions during the construction phase, these would not be considered to pose a significant risk owing to the transient nature of works, the construction timeframe (3-4 months) and the distances between the development site and designated sites.

The potential disturbance on protected habitats due to dust during the construction phase would not be considered significant, given the transient nature of construction works, the construction timeframe (3-4 months) and given the distance to the nearest European site (approximately 9.6km).

It is not considered that the operational phase of the proposed development would have the potential to significantly impact upon air quality within the area, with the potential to adversely impact upon Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA.

Ammonia is abundant in slurry, is highly volatile and is emitted when the slurry is in contact with air during storage. Emissions of ammonia to atmosphere is undesirable from an ecological point of view, as it can have toxic, eutrophic and acidifying effects on certain ecosystems. In particular, the presence of high ammonia levels in peatland ecosystems has been found to inhibit the growth of certain moss species, allowing sedge and grass species to outcompete.

While ammonia emissions would increase in response to an increase in pig numbers at the proposed development site, the proposed development includes design measures which limit the potential for the generation of ammonia emissions to atmosphere. The development would include for the removal of slurry to an external slurry store, which has been noted as a key principle within the document, "*Reference Document on Best Available Techniques (BAT) for Intensive Rearing of Poultry and Pigs*", for reducing air emissions. This air emissions mitigation has not been included in the modelling exercise.

The maximum predicted ground level concentration at the identified Natura 2000 sites within 15km is less than $0.05 \mu\text{g}/\text{m}^3$. This is less than the guideline Ammonia limit value of $3.0 \mu\text{g}/\text{m}^3$ for the protection of ecosystems at these locations.

Given the incorporated design measures for the reduction of air emissions at source, and given the considerable distances of designated sites from the proposed development (with the nearest designated site, Scohaboy (Sopwell) Bog SAC located approximately 9.6km from the development), no potential significant impacts are anticipated upon designated sites due to the proposed development in relation to air emissions.

It is therefore considered that the proposed development would not result in any significant risk to the protected habitats and species of Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA due to habitat fragmentation or loss, disturbance or reduction in species density or diversity.

6.2 INVASIVE SPECIES

Under Regulation 49(2) of the European Communities (Birds and Natural Habitats) Regulations 2011, save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to any plant which is included in Part 1 of the Third Schedule shall be guilty of an offence.

Materials containing invasive species such as Japanese Knotweed are considered "controlled waste" and, as such, there are legal restrictions on their handling and disposal. Under

Regulation 49(7) of the European Communities (Birds and Natural Habitats) Regulations 2011, it is a legal requirement to obtain a license to move “vector materials” listed in the Third Schedule, Part 3.

As noted in Section 4.3, two invasive flora species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 have been recorded by the NBDC within the 10km square (Tetrad – R98) in which the proposed development site is located within; Giant-rhubarb (*Gunnera tinctoria*), Japanese Knotweed (*Fallopia japonica*) and Rhododendron ponticum. However, no invasive species of concern were noted as present during the site walkover.

The risk of invasive species being introduced onto the site during the construction phase of the project is considered to be low, with no import of materials with the potential to contain invasive flora species. Soils excavated during construction works would be stockpiled and re-used for site levelling where required, therefore no importation of topsoil or subsoil would be required as part of the development works.

Given the nature of the proposed development, there would be no significant risk of introducing invasive species during the operational phase.

Therefore, it is considered that there would be no significant risk to protected habitats and species as a result of invasive species from the proposed development.

6.3 POTENTIAL IMPACTS ON WATER QUALITY

The proposed development is located within the Lower Shannon catchment (25C). As noted in Section 4.2.1, stormwater drainage from the development site is hydrologically connected to the Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA via the Ollatrim and Nenagh Rivers. It should be noted that the development site is not hydrologically connected to the Scohaboy (Sopwell) Bog SAC, therefore no potential impacts on water quality due to the proposed development site are anticipated.

As discussed in Section 4.2.1, the development site is located a considerable distance, approximately 22.4km from the Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA. Given the considerable distance and subsequent tributaries involved, any drainage from the site, during either the construction or operational phase, would undergo considerable dilution prior to reaching the SAC or SPA sites.

The proposed development would not be considered to impact upon the listed habitats and species of the SAC or SPA sites due to deleterious effects on water quality, owing to the location of the development site, the nature of the development, the duration of construction works, the proposed drainage system, the considerable hydrological distance (and thus dilution) between the proposed development and the designated sites, and given that the proposed development is not located within the immediate vicinity of any watercourses.

During the construction phase of projects, a deterioration in water quality can arise through the release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils). A deterioration in water quality has the potential to have an adverse impact upon the qualifying interests of the Lough Derg, North-

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east Shore SAC and Lough Derg (Shannon) SPA, particularly qualifying interests which have conservation objectives relating to water quality.

Construction works would be approximately three to four months in duration only. Construction works would be confined to the proposed development footprint, which, at its closest, would be located approximately 300m from the nearest watercourse (Wilton Stream), with no works taking place within or immediately adjacent to riparian or aquatic habitat. With regards the existing stormwater drainage network, there are no open stormwater drains or gullies into which potential run-off from construction activities could enter. Therefore, the risk of the proposed development impacting upon water quality would be greatly reduced.

With regards suspended solids, it is considered that there would be no significant risk upon the water quality of the Ollatrim or Nenagh Rivers, and thus the Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA, given that excavated soils would be used in site levelling and landscaping activities and therefore would be exposed for a limited period of time only, and given that excavation works would not be located within the immediate vicinity of any watercourses (as discussed above, at least 300m from the nearest watercourse). In the unlikely event suspended solids are entrained in stormwater run-off, the solids would likely be retained onsite as run-off percolates to ground (given the absence of watercourses or drains within the immediate vicinity of the development site).

There would be no significant risk of water quality deterioration as a result of uncured concrete, given that works would not be located within the vicinity of any watercourses (with the nearest watercourse approximately 300m from the development footprint) and given that surplus concrete would be returned to the batching plant.

Given the nature of construction activities required, the short duration of construction works (3-4 months) and given the distance to the nearest watercourse (approximately 300m), there is considered to be no significant risk of water quality deterioration as a result of hydrocarbon spillage.

It is not anticipated that the operational phase of the development has the potential to impact upon the listed habitats and species of the Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA sites due to deleterious effects on water quality.

No significant impact on water quality would take place due to drainage from the site. As discussed in Section 4.1, stormwater from the site comprises of clean rainwater run-off from the roofs. Stormwater from the proposed structures would connect to this existing stormwater network prior to discharge to the Wilton Stream, located a significant hydrological distance from the SAC or SPA sites (greater than 22km).

There are no process effluent emissions from the site, with all animal manure stored within underground slurry tanks, awaiting collection for land spreading activities. All slurry tanks have been designed to ensure the site has sufficient storage capacity for any manure generated onsite. The existing slurry tanks are fitted with leak detection systems, which would also be incorporated within the proposed new slurry tanks, as discussed in Section 4.1.

The development could result in a potential impact upon the biodiversity of designated sites through the land spreading of pig manure as organic fertiliser, either through pollution of waterbodies or the enrichment of natural vegetation. However, manure is, and would

continue to be, collected by registered contractors / farmers, for application to lands held by third parties in the area. The transport and spreading of the manure is managed in compliance with the Nitrates Regulations (S.I. No. 605 of 2017). The regulations provide for controls designed to protect groundwater and surface water from impacts due to the application of fertiliser on agricultural lands. Acceptable spreading times are limited, prohibitions on weather and ground conditions are defined and set back distances from waterbodies and wells/springs and limitations for areas of extreme groundwater vulnerability are established.

The spreading of manure would be undertaken in accordance with the setback distances from surface waterbodies and abstraction points specified in the Nitrates Regulations. This would minimise the risk of any pollution occurring, and protected sites being impacted due to the spreading of organic fertilisers. As manure from the development is a replacement for other chemical and organic fertilisers on the current, proposed and any future potential spread lands, it is considered that the impact of manure being used as a fertiliser would have a neutral to no significant additional impact upon the biodiversity of land spreading areas.

No adverse potential impacts upon water quality would be anticipated due to accidents and potential spills and leaks, given the absence of watercourses within the vicinity of the site, the low volume of stored chemicals onsite and given that chemicals and oils are stored upon bunds, in accordance with the site's Industrial Emissions (IE) Licence.

As discussed in Section 4.2, the flood risk to the development is considered to be negligible, given that the site is not located within, or within the immediate vicinity, of an area of pluvial, fluvial or groundwater flood zone. In the unlikely event of a flood onsite, it is highly unlikely that floodwaters would come in contact with any significant potentially hazardous or polluting substances which could adversely affect water quality given the nature of the development. Therefore, the development would not be anticipated to pose a significant risk upon the SAC or SPA site as a result of floodwaters. However, there is a potential during the construction phase for an impact on the water quality of the Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA. It is therefore considered that control measures would need to be implemented during the construction phase to ensure there is no adverse impact upon the SAC/SPA

6.4 SCREENING CONCLUSION

In order for an effect to occur, there must be a pathway between the source and the receptor (the SAC sites). Where a pathway does not exist, an impact cannot occur. A potential pathway exists between the proposed development and the designated sites, Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA, given that the hydrological connection and the distance. Therefore, a potential link to the SACs due to potential air and water enrichment.

As detailed above, it is considered that the proposed development would not result in any significant risks to the protected habitats and species of the Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA due to habitat fragmentation or loss, disturbance, reduction in species density or due to the potential introduction of invasive species.

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However, the assessment has determined that during the construction and operational phases, there is potential for the proposed development to impact upon the qualifying interests of the Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA due to a potential deterioration in air and water quality. Therefore, a Natura Impact Statement is required.

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7.0 ASSESSMENT OF LIKELY EFFECTS: STAGE 2 APPROPRIATE ASSESSMENT

Describe the significant effects, if any, on the relevant European site which have occurred, which are occurring or which can reasonably be expected to occur as a result of the project or plan (alone or in combination).

The proposed development has the potential to impact upon the qualifying interests of the Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA due to a potential deterioration in air and or water quality.

During construction works, there is potential for water quality deterioration through the release of suspended solids during soil disturbance works. Suspended solids could become entrained in surface water run-off and could affect aquatic qualifying interests through deposition. Nutrients can be bound in suspended solids, therefore, a significant increase in suspended solids can result in excessive eutrophication, leading to the deoxygenation of waters and subsequent asphyxia of aquatic species. An increase in sediments has the potential to impact upon fish species by damaging gravel beds required for spawning, smothering fish eggs and in extreme cases, by interfering with the gills of fish. An increase in suspended solids also has the potential to reduce water clarity, which can impact the light penetration of water and may also affect certain behaviours of aquatic fauna such as foraging success.

A potential source of chemical contamination would be from the release of hydrocarbons (oils, fuels) from construction plant and equipment. Hydrocarbons can affect water quality, potentially resulting in toxic conditions for aquatic flora and fauna. Oil films on the water surface can disrupt oxygen diffusion from the atmosphere, resulting in de-oxygen of waters.

Another potential source of contamination would be the release of uncured concrete. In the event of uncured concrete entering a waterbody, the pH would be altered locally, potentially leading to the death of aquatic flora and fauna and an alteration to the waterbody substrate.

During the operational phase, there is potential for contamination to water quality due to the use of potentially polluting substances used in the cleaning process and the storage of hydrocarbons which may be used for certain equipment onsite.

In the unlikely event of a failure in integrity of the wash-water tank, or in the unlikely event of spillage of litter following loading for transport off-site, water quality deterioration could occur due to an increase in the nutrients nitrogen and phosphorous. A significant increase in nutrients (particularly phosphorous for freshwater bodies), could result in excessive eutrophication, whereby an increase in nutrients results in the significant growth of aquatic plants, particularly algae. As plant growth increases, oxygen depletion occurs due to increased photosynthesis and through the decomposition of plant organic material. The increase in plant growth can also limit the availability of sunlight.

The tables below outline which of the qualifying interests may be impacted upon by a potential deterioration in water quality from the proposed development. The following tables also briefly outline the occurrence of the qualifying interests of the designated sites, taking cognisance of the NPWS site synopsis and conservation objectives reports, and of Volumes 1, 2 and 3 of the 2019 NPWS Reports, “*The Status of EU Protected Habitats and Species in Ireland*”.

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LOUGH DERG, NORTH-EAST SHORE SAC (SITE CODE: 002241)		
QUALIFYING INTEREST	OCCURRENCE / ASSESSMENT	POTENTIAL IMPACT
[5130] Juniper Scrub	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). The Status of EU Protected Habitats and Species in Ireland (NPWS,2019a) notes local pressures were noted at some juniper stands, including overgrazing, erosion and small areas of juniper scrub removal, but none of the impacts were considered to be significant or to impact on the long-term viability of the habitat at the national level. Water and air quality are not listed as a conservation objective for this qualifying interest. It is therefore not anticipated that the proposed development would have the potential to adversely impact upon this qualifying interest.	No
[7210] Cladium Fens	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). The Status of EU Protected Habitats and Species in Ireland (NPWS,2019a) notes the main pressures on the habitat are associated with impacts on the supporting bog habitats, especially overgrazing, burning, peat extraction, drainage and conversion to forestry. The conservation objectives for this qualifying interest include water quality attributes. Therefore, there is potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	Yes
[7230] Alkaline Fens	The proposed development is located within the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). The Status of EU Protected Habitats and Species in Ireland (NPWS,2019a) notes Alkaline fens can develop in areas where vertical water movement predominates (topogenous), such as poorly drained basins or hollows and open water transitions; or where horizontal water movement is also important (soligenous), such as flushes, valley fens and the lags of raised bogs. The conservation objectives for this qualifying interest include water quality attributes. Therefore, there is potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	Yes
[8240] Limestone Pavement*	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). The Status of EU Protected Habitats and Species in Ireland (NPWS,2019a) notes the structure of Limestone pavement habitat typically consists of blocks of rock, known as clints, separated by fissures or grikes. Sometimes due to weathering this structure is less defined, especially in the 'shattered' variant of pavement.	No

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LOUGH DERG, NORTH-EAST SHORE SAC (SITE CODE: 002241)		
QUALIFYING INTEREST	OCCURRENCE / ASSESSMENT	POTENTIAL IMPACT
	Limestone pavement can occur as areas of exposed rock with very little vegetation or in association with grassland, heath, scrub, or woodland communities. Water and air quality are not listed as a conservation objective for this qualifying interest. It is therefore not anticipated that the proposed development would have the potential to adversely impact upon this qualifying interest.	
[91E0] Alluvial Woodland	The development site is located outside the current known distribution but within the current range and favourable reference range of these qualifying interests (NPWS, 2019b). The Status of EU Protected Habitats and Species in Ireland (NPWS,2019a) notes a number of variants of Alluvial woodland habitat exist, of which riparian forests of ash (<i>Fraxinus excelsior</i>) and alder (<i>Alnus glutinosa</i>) (<i>Alno-Padion</i>) of temperate and Boreal Europe lowland and hill watercourses are the most common in Ireland. All types occur on heavy soils which are periodically inundated by the annual rise of river levels but otherwise well-drained and aerated during low water. A deterioration in water quality is listed as a minor pressure/threat to this habitat. Therefore, there is potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	Yes
[91J0] Yew Woodlands*	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). Yew woodland is a priority Annex I habitat. Its distribution is highly restricted in Ireland, only occurring at a limited number of sites in the west and south-west, predominately on shallow soils over limestone pavement or outcrops. All Yew woodlands within the country has been mapped. The Status of EU Protected Habitats and Species in Ireland (NPWS,2019a) notes, pressures are mainly linked to the presence of alien species such as sycamore (<i>Acer pseudoplatanus</i>), beech (<i>Fagus sylvatica</i>), cherry laurel (<i>Prunus laurocerasus</i>) and traveller's-joy (<i>Clematis vitalba</i>), with overgrazing by deer also posing a serious problem. Water and air quality are not listed as a conservation objective for this qualifying interest. It is therefore not anticipated that the proposed development would have the potential to adversely impact upon this qualifying interest.	No

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LOUGH MASK SPA (SITE CODE: 004062)		
QUALIFYING INTEREST	OCCURRENCE / ASSESSMENT	POTENTIAL IMPACT
[A017] Cormorant (<i>Phalacrocorax carbo</i>)	Population size 122 in winter. Wintering species found in marine environments it occurs in sheltered coastal areas on estuaries, salt pans, coastal lagoons and coastal bays generally avoiding deep water and rarely extending far offshore. Feeds on fish as well as crustaceans, amphibians and molluscs. Water quality would have an impact on this species.	Yes
[A061] Tufted Duck (<i>Aythya fuligula</i>)	Population size 1029 in winter with 326 breeding. The species breeds in lowland regions and shows a preference for eutrophic waters 3-5 m deep (avoiding lakes deeper than 15m) with open water, islands for breeding and abundant marginal and emergent vegetation. It is common on large, freshwater lakes, ponds, reservoirs and quiet stretches of wide slow-flowing rivers. Non-breeding during the winter the species frequents large freshwater lakes, reservoirs, and sheltered coastal locations. The species is omnivorous a major part of its diet consisting of molluscs (especially <i>Mytillus</i> and <i>Cardium</i> spp., gastropods and zebra mussels <i>Dreissena polymorph</i> , crustaceans and aquatic insects as well as grain and the seeds and vegetative parts of aquatic plants. Water quality would have an impact on this species.	
[A067] Goldeneye (<i>Bucephala clangula</i>)	Population size 215 in winter. Feeds on insects especially in arable fields. The species chiefly breeds inland and shows a preference for shallow, calm temporarily flooded wetland habitats with lush. It forms nesting colonies on the margins of lakes, lagoons, slow-flowing rivers, deltas, estuaries and on tussocky marshes but may also nest on the upper zones of saltmarshes coastal dunes and offshore islands in more coastal areas. The species will also utilise artificial sites such as sewage ponds, gravel- and clay-pits, ponds, canals and flood lands and may nest on the dry ground of heather moors, sand-dunes, and stony islets. Irish birds are augmented by wintering birds from northern and eastern Europe and can be widespread on both on the coast and inland. Water quality would have an impact on this species.	
[A193] Common Tern (<i>Sterna hirundo</i>)	Population size 55 breeding. The species breeds in a wide variety of habitats in coastal and inland areas from sea-level to heights of greater than 4,000m. Along the coast, it shows a preference for nesting on flat rock surfaces on inshore islands, open shingle and sandy beaches, dunes and spits, vegetated interdune areas, sandy, rocky, shell-strewn or well-vegetated islands in estuaries and coastal lagoons, saltmarshes, mainland peninsulas and grassy plateaus atop coastal cliffs. Inland, it may nest in similar habitats, including sand or shingle lakes shores, shingle banks in rivers, sandy, rocky, shell-strewn or well-vegetated islands in lakes and rivers, sand- or gravel-pits, marshes, ponds, grassy areas and	

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	<p>patches of dredged soil. Non-breeding the species winters on sheltered coastal waters, estuaries and along large rivers, occupying harbours, jetties, piers, beaches and coastal wetlands including lagoons, rivers, lakes, swamps and saltworks, mangroves and saltmarshes. During this season, it roosts on unvegetated sandy beaches, shores of estuaries or lagoons, sandbars and rocky shores. In Ireland they nest colonially on the ground from April to October. Breeds on the coast, with larger colonies in Co. Dublin, Co. Wexford and Co. Galway. Also breeds inland on islets in freshwater lakes, notably in Co. Galway and in Co. Mayo. Diet is chiefly fish. Water quality would have an impact on this species.</p>	
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Additional information sourced from Birdwatch Ireland and Birdlife International.

SCOHABOY (SOPWELL) BOG SAC (SITE CODE: 002206)		
QUALIFYING INTEREST	OCCURRENCE / ASSESSMENT	POTENTIAL IMPACT
[7120] Degraded Raised Bog	<p>The proposed development is located within the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). The Status of EU Protected Habitats and Species in Ireland (NPWS, 2019a) notes Raised bogs are accumulations of deep acid peat (3-12m) that originated in shallow lake basins or topographic depressions. Degraded raised bog is characterised by the complete absence (or patchy thin cover) of an acrotelm, which is the living, actively peat-forming upper layer. To qualify as degraded raised bog, there must be a reasonable expectation that these areas are capable of natural regeneration to active bog within 30 years if their hydrology is repaired. There is a concern about the potential negative impacts on raised bog habitats from air pollution mainly from nitrogen deposition. Therefore, there is potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in air quality.</p>	Yes

8.0 MITIGATION MEASURES

This assessment has determined that the proposed development has the potential to impact upon the Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA due to a potential deterioration in water and air quality. As discussed in Section 7, it is considered that the proposed development has the potential to impact upon the following qualifying interests:

Lough Derg, North-east Shore SAC:

- [7230] Alkaline Fens
- [91E0] Alluvial Woodland
- [7210] Cladium Fens

Lough Derg (Shannon) SPA:

- [A061] Tufted Duck
- [A017] Cormorant
- [A193] Common Tern
- [A067] Goldeneye

Scohaboy (Sopwell) Bog SAC:

- 7120] Degraded Raised Bog

8.1 CONSTRUCTION PHASE

The following mitigation measures would be employed during the construction phase to ensure that there would be no significant impacts to the listed habitats or species, as listed above, of the Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA due to a potential deterioration in water quality:

- The construction works contractor would adhere to standard construction best practice, taking cognisance of the Construction Industry Research and Information Association (CIRIA) guidelines “*Control of Water Pollution from Construction Sites; guidance for consultants and contractors*” 2001, “*Control of Water Pollution from Construction Sites – Guide to Good Practice*”, 2002, and the 2016 guidelines published Inland Fisheries Ireland, “*Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters*”;
- Excavations and earth-moving activities would be planned outside periods of heavy rainfall, to limit the potential for suspended solids to become entrained within surface water run-off;
- Daily visual inspections of watercourses down-gradient of the development site would be undertaken during construction works;
- Silt fencing (comprising of a porous filter fabric which detains sediment) would be provided along the site’s boundary. This silt fencing would be inspected on a daily basis, maintained as appropriate and would remain in place until the completion of construction works and soil stabilisation / planting has occurred;
- Where spoil from earth-moving activities is generated, this would be stored at a designated area of the development site. Spoil would be stored temporarily (until used

in landscaping or transported offsite by licenced haulier), and where possible would be covered or, alternatively, graded to avoid ponding or water saturation. Where required, silt fencing would be placed adjacent the storage area for stockpiled soil;

- Should water be encountered during excavation works, water would be pumped to a constructed silt control feature, such as a settlement pond. A filter would be provided at the pump inlet and, where required, dewatering bags or silt fences would be used at the outlet to retain any potential silt entrained in the water. Pumping operations would be supervised at all times;
- All construction plant machinery and equipment would be maintained in good working order and regularly inspected. Where construction plant shows signs of hydrocarbon leakage, site personnel would cease the operation of the item in question. Any defective plant would be kept out of service until the necessary repairs are undertaken;
- A temporary site compound would be established by the construction works contractor, which would be used for the storage of all machinery and plant when not in use, the re-fuelling of plant and the storage of all associated oils and fuels for plant. The temporary site compound would be located within the agricultural field in the northern section of the development site;
- Any fuels, oils or chemicals, including waste fuel, oil or chemicals, would be stored in accordance with the EPA guidance on the storage of materials, in designated bunded areas at the temporary site compound, with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers;
- The designated area for the storage of hydrocarbons / chemicals would be inspected on a regular basis;
- Where appropriate, small construction plant equipment would be placed on drip trays;
- Fuels / oils would be handled and stored with care to avoid spillage or leakage;
- Spill kits, adequately stocked with spill clean-up materials such as booms and absorbent pads, would be readily available onsite. In the unlikely event of a hydrocarbon spillage, contaminated spill clean-up material would be properly disposed of to an authorised waste contractor;
- Where re-fuelling of construction plant is required to take place onsite, re-fuelling would be undertaken within a bunded area, within the temporary site compound;
- Pre-cast concrete would be used over uncured concrete where possible. Any uncured concrete works would be supervised at all times, and would be scheduled outside of periods of expected heavy rainfall;
- Concrete would be poured directly into the shuttered formwork from the Ready Mix Truck, reducing the risk of spillage;
- The wash-out of Ready-Mix Truck drums would not be permitted onsite, in the environs of the site, or at a location which could result in a discharge to surface water;
- Surplus uncured concrete would be returned to the batching plant where possible;
- An impermeable concrete washout area would be installed, if required, by the construction works contractor at the temporary site compound. Excess uncured concrete not returned to the batching plant, in addition to chute washings, would be

deposited in the designated concrete washout area. The construction works contractor would arrange for the removal of concrete from this area at regular intervals during the construction phase;

- It is not envisaged that vehicle wheel wash facilities would be required. However, in particularly dry weather, additional dust control measures may be required, including the provision of a wheel wash facility. Should a wheel wash facility be required, it would be located away from any drainage system within the proposed development site and the associated run-off would be collected via a settling pond;
- In the unlikely event of a suspected deterioration in water quality in the Wilton Stream due to construction works at the development site, works would immediately cease, an investigation into the cause undertaken and the relevant NPWS and Inland Fisheries Ireland personnel informed.

In addition to the above measures, the construction works contractor would take cognisance of the following guidelines:

- CIRIA, 2001: *Control of Water Pollution from Construction Sites; guidance for consultants and contractors*;
- CIRIA, 2002: *Control of Water Pollution from Construction Sites – Guide to Good Practice*;
- IFI, 2016: *Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters*.

8.2 OPERATIONAL PHASE

To ensure the operational phase of the development does not result in any potential significant impacts upon the designated habitats or species of the Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC and Lough Derg (Shannon) SPA the following measures are proposed:

- Stormwater from the site, comprised of rainwater run-off from roofs, is directed to a central stormwater pipe which discharges to the Wilton Stream. There is one surface water monitoring point located on this system, SW2. In accordance with the site's Industrial Emissions Licence, surface water is inspected weekly at SW2 and sampled quarterly;
- Surface water run-off from the yard area is directed to existing slurry tanks and will not mix with clean stormwater from roofs;
- The existing slurry tanks are fitted with leak detection systems;
- The site would not propose to store any significant volumes of chemicals or materials, which could pose a significant spill risk to the aquatic environment;
- The site would ensure that any fuels, oils or chemicals would be stored in accordance with the EPA guidance on the storage of materials, in designated, bunded areas, with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers. Bunds and bunded areas would undergo integrity testing every three years, as is best practice;

- The site would ensure that an adequate supply of spill clean-up material is readily available, in the event of any spillages onsite;
- Litter would be removed directly from the house floor in a covered trailer after the removal of each batch. Removal and transport of litter should be avoided during heavy rain;
- A preventative maintenance system would be in place for the proposed wash-water tank, which would entail regular visual inspection and cleaning.
- In order to minimise any potential emissions, the operation and management of the farm will be operating within the guidelines outlined in the Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry and Pigs (2017);
- The operation of the farm will be in accordance with the Nitrates Regulations S.I. 225 of 2020 (as amended).

9.0 IN-COMBINATION EFFECTS

The following plans and projects were reviewed and considered for in-combination effects with the proposed development:

- North Tipperary County Development Plan 2010 - 2016 (As Varied);
- Ballymackey/Ballinree Settlement Plan;
- Proposed and permitted developments in the area available on Tipperary County Council planning system.

The proposed development is located in a rural area, with some nearby residential properties located along the local road network. The land use of the area is mainly agricultural pasture, with some areas of arable land. The nearest village is Ballymackey, located approximately 2.7km to the south-west, while the nearest towns are Cloughjordan and Nenagh, located approximately 5.7km north and 9.6km south-west of the development site respectively. There are few commercial enterprises within the general area, with the exception of agricultural enterprises.

According to the Tipperary online planning system, planning permission was granted to Tipperary Milling Company Ltd. for a primary and secondary digester in 2007 (Planning Ref. 07510108). This application site is located approximately 640m to the east of the development site. However, this development did not take place. An application by Bulrush Horticulture Ltd. for retention planning (Planning Ref. 19600859) was refused at Glenahilty Bog. This facility, involved in peat harvesting, is located approximately 1.3km to the north of the development site.

There is one EPA waste licenced facility located within 15km of the development; Advanced Environmental Solutions (Ireland) Limited (Nenagh), Waste Licence Ref. No. W0240-01, located approximately 12km to the south-west of the site. There are also a number of EPA IE / IPC licenced facilities located within 15km of the development site, as shown in the table below.

Table 9.1: EPA Licenced Facilities within 15km of the Development

LICENCE No.	LICENCE NAME	LICENCE TYPE (FIRST SCHEDULE OF EPA ACT, 1992, AS AMENDED)	APPROX. DISTANCE FROM DEVELOPMENT SITE
W0078-03	Ballaghveny Landfill	11.5 Waste	180m East
P0411-01	Mr. James and Ms. Nuala Gleeson	6.2 (a) Intensive Agriculture	2.3km South-West
P0375-01	Toomevara Farms Limited	6.2 (a) Intensive Agriculture	6.3km South-East
P0184-01	Anglo Beef Processors Ireland Unlimited Company	7.4.1 Food and Drink	9.5km West
P0791-02	Arrabawn Co-operative Society Limited	7.2.1: Food and Drink	10.1km South-West
P0067-01	Procter & Gamble (Manufacturing) Ireland Limited.	5.3 Chemicals	11.1km South-West

Potential in-combination effects are discussed under the following headings.

9.1 HABITAT LOSS / FRAGMENTATION

As discussed in Section 6.1, the proposed development does not directly impinge on any part of a European site, and as such would not be expected to have any in-situ effects upon a protected site through loss or destruction of habitat or fragmentation of habitat. With regards ex-situ effects, it is not considered that the proposed development site would contain the habitats or species for which the Scohaboy (Sopwell) Bog SAC, Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA have been designated.

The surrounding land-use of the proposed development site is mainly agricultural pastureland, with some areas of arable land, which can be considered modified and of low biodiversity value. Areas of peatland are also noted within the vicinity, with some areas worked, therefore the biodiversity value would vary depending upon whether the peatland is being cut (low to moderate biodiversity value) or is untouched (high biodiversity value).

While no proposed developments were identified on the Tipperary County Council planning site within the immediate vicinity of the applicant's proposed site, should future planning applications be submitted for the area, it is likely that they would also be located on agricultural land. Therefore, it is unlikely that future proposed developments would result in the loss or fragmentation of habitats with potential links to the designated habitats of the Scohaboy (Sopwell) Bog SAC or Lough Derg, North-east Shore SAC, or habitats which support the special conservation interests of Lough Derg (Shannon) SPA sites.

It is noted that Bulrush Horticulture Ltd. operate a peat harvesting facility at Glenahilty Bog, approximately 1.3km to the north of the site. While it is possible that Glenahilty Bog may have areas which are similar to Scohaboy (Sopwell) Bog SAC's qualifying interest degraded raised bog [7120], as the applicant's proposed development would not result in any impact upon peatland (in the absence of this habitat on site, or immediately adjacent the site), no in combination effects on habitat loss / fragmentation are anticipated.

9.2 DISTURBANCE TO SPECIES

Disturbance to species may arise through noise emissions and human activity. The main in-combination noise and human activity effects would be from any commercial activities within the area. However, as noted above, there are few commercial enterprises located within the vicinity of the development site, with the general area around the development site mainly used for agricultural purposes and for some dispersed one-off housing. Therefore, owing to the distances of commercial activities and the EPA licenced facilities detailed in the table above, given the nature of activities at the proposed development (internal rearing of pigs), and given the distance of the development site to designated sites, it is considered that there would be no cumulative noise impacts, or other disturbance effects due to human activity, which would pose a significant risk to designated sites or species.

9.3 AIR QUALITY

The main cumulative impacts of the proposed development with regards air emissions would be the potential generation of ammonia emissions to air from agricultural activities. In particular, ammonia emissions would be associated with intensive agricultural facilities. In addition to the Woodville farm site, there are two EPA licenced intensive agricultural facilities (P0411-01 and P0375-01) located within 15km of the development site. Given the distances of the proposed development and the two intensive agricultural facilities from the nearest designated sites, in addition to the design measures incorporated into the proposed development for the reduction of air emissions, no potential significant cumulative impacts are anticipated upon designated sites due to air emissions. In addition, all Natura 2000 within 15km have been assessed in the Air Quality and Odour Impact Assessment (Document Ref: 20211003(1)), as updated in response to 17-06-2021 RFI (Document Ref: 100821). This report has concluded that the proposed facility operations will be in compliance with the guideline Odour and Ammonia impact presented within the document. The maximum annual average ammonia predicted ground level concentration at the identified Natura 2000 sites is less than $0.05 \mu\text{g}/\text{m}^3$ for the proposed development. This is less than the guideline Ammonia limit value of $3.0 \mu\text{g}/\text{m}^3$ for the protection of ecosystems at these locations. There would be no significant additional impact to the Lough Derg, North-east Shore SAC, Lough Derg (Shannon) SPA, Scohaboy (Sopwell) Bog SAC or the Sharavogue Bog SAC as a result of Nitrogen Deposition from the farm.

9.4 DETERIORATION IN WATER QUALITY

Continued implementation of the Water Framework Directive would result in achieving, or maintaining, improvements to water quality in the Lower Shannon Catchment. Developments such as this proposed development could act in combination with existing environmental pressures on the Lower Shannon Catchment, including: agriculture, anthropogenic, domestic and urban waste water, urban run-off, industry (including extractive) and forestry. In particular, the proposed development could act in combination with other similar projects which are hydrologically connected with the Wilton Stream, Ollatrim River or Nenagh River.

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As discussed in Section 6.3, the proposed development would not be considered to impact upon the listed habitats and species of Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA sites due to deleterious effects on water quality owing to the location of the development site, the nature of the development, the duration of construction works, the proposed drainage system, the considerable hydrological distance (and thus dilution) between the proposed development and the designated sites, and given that the proposed development is not located within the immediate vicinity of any watercourses.

As discussed in Section 6.3, the development site is not hydrologically connected with Scohaboy (Sopwell) Bog SAC, therefore no potential impacts on water quality due to the proposed development site are anticipated.

The proposed development could act in combination with other developments with regards to the land spreading of manure / sludges. As discussed in Section 6.3, pig manure from the development site is currently land spread, and would likely continue to be land spread, on third party lands in the area. The land spreading of manure is undertaken in accordance with the Nitrates Regulations, such as complying with the timing of the land spreading, nutrient management planning and set-back distances around sensitive receptors and transport vectors. At least four of the facilities (Mr. James and Ms. Nuala Gleeson, Toomevara Farms Limited, Anglo Beef Processors Ireland Unlimited Company and Arrabawn Co-operative Society Limited) in Table 9.1 above generate sludges from wastewater treatment or pig manure, with the sludges / manure land spread by farmers or contractors. However, the land spread of these sludges / manure would be required to be undertaken in compliance with the Nitrates Regulations. Therefore, no cumulative impacts upon water quality due to land spreading would be anticipated.

It is therefore considered that there would be no significant cumulative impacts upon water quality which could pose a risk to Lough Derg, North-east Shore SAC or Lough Derg (Shannon) SPA.

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10.0 CONCLUSION

It is not anticipated that the proposed development, subject to recommended mitigation measures, by itself or in combination with other developments, would impact negatively upon the Natura 2000 network during the site preparation or operational phases of the project.

The proposed development site is located approximately 9.6km from the Scohaboy (Sopwell) Bog SAC (Site Code: 002206) and would be hydrologically connected Lough Derg, North-east Shore SAC (Site Code: 002241) and the Lough Derg (Shannon) SPA (Site Code: 004058). It is considered that the proposed development would not result in any significant risk to the protected habitats and species of the aforementioned sites due to habitat fragmentation or loss, disturbance or reduction in species density or introduction of invasive species.

It is considered that there would be no potential risk of significant impacts upon the qualifying interests of these protected sites due to the proposed mitigation measures to be employed.

It is the conclusion of this Natura Impact Statement that, subject to recommended mitigation measures, there would be no potential for significant impacts on European sites as a result of the proposed development and mitigation measures to be employed. This conclusion refers to the development by itself or in combination with other developments.

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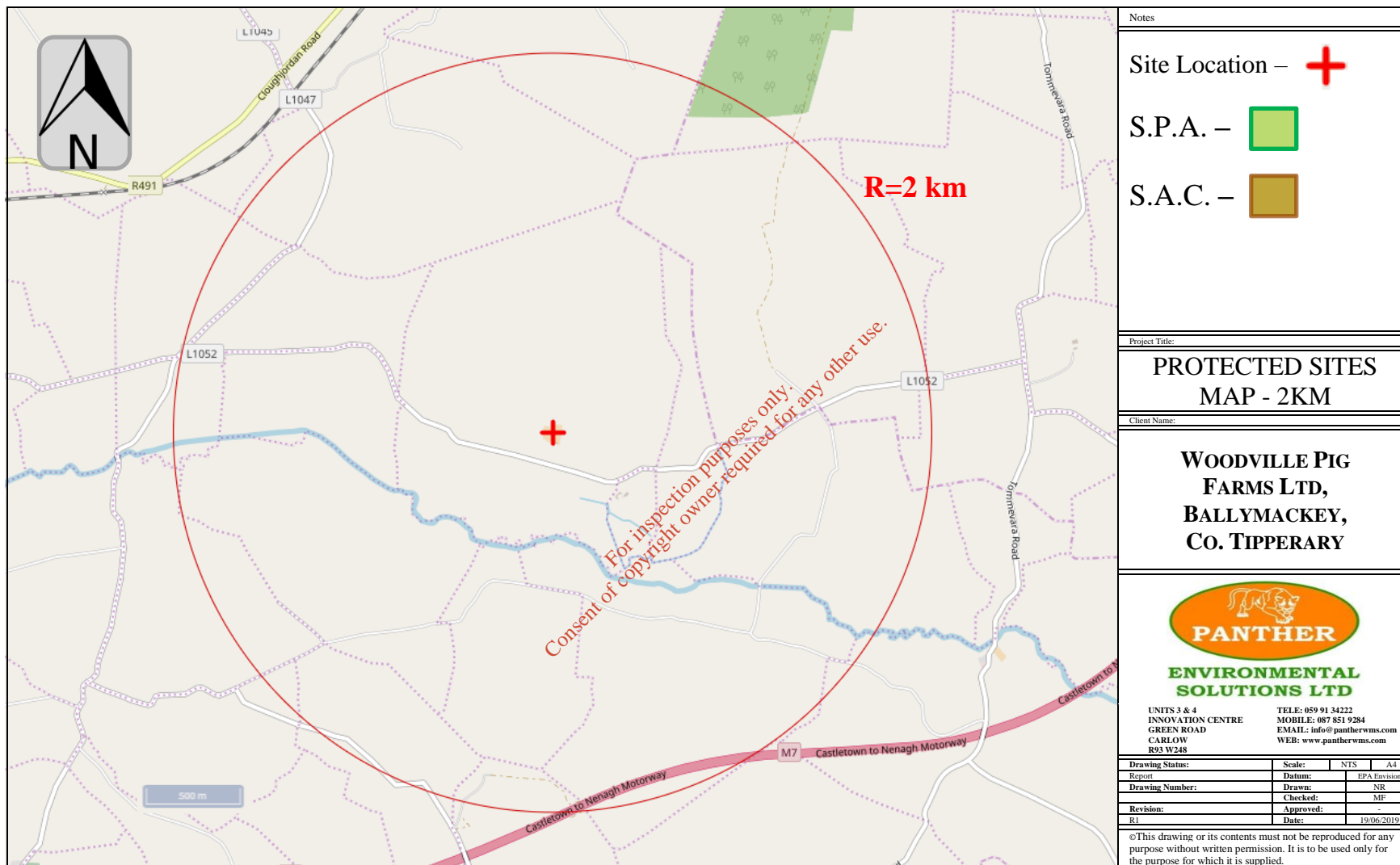
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APPENDIX A
PROTECTED SITES AND
PROPOSED DEVELOPMENT LOCATION

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APPROPRIATE ASSESSMENT SCREENING REPORT
WOODVILLE PIG FARMS LTD., BALLYMACKEY, CO. TIPPERARY



Notes

Site Location – +

S.P.A. –

S.A.C. –

Project Title:

**PROTECTED SITES
MAP - 2KM**

Client Name:

**WOODVILLE PIG
FARMS LTD,
BALLYMACKEY,
CO. TIPPERARY**


PANTHER
**ENVIRONMENTAL
SOLUTIONS LTD**

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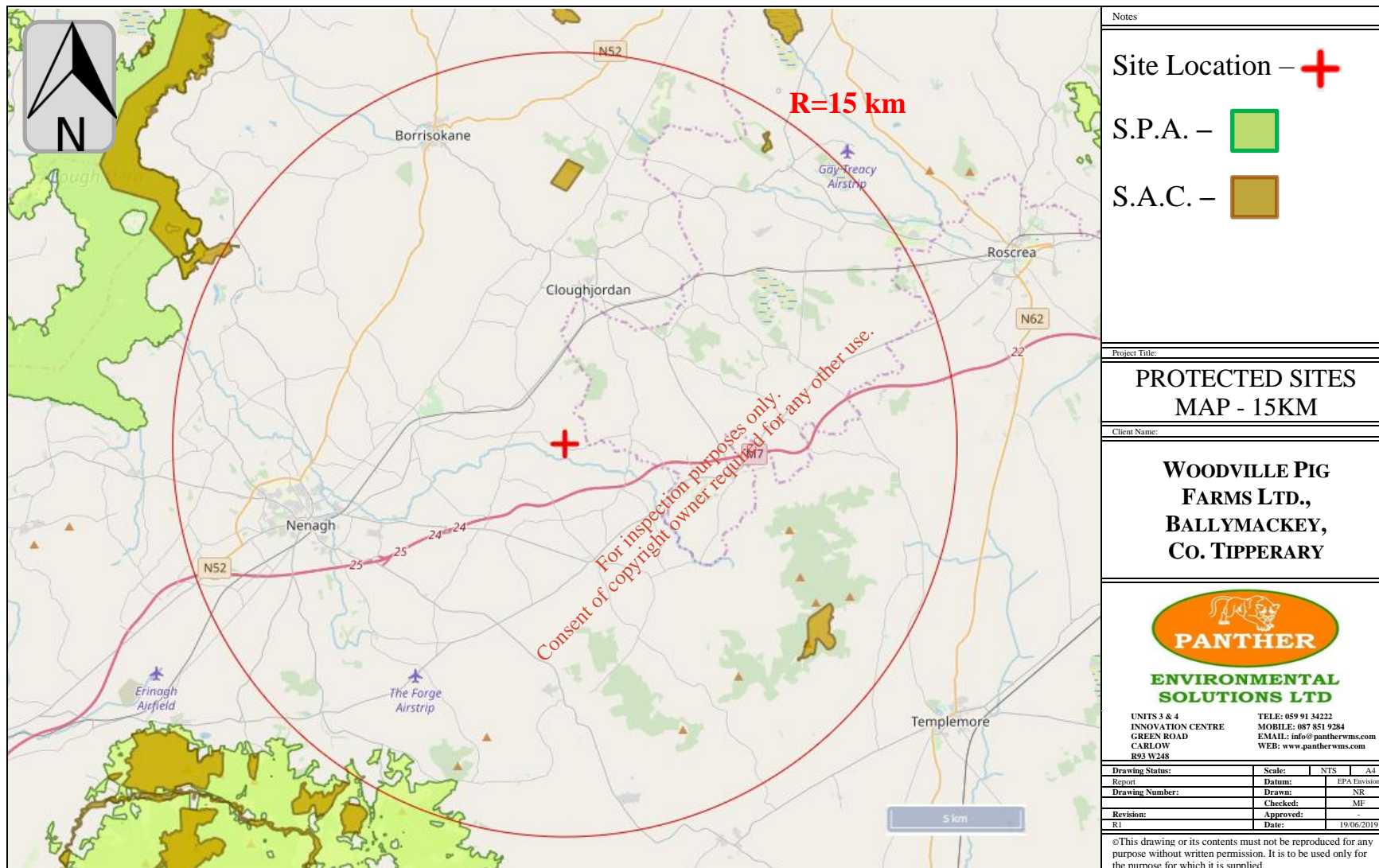
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Report:	Date:	EPA	Environ
Drawing Number:	Drawn:	NR	
Revision:	Checked:	MF	
R1	Approved:	-	
	Date:	19/06/2019	

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APPROPRIATE ASSESSMENT SCREENING REPORT

WOODVILLE PIG FARMS LTD., BALLYMACKEY, CO. TIPPERARY



Notes	
Site Location –	+
S.P.A. –	■
S.A.C. –	■
Project Title:	
PROTECTED SITES MAP - 15KM	
Client Name:	
WOODVILLE PIG FARMS LTD., BALLYMACKEY, CO. TIPPERARY	
 PANTHER ENVIRONMENTAL SOLUTIONS LTD	
UNITS 3 & 4 INNOVATION CENTRE GREEN ROAD CARLOW R93 W248	TELE: 059 91 3422 MOBILE: 087 851 9284 EMAIL: info@pantherwms.com WEB: www.pantherwms.com
Drawing Status:	Scale: NTS A4
Report	EPA Emission
Drawing Number:	Drawn: NR
Checked:	MF
Approved:	Approved:
R1	Date: 19/06/2019
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APPENDIX B
PHOTO LOG

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Plate 1: Example of BL3 habitat onsite - the sow house.



Plate 2: Section of W/L1 habitat, with adjacent ED3 habitat.



Plate 3: Area of GA2 habitat, within the southern portion of the site.



Plate 4: GS4 habitat in the site's northern section.

Notes:

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**APPENDIX B
 PHOTO LOG**



**ENVIRONMENTAL
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PL_19_9350	A	checked:	MF
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Plate 5: Area of WS1 habitat, mainly comprised of Willow.



Plate 6: Section of hedgerows (WL1) within southern portion of site.



Plate 7: Section of treelines (WL2) along eastern site boundary.



Plate 8: Section of broadleaved woodland (WD1) along the western site boundary.

Notes:

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**APPENDIX B
 PHOTO LOG**



**ENVIRONMENTAL
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