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APPROPRIATE ASSESSMENT SCREENING REPORT

PROPOSED EXTENSION AT KILCHREEST QUARRIES, KILCHREEST, LOUGHREA, CO. GALWAY

2025

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DATE:	31st January 2025	**REVIEWED:**	Martin O'Looney, BSc.

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1.0 INTRODUCTION

Panther Ecology Ltd. was commissioned by Collins Boyd Engineers & Architects on half of the client, to prepare an Appropriate Assessment Screening Report for the extension to an existing quarry and all associated site works on a site of 12.66 hectares located at Kilchreest Quarries, Kilchreest, Co. Galway.

The closest Natura 2000 site is the Slieve Aughty Mountains SPA (Site Code: 004168) located approximately 2.2km to the south-east of the proposed development. The Peterswell Turlough SAC (Site Code: 000318) is also located approximately 2.7km to the south-west.

The screening programme was be undertaken in accordance with the guidance outlined in "Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities" (DoEHLG, 2010) and "Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites" (EC, Nov 2001) (Revised 2021). Assessment of plans and projects significantly affecting Natura 2000 sites (November 2001) and Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive (2018).

The principal aim of this study is to assess for Likely Significant Effects (LSE) to European sites (the Natura 2000 network) as a result of this project in accordance with Article 6(3) of the Habitats Directive. This report has been prepared with regards to the European Communities (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997), and the later amendment regulations (S.I. No. 233 of 1998; S.I. No. 237 of 2005, S.I. No. 477 of 2011, S.I. No. 355 of 2015).

A study was undertaken by Ms Paula Farrell of Panther Ecology Ltd who has a BSc in Wildlife Biology from Munster Technological University (formerly IT Tralee) and has experience in elasmobranch, amphibian, bird, invertebrate, habitat and floral surveys. This survey was supervised by Martin O'Looney who has a BSc Degree in Environmental Science and Technology from Atlantic Technological University Sligo (formerly IT Sligo) and over 10 years' experience in environmental consultancy and environmental impact assessment. This comprised a review of the proposed development, site visits on 12th September and 19th September 2024 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.

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 -2015 (S.I. 477/11, S.I. 355/2015, provides the framework for legal protection for habitats and species of European importance. The Natura 2000 network provides an ecological infrastructure for the protection of sites that are of particular importance for rare, endangered or vulnerable habitats and species within the EU. The Natura 2000 network in Ireland is made up of European Sites which include:

- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)

Article 6(3) of the Habitats Directive establishes the requirement for appropriate assessment 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.*"

3.0 METHODOLOGY

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.

Screening for Appropriate Assessment involves:

- Description of the project and area characteristics (existing environment);
- Identification and description of Natura 2000 sites that could potentially be affected, and compilation of information on their qualifying interests and conservation objectives;
- Assessment of likely effects – direct, indirect and cumulative, undertaken on the basis of availability of objective information as necessary;
- Screening statement with conclusions.

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, 2010.
- 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, 2021.
- Commission Notice "Managing Natura 2000 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 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.
- OPR Practice Note PN01 (2021) "*Appropriate Assessment Screening for Development Management*"

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 the zone of influence of Kilchreest, Loughrea, Co. Galway were identified from National Parks and Wildlife Service (NPWS) online map viewer.

Water quality data from the EPA was reviewed for the assessment of biological and environmental data collected on waterbodies in Ireland (Accessed November 2024)

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

Site characterisation assessments were undertaken on the 12th September and 19th September 2024 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 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 proposed development will consist of a proposed extension to the existing quarry and all associated site works at Kilchreest Quarry, Isertkelly North, Loughrea, Co. Galway (GPS Coordinates: 53.166420, -8.719482) as shown in Figure 4.1. A new office building is proposed which will include offices, toilets, changing room and canteen. Other new structures will include a refuelling pad, fuel tank, wheelwash, carparking, truck parking and a maintenance shed. There is an existing weight bridge onsite which includes weight bridge office.

Figure 4.1: Location of Proposed Site at Kilchreest, Loughrea, Co. Galway

The operational phase of the proposed development will consist of stripping and storing of existing topsoil and extraction limestone, processing (crushing and screening), to produce aggregates for use in manufacture of value-added products for road construction, production of concrete products and site development works. Upon completion of extraction, it is intended to return the site to a natural habitat.

The proposed development will be a continuation of the current quarrying activity. An extraction capacity of up to 120,000 tonnes per annum is sought to provide the applicant with the ability to respond to demand for aggregates in the region. Permission is sought for a period of 23 years in order to extract a known resource.

The estimated current depth of extraction is 28.5m OD (Refer to Water Chapter within the accompanying EIAR). The estimated volume of stone to be extracted within the proposed

extension is 1.333 million m^3 at an estimated density of 1.8 tonnes/m^3 which would equate to an estimated reserve of 2.4 million tonnes.

The site will be accessed by an existing entrance off the L4219 to the south.

The total landholding area of the proposed development site is 12.66 hectares with the proposal for extraction of limestone within c 7.5 hectares using conventional drilling and blasting techniques and mineral reduction using mobile crushing and screening. The primary heating system for the proposed offices will be heat pumps. Water will be provided via an existing bored well.

During the operational phase of the proposed extraction areas, surface water comprised of rainwater run-off will percolate to ground. Surface water from the proposed truck/carpark areas and existing road will percolate to ground via permeable substrates (gravel) and grassy verges. An impermeable concrete refuelling slab will be provided within the proposed carpark and will have a petrol interceptor which will discharge to a soak away. A bunded tank for diesel will be provide adjacent the refuelling pad. Surface water from the roof of the proposed building and maintenance shed which will be directed to soak pits.

Foul water will be directed to an existing septic tank located just south east of weight bridge (Refer to site layout).

The development site is currently comprised of modified habitats and hedgerows. Some areas of hedgerows and scrub are to be removed. No mature trees will be removed as part of this development.

A landscape plan has been prepared by RMDA Landscape Architects & Consultants. The design strategy of the proposed landscape plan is to retain as much existing trees and hedgerows as possible, with additional planting. It will include the planting of native and non-native ornamental species within its design. Existing trees, scrub and hedgerows to the north, east and south-east will be retained. Some areas of scattered hedgerows, immature trees and scrub to the west, north-west, south-west and centre will be removed to facilitate the development. To compensate the loss of these habitats, a 5m wide strip of additional planting will be incorporated into the development along the north, south, south-east and west boundaries. This will act as a biodiversity corridor for any commuting wildlife in the area. The planting schedule will include the following trees: *Aesculus hippocastanum, Betula pubescens, Crataegus monogyna, Ilex aquifolium, Malus sylvestris, Quercus robur* and *Sorbus acuparia*. Whip/transplant planting will include: *Aesculus hippocastanum, Alnus glutinosa, Betula pubescens, Pinus sylvestris, Quercus robur* and *Sorbus acuparia.* Hedgerow planting will include: *Crataegus monogyna, Ilex aquifolium, Prunus spinosa, Quercus robur* and *Viburnum opulus*.

The estimated duration of the proposed development is approximately 23 years. Construction works would be confined to the proposed development footprint. Works will not be required within a drainage ditch or watercourse. During excavation works, soils would be temporarily stored onsite. Any excess soils would be used for landscaping or exported offsite via a licenced contractor. Any imported materials will be screened and sourced from a certified supplier. See Appendix C for site plans and layouts.

The closest Natura 2000 site is the Slieve Aughty Mountains SPA (Site Code: 004168) located approximately 2.2km to the south-east of the proposed development. The Peterswell Turlough SAC (Site Code: 000318) is also located approximately 2.7km to the south-west as shown in Figure 4.2 below. The Rahasane Turlough SPA (Site Code: 004089) Rahasane Turlough SAC (Site Code: 000322) and the Coole-Garryland SPA (Site Code: 004107) are also located approximately 7km and 9.1km from the development boundary.

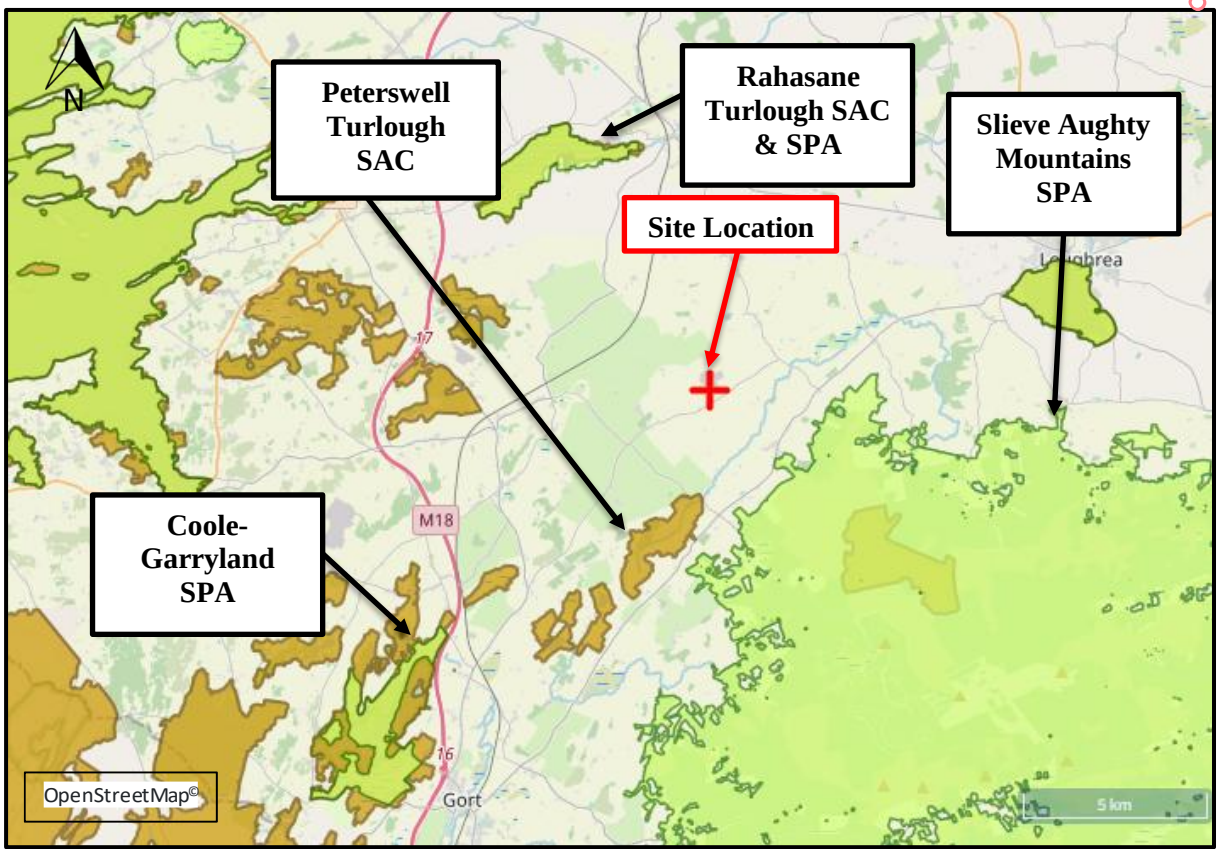

Figure 4.2: Location of Proposed Development and Natura 2000 Sites

The following project elements of the proposed development have been examined for relevance to possible effects on the Natura 2000 sites;

- Earthworks & Excavation
- Sediment & Hydrocarbon Runnoff
- Stormwater & Waste Water
- Disturbance to Protected Species
- Impact on Protected Habitats
- Dust and Noise
- Invasive Species

4.2 EXISTING ENVIRONMENT

The development site is currently comprised of agricultural grassland and an active quarry with hedgerows and scrub delineating boundaries. The surrounding area is mostly rural with agricultural lands dominating. Residential dwellings occur along the local road networks.

4.2.1 Habitats onsite

Site characterisation assessments were undertaken on the 12th and 19th of September 2024 to examine the ecological context of the development site, by systematically walking the site and boundaries and determining the habitats present. During the site assessment the following habitats were observed.

Improved agricultural grassland (GA1) dominates to the west and south of the proposed development. It is managed for agriculture as is evident of the short grass swards. The species composition is comprised of Ryegrasses (*Lolium* spp.), Yorkshire Fog (*Holcus lanatus*), Fescues (*Festuca* spp.), Bent grasses (*Agrostis* spp.), Crested Dog's-tail (*Cynosurus cristatus*), Silverweed (*Potentilla anserina*), Dandelion (*Taraxacum* agg.), Common Hogweed (*Heracleum sphondylium*), Meadow Vetchling (*Lathyrus pratensis*), Creeping Thistle (*Cirsium arvense*), Dock (*Rumex* spp.), Vetch (*Vicia* spp.), Ribwort Plantain (*Plantago lanceolata*), Creeping Buttercup (*Ranunculus repens*), Clover (*Trifolium* spp.), Chickweed (*Stellaria media*), Black Medick (*Medicago lupulina*), Ragwort (*Jacobaea vulgaris*), Nettle (*Urtica dioica*) and Yarrow (*Achillea millefolium*).

Active quarries and mines (ED4) consists of the existing active quarry to the east of the site. No plants were recorded however, **scrub (WS1)** is found along the boundaries to this habitat. An area to the west of the existing quarry has been stripped of topsoil with significant disturbance from machinery. It includes areas of loose gravel, some exposed limestone where flora have begun to colonise. It has been classified as **active quarries and mines (ED4)** with some areas of **buildings and artificial surfaces (BL3)** comprised of gravel. This habitat merges with other habitats as described above and below. The plant cover is low within the heavily disturbed area. Plant species recorded include Yarrow (*Achillea millefolium*), Rough Hawkbit (*Leontodon hispidus*), Coltsfoot (*Tussilago farfara*), Bramble (*Rubus fruticosus* agg.), Ribwort Plantain (*Plantago lanceolata*), Moss (Bryophyta), Sedges (Cyperaceae), Hart's-tongue Fern (*Asplenium scolopendrium*), Great Willowherb (*Epilobium hirsutum*), Oxeye Daisy (*Leucanthemum vulgare*), Knapweed (*Centaurea nigra*), Daisy (*Bellis perennis*), Crested Dog's-tail (*Cynosurus cristatus*), False Oat-grass (*Arrhenatherum elatius*), Wild Carrot (*Daucus carota*), Wall Cotoneaster (*Cotoneaster horizontalis*), Tutsan (*Hypericum androsaemum*), Black Medick (*Medicago lupulina*), Common Centaury (*Centaurium erythraea*) and Goat Willow (*Salix caprea*) invading.

Scrub (WS1) dominates to the north-east of the site within the area of the quarry that was stripped of topsoil. This scrub has grown on berms around the perimeter. It also defines some of the existing field boundaries over the old stone wall habitats. The dominating species is Bramble (*Rubus fruticosus*) with Blackthorn (*Prunus spinosa*), Willow (*Salix* spp.) and Chinese Bramble (*Rubus tricolor*). Hawthorn (*Crataegus monogyna*) occurs infrequently also.

Hedgerows (WL1) border the improved agricultural grasslands. This habitat is comprised of Hawthorn (*Crataegus monogyna*), Elder (*Sambucus* spp.), Blackthorn (*Prunus spinosa*), Hazel (*Corylus avellana*), Ash (*Fraxinus excelsior*), Bramble (*Rubus fruticosus*), Ground Elder (*Aegopodium podagraria*), Nettle (*Urtica dioica*) and Ivy (*Hedera* spp.).

Areas of **dry meadows and grassy verges (GS2)** are found adjacent the existing entrance and in mosaic with the scrub habitat. The species consist of taller sward heights that have been unmanaged. This habitat also occurs within areas of the topped quarry also. Plants recorded include False Oat-grass (*Arrhenatherum elatius*), Crested Dogs-tail (*Cynosurus cristatus*),

Cocksfoot Grass (*Dactylis glomerata*), Bent Grasses (*Agrostis* spp.), Couch (*Elymus repens*), Yorkshire Fog (*Holcus lanatus*), Fescues (*Festuca* spp.), Nettle (*Urtica dioica*), Creeping Thistle (*Cirsium arvense*), Creeping Buttercup (*Ranunculus repens*), Silverweed (*Potentilla anserina*), Bindweed (*Convolvulus* spp.), Ragwort (*Jacobaea vulgaris*), Common Hogweed (*Heracleum sphondylium*), Great Willowherb (*Epilobium hirsutum*), Moss (Bryophyta), Sorrel (*Rumex* spp.), Yarrow (*Achillea millefolium*) and some Willow (*Salix* spp.) saplings encroaching. This habitat has links to the Lowland Hay Meadows (*Alcopecurus pratensis, Sanquisorba officinalis*) [6510] however, it is absent of the characteristic high quality and positive indicator species.

A small area classified as **recolonising bare ground (ED3)** occurs west of the existing road. It consists of Coltsfoot (*Tussilago farfara*), Yarrow (*Achillea millefolium*), Horseweed (*Erigeron* spp.), Ribwort Plantain (*Plantago lanceolata*), Moss (Bryophyta), Ragwort (*Jacobaea vulgaris*), Fescues (*Festuca* spp.), Bent Grasses (*Agrostis* spp.), Cocksfoot Grass (*Dactylis glomerata*), Mouse-ear Hawkweed (*Pilosella officinarum*) and Sedges (Cyperaceae).

Other artificial lakes and ponds (FL8) occur in some areas of the topped land where depressions have allowed for surface water to accumulate. Areas and depths varied. Some artificial ponds contained few aquatic vegetation whilst others did not. Within a larger artificial pond, Bullrush (*Typha* spp.), Jointed Rush (*Juncus articulatus*), Sedges (Cyperaceae), Willow (*Salix* spp.) and Horsetail (*Equisetum* spp.) were recorded. What is suspected to be a singular Lesser-water Plantain (*Baldellia ranunculoides*) was recorded based on vegetative characteristics. This plant was not in flower during the site assessments and is therefore, unconfirmed but not of significance. This is not a protected plant in Ireland. It is also of least concern within Ireland and is widespread to the west of Ireland.

Habitats of note outside the red line boundary

Some of the habitats mentioned above occur both within and outside the red line boundary. This includes **improved agricultural grassland (GA1)**, **hedgerows (WL1), Scrub (WS1**) and **Active quarries and mines (ED4).** The plant species composition is similar to that as described above. **Buildings and artificial surfaces (BL3)** comprises the existing road, gravelled carpark and buildings.

Additional habitats found outside the red line boundary include what appears to be a woodland however, it is in actual fact classified as **Scattered trees and parkland (WD5)** to the south-east of the development. It is an area of planted Apple (*Malus* spp.) trees that have been left unmanaged for some time. In addition to the Apple trees, Elder (*Sambucus* spp.), young Ash (*Fraxinus excelsior*), Hawthorn (*Crataegus monogyna*), Nettle (*Urtica dioica*) and Ivy (*Hedera* spp.) were recorded. **Treelines (WL2)** occur around this habitat in what was potentially an old garden and orchard. The treelines are comprised of Ash (*Fraxinus excelsior*), Sweet Chestnut (*Castanea sativa*), Sycamore (*Acer pseudoplatanus*) and Cypress (*Cupressus* spp.). To the south-west is an area of **dry meadows and grassy verges (GS2)** and **Scrub (WS1).** No additional species were recorded in these areas. Two **treelines (WL2)** occur side by side within this area. They are comprised of Scots Pine (*Pinus sylvestris*) and Spruce (*Picea* spp.). Ash (*Fraxinus excelsior*) and Sycamore (*Acer pseudoplatanus*) occur in a scattered fashion also.

No Third Schedule invasive flora were noted during the site assessment.

The proposed development does not contain the habitats for which the Peterswell Turlough SAC or the Rahasane Turlough SAC have been designated. The artificial ponds onsite are a result of rainwater.

See Table 4.1 for summary for habitats located at and adjacent the proposed development. See Appendix D for Photo Log of the main habitats observed during the site assessment.

Table 4.1 Summary of Habitats Identified at and Adjacent the Proposed Development Site

HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	**LEVEL 2**	**LEVEL 3**
B – Cultivated and built land	**BL** – Built Land	**BL3** – Buildings and artificial surfaces
		BL1 – Stonewalls and other stonework
G – Grassland and marsh	**GA** – Improved grassland	**GA1** – Improved agricultural grassland
	GS – Semi-natural grassland	**GS2 -** Dry meadows and grassy verges
W – Woodland and scrub	**WL** – Linear woodland/scrub	**WL2 –** Treeline
		WL1 - Hedgerows
	WD – Highly modified/non-native woodland	**WD5 –** Scattered trees and parkland
	WS – Scrub/transitional woodland	**WS1 -** Scrub
E – Exposed rock and disturbed ground	**ED –** Disturbed ground	**ED3 –** Recolonising bare ground
		ED4 – Active quarries and mines
F - Freshwater	**FL –** Lakes and ponds	**FL8 –** Other artificial lakes and ponds

4.2.2 Fauna

Bird species noted during the site walkover included Blackbird (*Turdus merula*), Rook (*Corvus frugilegus*), Hooded Crow (*Corvus cornix*), Swallow (*Hirundo rustica*), Raven (*Corvus corax*), Blue Tit (*Cyanistes caeruleus*), Bullfinch (*Pyrrhula pyrrhula*), Robin (*Erithacus rubecula*), Magpie (*Pica pica*), Chaffinch (*Fringilla coelebs*), Goldcrest (*Regulus regulus*), Willow Warbler (*Phylloscopus trochilus*), Snipe (*Gallinago gallinago*) and Stonechat (*Saxicola rubicola*).

Snipe are red listed under the BoCCI classification. Swallow and Goldcrest are amber listed. None of the bird species recorded are listed under Annex I of the E.U. Birds Directive.

Evidence of mammals (paths and scat) were noted within the grasslands and topped quarry habitats. Mammal tracks were also identified throughout the scrub habitat to the north. Scat

along the mammal tracks was identified as Fox. Badger was recorded entering the site from nearby grasslands on a trail camera. There is no evidence of Badger setts onsite. This is discussed further within the biodiversity section of the accompanying EIAR.

The proposed development does not contain the breeding habitats associated with Hen Harrier or Merlin for which the Slieve Aughty Mountains SPA has been designated. However, it could contain potential foraging habitat and prey species associated with these birds. The agricultural grassland onsite could support foraging Whooper Swan for which the Rahasane Turlough SPA and Coole-Garryland SPA have been designated.

4.2.3 Desktop Data

In addition to the site walkover, flora and fauna records were reviewed for the past 30 years on the National Biodiversity Data Centre (NBDC) website for the proposed development site and vicinity. No protected plant species under the Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) were recorded within the 10km square (Tetrad – M51) in which the proposed development site is located. No endangered or threatened flora were recorded within this tetrad.

No invasive plant species listed in the Third Schedule of the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as Amended 2015 (S.I No. 355 of 2015) were recorded within the 10km square (Tetrad – M51).

Protected fauna species of note recorded within the NBDC 10km square (Tetrad –M51) include the protected species: Common Frog (*Rana temporaria*), Freshwater White-clawed Crayfish (*Austropotamobius pallipes*), Marsh Fritillary (*Euphydryas aurinia*), Brown Long-eared Bat (*Plecotus auritus*), Daubenton's Bat (*Myotis daubentonii*), Badger (*Meles meles*), Pygmy Shrew (*Sorex minutus*), Red Squirrel (*Sciurus vulgaris*), Otter *(Lutra lutra*), Lesser Noctule (*Nyctalus leisleri*), Natterer's Bat (*Myotis nattereri*), Pine Marten (*Martes martes*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Hedgehog (*Erinaceus europaeus*).

High impact invasive species listed in the Third Schedule of the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as Amended 2015 (S.I No. 355 of 2015) include Fallow Deer (*Dama dama*).

Bird species of note include Barn Owl (*Tyto alba*), Swallow (*Hirundo rustica*), Bewick's Swan (*Cygnus columbianus* subsp. *bewickii*), Black-headed Gull (*Larus ridibundus*), Coot (*Fulica atra*), Grasshopper Warbler (*Locustella naevia*), Kestrel (*Falco tinnunculus*), Kingfisher (*Alcedo atthis)*, Linnet (*Carduelis cannabina*), Snipe (*Gallinago gallinago*), Starling (*Sturnus vulgaris*), Swift (*Apus apus*), Curlew (*Numenius arquata*), Teal (*Anas crecca*), Tree Sparrow (*Passer montanus*), Wigeon (*Anas penelope*), Golden Plover (*Pluvialis apricaria*), Gadwall (*Anas strepera*), Hen Harrier (*Circus cyaneus*), House Martin (*Delichon urbicum*), House, Sparrow (*Passer domesticus*), Little Egret (*Egretta garzetta*), Little Grebe (*Tachybaptus ruficollis*), Mallard (*Anas platyrhynchos*), Merlin (*Falco columbarius*), Mute Swan (*Cygnus olor*), Northern Lapwing (*Vanellus vanellus*), Peregrine Falcon (*Falco peregrinus*), Red Grouse (*Lagopus lagopus)*, Red Kite (*Milvus milvus*), Rock Pigeon (*Columba livia*), Sky Lark (*Alauda arvensis*), Tufted Duck (*Aythya fuligula*), Whooper Swan (*Cygnus cygnus*), Yellowhammer (*Emberiza citrinella*).

4.3 WATER ENVIRONMENT

4.3.1 Surface water

The development site is mostly located within the Kilcogan sub-catchment (Kilcogan_SC_020) and partly within the Kilchreest sub-catchment (Kilchreest_SC_010) which are part of the Galway Bay South East Catchment (ID_29). The closest mapped watercourse to the proposed development site is the Meheranspark (EPA Code – 29M07 – Order 1) where it rises approximately 1.1km south-west of the proposed development. It flows for approximately 1km (hydrologically) where it enters an unnamed lake. The Kilchreest (EPA Code: 29K02 – Order 4) is located approximately 1.3km to the south-east of the proposed development. It flows in a south-westerly direction for approximately 3.4km where it becomes part of the Peterswell Turlough SAC. The Emlagh (EPA Code: 29E03 – Order 1) is located approximately 1.7km to the north-west of the proposed development. It flows in a northerly direction where it joins the Rooghaun (EPA Code: 29R08 – Order 2). The Rooghaun flows for a further 364m where it joins the Ballynamannin (EPA Code: 29B32 – Order 3). After approximately 4.3km (hydrologically), the Ballynamannin confluences with the Kilcolgan (EPA Code: 29K01 – Order 5).

The Conservation Objectives documents for the Peterswell Turlough SAC and Rahasane Turlough SAC includes water quality objectives such as maintaining the appropriate natural hydrological regime, to maintain nutrient status appropriate to soil types and vegetation and to restore appropriate water quality. According to the Conservation Objectives report, "*Peterswell Turlough SAC should, typically, be naturally oligotrophic and requires targets of ≤20 µg/l TP, <8 µg/l annual mean chlorophyll a, <25 µg/l annual maximum chlorophyll a, and should maintain trace/absent epiphyton as algal mats (<2% cover) to reach favourable condition*". "*Rahasane Turlough was considered to be moderately sensitive to enrichment. A target of ≤20 µg/l total phosphorus may therefore be sufficient to support the natural structure and functioning of the turlough habitat at Rahasane*".

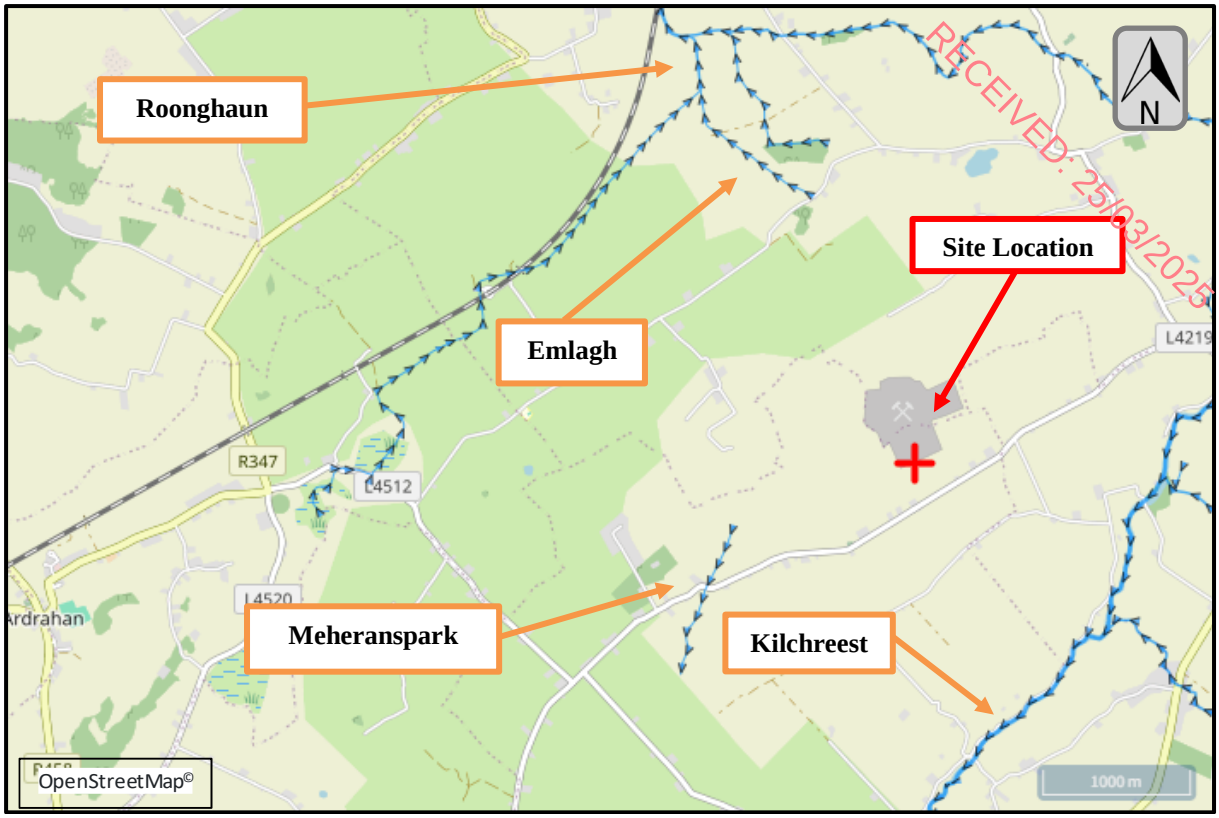

Figure 4.3: Watercourses surrounding the proposed development site

The Environmental Protection Agency (EPA) does not undertakes regular surface water monitoring along the Kilchreest River. Two monitoring surveys dating to 1989 are available on the EPA River Water Qualities Report. The results for these monitoring stations with available information (as per Table 4.2) for the period 1989 – 1994 are summarised in Figure 4.4 below for indicative purposes.

Table 4.2: Active Monitoring Stations on the Kilchreest River

STATION NO.	STATION LOCATION	EASTING	NORTHING	APPROX. LOCATION FROM SITE
RS29K021800	Kilchreest - Br N.W of Fishpond S-Rds	154157.93	213688.82	2km NE
RS29K022100	Kilchreest – Bridge N.N.E. of Newpark	152932	211559	1.5km SE

As can be seen in Figure 4.4 below, the Kilchreest has achieved a water quality status of between Q4 (Good) in 1994.

EPA comments on the most recent monitoring results for the Kilchreest River are as follows: "*All sites examined on the Kilchreest were satisfactory.*"

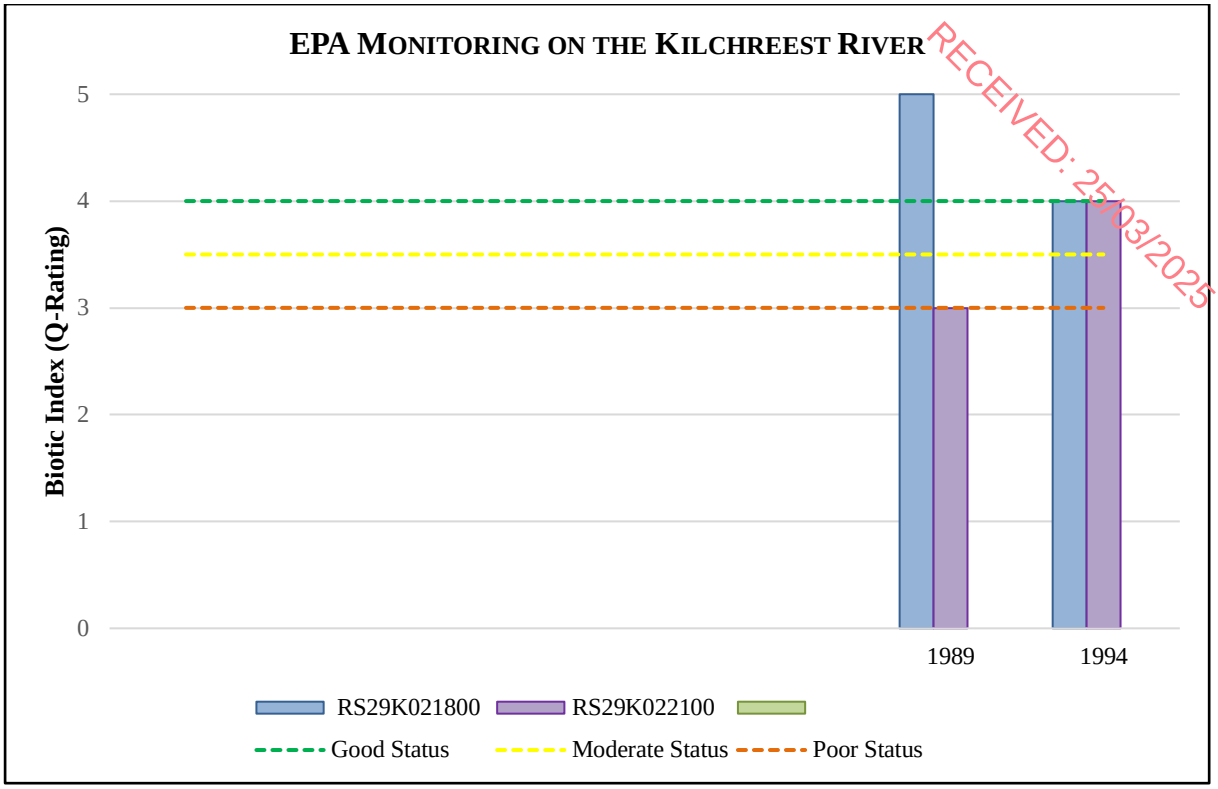

Figure 4.4: EPA Ecological Monitoring of the Kilchreest River from 1989 – 1994

The online EPA maps provide information on the most recent status of nearby transitional and coastal waterbodies as part of the Coastal water quality 2018-2020 and transitional water quality status 2018-2020.

The EPA also undertakes water monitoring of the Kilcolgan River, north of the development site. The results for these monitoring stations with available information (as per table 4.2) for the period 2003-2021 are summarised in Figure 4.5 below for indicative purposes.

Table 4.3: Active Monitoring Stations along the Kilcolgan watercourse

STATION NO.	STATION LOCATION	EASTING	NORTHING	APPROX. LOCATION FROM SITE
RS29K010400	Old Road Bridge Craughwell	151100.02	219931.14	6.6km NE
RS29K010600	Kilcolgan Bridge (formerly Dunkellin Br)	144201.46	2118414.36	9.2km NW

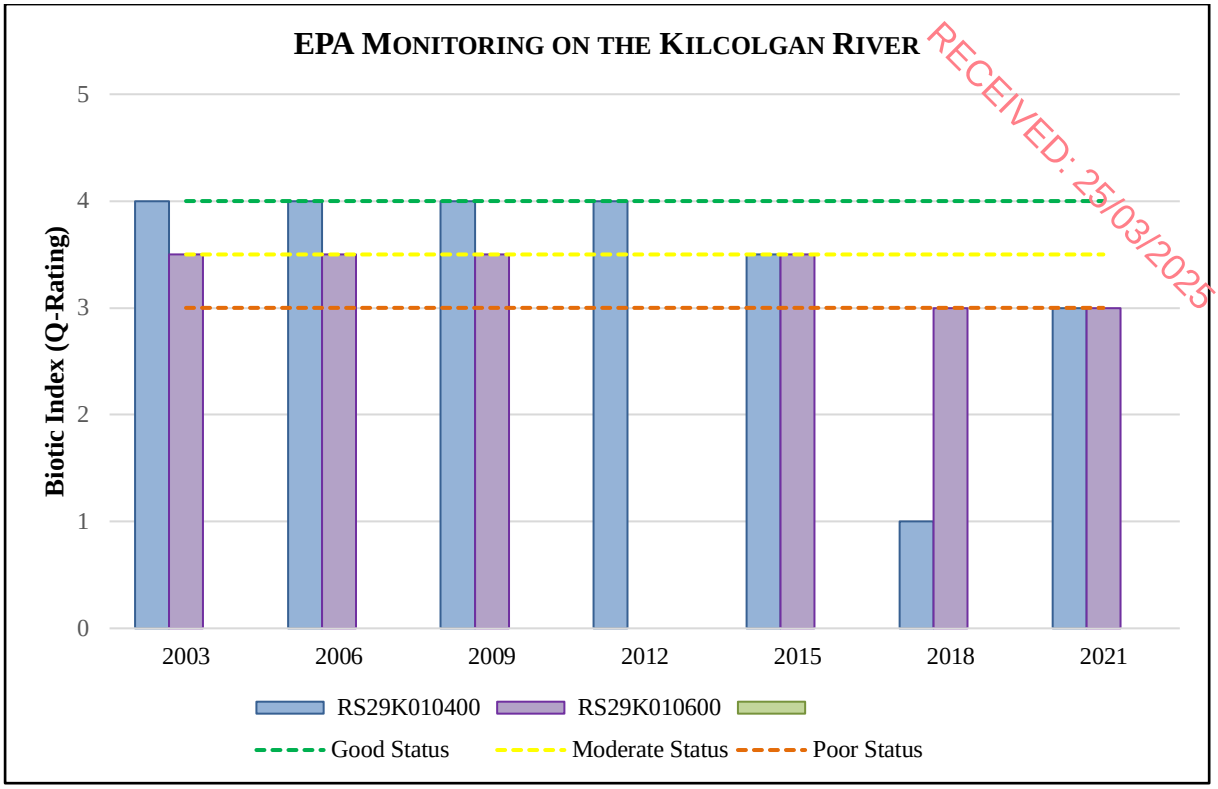

Figure 4.5: EPA Ecological Monitoring of the Kilcolgan River from 2003-2021

As can be seen in **Figure 4.5** above, the Kilcolgan watercourse has achieved a water quality status of between Q3 (Poor) in recent years.

EPA comments on the most recent monitoring results for the Kilcolgan are as follows: "*The upper Kilcolgan (or Dunkellin) River appears to be impacted at Site 0200 with poor conditions noted there. The precise cause of the problem is not clear. The 2019 Annual Environmental Report for the Loughrea waste water treatment plant shows it to be compliant with its licence and suggests that other causes may be responsible for the poor quality. An improvement in quality was noted at the Strongfort Lodge site (0300) where good conditions were recorded for the first time since 2012. The flood defence works in Craughwell appear to be complete and the river is flowing once again although the substratum hasn't settled completely yet. This site (0400) had a very significant covering of blanket weed (Cladophora) indicating that it is quite eutrophic here. The catchment land use between Site 0300 and 0400 appears to be mainly intensive agriculture. Quality was also poor at the last site (0600) with signs of enrichment noted.*"

4.3.2 Ground water

The proposed quarry extension at Kilchreest is located within a regionally important aquifer as per the Groundwater Data Viewer Maps (GIS, 2025). Groundwater permeability is moderate and well drained while groundwater vulnerability is high. There are a number of karst features within the area however, none are located within the proposed extraction area. According to the only EPA mapping system, the groundwater within the vicinity of the development site has an overall status of good for the years 2016-2021.

According to the water chapter (Chapter 7) of the accompanying Environmental Impact Assessment Report, "*There are no surface drains present within or adjacent to the site with all rainwater eventually infiltrating through the shallow limestone till into the limestone bedrock and groundwater aquifer. The quarry site is located right at the watershed divide and potentially the infiltrating waters could discharge either to the Kilchreest River system (Lough Coy Turlough near Ballylee) to the southwest (part of the Lough Coole Turlough catchment) or migrate northwest via groundwater to the Kilcolgan_040 River (Rahasane Turlough)*. The report also states that *"It is reasonably to surmise that the permanent groundwater Table at the proposed quarry site can be represented by a groundwater level of 45m OD Malin*."

4.3.3 Flood Risk

There are no mapped watercourses or drainage ditches within the proposed development red line boundary. According to the Preliminary Flood Risk Assessment (PFRA) Mapping tool by the OPW, the proposed development site is not located within an area of fluvial or pluvial flood, indicative of 10% AEP (10-yr) event, 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. There is no history of flooding at the site.

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.

Table 5.1: Five Special Protection Area (SPA) sites occur within the Zone of Influence (ZoI) of the proposed development. Thirteen Special Area of Conservation (SAC) sites occur within the zone of influence of the development site and are shown in the following table.

SITE NAME	DESIGNATION	SITE CODE	DISTANCE
Slieve Aughty Mountains SPA	SPA	004168	2.2km SE
Peterswell Turlough	SAC	000318	2.7km SW
Sonnagh Bog	SAC	001913	4.7km SE
Castletaylor Complex	SAC	000242	5.6km NW
Lough Coy	SAC	002117	5.9km SW
Carrowbaun, Newhall and Ballylee Turloughs	SAC	002293	6.4km SW
Ardrahan Grassland	SAC	002244	6.1km NW
Rahasane Turlough	SAC	000322	7km NW

Rahasane Turlough	SPA	004089	7km NW
Ballinduff Turlough	SAC	002295	7km SW
Lough Rea	SAC	000304	8km NE
Lough Rea	SPA	004134	8km NE
Kiltiernan Turlough	SAC	001285	8.3km NW
Lough Fingall Complex	SAC	000606	8.6km NW
Coole-Garryland Complex	SAC	000252	9.1km SW
Coole-Garryland	SPA	004107	9.6km SW
Galway Bay Complex	SAC	000268	14.5km W
Inner Galway Bay	SPA	004031	14.5km W

Maps detailing European sites within the Zone of Influence (ZoI) of the proposed site are included as Appendix C below. For this assessment, the site considered to be within the zone of influence of the development site is the Slieve Aughty Mountains SPA (Site Code: 00004168), Peterswell Turlough SAC (Site Code: 000318) and the Rahasane Turlough SAC (Site Code: 000322) due to close proximity and potential hydrological connection. The proposed development also contains grassland habitats associated with some of the qualifying interests of the Rahasane Turlough SPA (Site Code: 004089) and the Coole-Garryland SPA (Site Code: 004107).

The proposed development is located approximately 4.7km from the Sonnagh Bog SAC (Site Code: 001913). There is no direct hydrological connection between the proposed development, and this designated site although both are located within the Galway Bay South East Catchment. Sonnagh Bog is designated for the habitat blanket bog [7130]. Blanket bogs are ombrotrophic, meaning they are fed by rainwater. Given the distance and lack of source-receptor-pathway relationship, the proposed development would not have a significant effect on this habitat in terms of water quality. There are also no proposed works within any watercourse or drainage ditch. The closest mapped watercourse is located approximately 1.1km to the south-west with no direct connection to this SAC. Blanket bog habitat is not found within or adjacent the red line boundary of the site. Given the distance, lack of source-pathway-receptor relationship and absence of associated habitats, Sonnagh Bog SAC has been screened out.

The Castletaylor Complex SAC (Site Code: 000242) is located approximately 5.6km from the proposed development. There is no direct hydrological connection between the proposed development and this Natura 2000 site. The proposed development does not contain the habitats for which this SAC has been designated. A potential threat to this SAC is pollution of groundwaters and surface waters. There will be no works within any watercourse or drainage ditch. Due to the significant distance, absence of direct source-pathway-receptor and absence of associated habitats, the Ballynafagh Lake SAC has been screened out.

The proposed development is located approximately 5.9km from the Lough Coy SAC (Site Code: 002117). The proposed development does not contain the habitats Turlough [3180] for which this SAC has been designated. A deterioration in groundwater quality due to pollution is a threat to this habitat. Given that the proposed development is located within a karst region, there is potential for a groundwater connection to this SAC. However, there will be no excavation works within or adjacent any karst features that have been mapped according to the Groundwater Data Viewer live maps. There is also no direct connection between the proposed

development and any watercourse or drainage ditch that are hydrologically connected to this SAC. There will be no works within any watercourse or drainage ditch. Given the significant distance, lack of direct source-pathway-receptor relationship, absence of associated habitats, absence of any instream works and impacts to groundwater, Lough Coy SAC has been screened out.

The Carrowbaun, Newhall and Ballylee Turloughs SAC (Site Code: 002293) is located approximately 6.4km from the proposed development. The proposed development does not contain the habitats Turlough [3180] for which this SAC has been designated. A deterioration in groundwater quality due to pollution is a threat to this habitat. Given that the proposed development is located within a karst region, there is potential for a groundwater connection to this SAC. However, there will be no excavation works within or adjacent any karst features that have been mapped according to the Groundwater Data Viewer live maps. There is also no direct connection between the proposed development and any watercourse or drainage ditch that are hydrologically connected to this SAC. There will be no works within any watercourse or drainage ditch. Given the significant distance, lack of direct source-pathway-receptor relationship, absence of associated habitats, absence of any instream works and impacts to groundwater, the Carrowbaun, Newhall and Ballylee Turloughs SAC has been screened out.

The proposed development is located approximately 6.1km from the Ardrahan Grassland SAC (Site Code: 002244). There is no direct hydrological connection between this Natura 2000 site and the proposed development. In addition, groundwater typically follows land contours to the south-east. A deterioration in water quality is not listed as a threat to this SAC (NPWS, 2019b) and there are no associated water quality attributes. The proposed development does not contain the habits for which this SAC has been designated. Given the significant distance, lack of source-pathway-receptor relationship, absence of associated habitats, absence of any instream works, the Ardrahan Grassland SAC has been screened out.

The proposed development is located approximately 7km from the Ballinduff Turlough SAC (Site Code: 002295). The proposed development does not contain the habitats Turlough [3180] for which this SAC has been designated. A deterioration in groundwater quality due to pollution is a threat to this habitat. Given that the proposed development is located within a karst region, there is potential for a groundwater connection to this SAC. However, there will be no excavation works within or adjacent any karst features that have been mapped according to the Groundwater Data Viewer live maps. There is also no direct connection between the proposed development and any watercourse or drainage ditch that are hydrologically connected to this SAC. There will be no works within any watercourse or drainage ditch. Given the significant distance, lack of direct source-pathway-receptor relationship, absence of associated habitats, absence of any instream works and impacts to groundwater, the Ballinduff Turlough SAC has been screened out.

The Lough Rea SAC (Site Code: 000304) is located approximately 8km from the proposed development. The proposed development does not contain the habitats hard oligo-mesotrophic waters [3180] for which this SAC has been designated. A deterioration in water quality can have a significant effect on this SAC. There is no direct hydrological connection between the proposed development and this SAC. The closest mapped watercourse is located approximately 1.1km from the proposed development. There will be no works within any watercourse or drainage ditch. Given the significant distance, lack of direct source-pathway-receptor relationship, absence of associated habitats, absence of any instream works, the Lough Rea SAC has been screened out.

The proposed development is located approximately 8km from the Lough Rea SPA (Site Code: 004134). As noted above, there is no direct hydrological connection between the proposed development and this SPA. The proposed development contains some areas of artificial ponds however, the area of this habitat would not be significant and would not support the species for which this SPA has been designated. In addition, the ponds are located in proximity to the existing quarry and in an area trafficked by machinery. In the absence of a direct source-receptor-pathway, absence of suitable associated habitats, absence of any in-stream works, the Lough Rea SPA has been screened out.

The Kiltiernan Turlough SAC (Site Code: 001285) is located approximately 8.3km from the proposed development. The proposed development does not contain the habitats Turlough [3180] for which this SAC has been designated. A deterioration in groundwater quality due to pollution is a threat to this habitat. Given that the proposed development is located within a karst region, there is potential for a groundwater connection to this SAC. However, there will be no excavation works within or adjacent any karst features that have been mapped according to the Groundwater Data Viewer live maps. In addition, groundwater typically follows land contours to the south-east, away from this SAC. There is also no direct connection between the proposed development and any watercourse or drainage ditch that are hydrologically connected to this SAC. There will be no works within any watercourse or drainage ditch. Given the significant distance, lack of direct source-pathway-receptor relationship, absence of associated habitats, absence of any instream works and impacts to groundwater, the Kiltiernan Turlough SAC has been screened out.

The proposed development is located approximately 8.6km from the Lough Fingall Complex SAC (Site Code: 000606). The proposed development does not contain the habitats for which this SAC has been designated. A deterioration in groundwater quality is a threat to this SAC. Given that the proposed development is located within a karst region, there is potential for a groundwater connection to this SAC. However, there will be no excavation works within or adjacent any karst features that have been mapped according to the Groundwater Data Viewer live maps. In addition, groundwater typically follows land contours to the south-east, away from this SAC. There is also no direct connection between the proposed development and any watercourse or drainage ditch that are hydrologically connected to this SAC. There will be no works within any watercourse or drainage ditch. Given the significant distance, lack of direct source-pathway-receptor relationship, absence of associated habitats, absence of any instream works and impacts to groundwater, the Lough Fingall Complex SAC has been screened out.

The Coole-Garryland Complex SAC (Site Code: 000252) is located approximately 9.1km from the proposed development. The proposed development does not contain the habitats for which this SAC has been designated. A deterioration in groundwater quality is a threat to this SAC. Given that the proposed development is located within a karst region, there is potential for a groundwater connection to this SAC. However, there will be no excavation works within or adjacent any karst features that has been mapped according to the Groundwater Data Viewer live maps. There is also no direct connection between the proposed development and any watercourse or drainage ditch that are hydrologically connected to this SAC. There will be no works within any watercourse or drainage ditch. Given the significant distance, lack of direct source-pathway-receptor relationship, absence of associated habitats, absence of any instream works and impacts to groundwater, the Coole-Garryland Complex SAC has been screened out.

The proposed development is located approximately 14.5km from the Galway Bay Complex SAC (Site Code: 000268) and the Inner Galway Bay SPA (Site Code: 004031). As there are

no watercourses within the red line boundary, there is no direct source-pathway-relationship between the proposed quarry and protected sites. The development site does not contain the habitats or species for which the SAC has been designated. The habitats onsite would not offer any suitable nesting habitats for the qualifying interests of the SPA however, it could offer foraging habitat. Given the large distance and likelihood of more suitable habitat within proximity of the SPA, it is considered that the proposed quarry extension would not result in a significant impact to the listed species. Therefore, given the large distance, absence of direct hydrological connection, absence of protected habitats, the Galway Bay Complex SAC and Inner Galway Bay SPA have been screened out.

According to the hydrological assessment, there is no potential for an impact to a European and national site via groundwater.

There is no direct hydrological connection between the proposed development site and any other Natura 2000 site within the potential zone of influence. Therefore, it is not anticipated that the proposed development would have the potential to impact upon any other Natura 2000 Site.

5.1 SLIEVE AUGHTY MOUNTAINS SPA (SITE CODE: 004168)

The Slieve Aughty Mountains SPA is a very large site that extends southwards from just south of Lough Rea, County Galway to Scariff in County Clare. The peaks are not notably high or indeed pronounced; the site rises to a maximum 400 m at Maghera west of Lough Graney. The site includes many small- and medium-sized lakes, notably Lough Graney and Lough Atorick; several important rivers rise in the site, including the Owendalulleegh and Graney. Lough Derg occurs immediately to the south-east. The Slieve Aughty Mountains are predominantly comprised of Old Red Sandstone, but outliers of Lower Palaeozoic rocks provide occasional outcrops capping the hills.

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

TABLE 5.1.1: QUALIFYING INTERESTS

CODE	COMMON NAME	SCIENTIFIC NAME
A082	Hen Harrier	*Circus cyaneus*
A098	Merlin	*Falco columbarius*

An excerpt from the site's Site Synopsis (NPWS, 2015) is included below.

The site consists of a variety of upland habitats, though approximately half is afforested. The coniferous forests include first and second rotation plantations, with both pre-thicket and post-thicket stands present. Substantial areas of clear-fell are also present at any one time. The principal tree species present are Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (Pinus contorta). Almost one-third of the site is unplanted blanket bog and heath, with both wet and dry heath present. Well-developed blanket bog occurs at several locations, notably Sonnagh, Loughatorick South and Glendree.

The vegetation is characterised by such species as Ling Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*), Common Cottongrass (*Eriophorum angustifolium*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Deergrass (*Scirpus cespitosus*) and especially Purple Moor-grass (*Molinia caerulea*). Bog mosses (*Sphagnum* spp.) are well-represented. The remainder of the site is mostly rough grassland that is used for hill farming. This varies in composition and includes some wet areas with rushes (*Juncus* spp.) and some areas subject to scrub encroachment.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier and Merlin. The Slieve Aughty Mountains are a stronghold for Hen Harrier and support the second largest concentration in the country. A survey in 2005 recorded 27 pairs, which represents over 12% of the all-Ireland population. A somewhat lower count of between 15 and 23 pairs in the 1998-2000 period is considered to reflect poorer coverage then. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the E.U. Birds Directive. The early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage up to c. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey.

The site also supports a breeding population of Merlin. The population size is not well known but is likely to exceed five pairs. Red Grouse is found on many of the unplanted areas of bog and heath – this is a species that has declined in Ireland and is now Red-listed.

The Slieve Aughty Mountains SPA is of ornithological significance, as it provides excellent nesting and foraging habitat for nationally important breeding populations of Hen Harrier and Merlin, two species that are listed on Annex I of the E.U. Birds Directive. Some woodlands within the Slieve Aughty Mountains SPA are designated as Statutory Nature Reserves.

The main site vulnerabilities, including any key pressures or trends within and around the SPA that have been identified as impacting upon the site, may be summarised as:

- Pollution to surface and groundwaters
- Loss of foraging and nesting habitats
- Pesticides
- Disturbance
- Afforestation/forest maturation
- Agriculture intensification
- Loss of prey availability

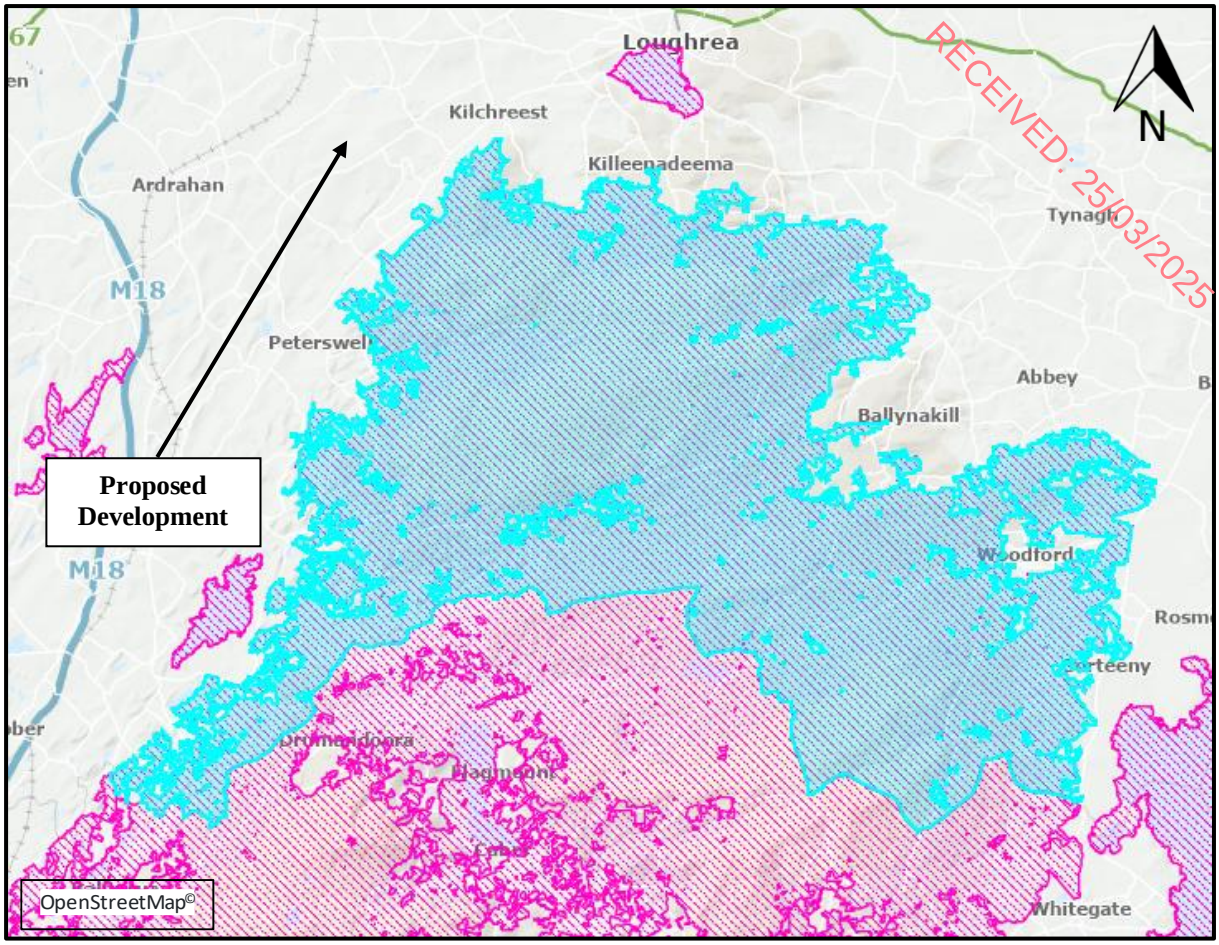

Figure 5.1: Slieve Aughty Mountains SPA

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 Slieve Aughty Mountains SPA are provided in the table below, where available the NPWS document "Conservation Objectives: Slieve Aughty Mountains SPA 004168" (NPWS, 2022) notes that the conservation objectives for the SPA site are to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

TABLE 5.1.2 CONSERVATION OBJECTIVES: SLIEVE AUGHTY MOUNTAINS SPA [004168]			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[A082] Hen Harrier			
Population size	Number of confirmed breeding pairs	Restore numbers to at least 14-24 confirmed breeding pairs	The target for this SPA is informed by the first two national surveys of 1998–2001 (Norriss et al., 2002) and 2006 (Barton et al., 2006).
Productivity rate	Number of fledged young per confirmed pair	Restore to at least 1.0–1.4 fledged young per confirmed pair	-
Spatial utilisation by breeding pairs	Percentage	Restore the spatial utilisation of the SPA by breeding pairs to at least 68–92%	The spatial distribution of breeding pairs is expressed by the proportion of the SPA being used by them. Breeding pairs predominantly use the area within 5km of their nest site or centre of territory, though they can travel further (e.g. Irwin et al., 2012; Arroyo et al., 2014).
Extent and condition of heath and bog and associated habitats	Hectares; condition assessment	Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation	Open heath and bog occur in mosaics and often with other semi-natural habitats (e.g. scrub). These habitats can provide important nesting and foraging resources for the breeding population providing they are in suitable condition. Based on the habitat mapping of Moran and Wilson-Parr (2015), the estimated total extent of these habitats in this SPA is 13,748ha.
Extent and condition of low intensity managed grasslands and associated habitats	Hectares; condition assessment	Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation	Low intensity managed grasslands occur in mosaics and often with other semi-natural habitats (e.g. scrub). These habitats can provide important foraging resources for the breeding population providing they are in suitable condition. Based on the habitat mapping of Moran and Wilson-Parr (2015), the estimated total extent of these habitats in this SPA is 5,865ha.

TABLE 5.1.2 CONSERVATION OBJECTIVES: SLIEVE AUGHTY MOUNTAINS SPA [004168]			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Extent and condition of hedgerows	Kilometres; condition assessment	Maintain at least the length and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation	Hedgerows can be an important foraging resource for hen harrier throughout the year by providing food and refuge for prey animals i.e. small mammals and birds. Moran and Wilson-Parr (2015) quantified the hedgerow resource in this SPA with an estimated total linear extent of 1,902.5km, with two structural hedgerow types namely 'intact and dense' and 'boxed and moderate' accounting for 685.5km of that total. These combined types account for 36% of the total hedgerow resource of the SPA.
Age structure of forest estate	Percentage	Achieve an even and consistent distribution of age-classes across the forest estate	-
Disturbance to breeding sites	Level of impact	Disturbance occurs at levels that does not significantly impact upon breeding hen harrier	Factors such as intensity, frequency, timing and duration of a potentially disturbing activity need to be taken into account to determine its significance on breeding hen harrier in the SPA
[A098] Merlin			
Population size	Number of occupied territories	The breeding population is stable or increasing	-
Productivity rate	Number of fledged young per breeding attempt with known outcome	Sufficient to at least maintain population	-
Distribution: extent of available nesting options within the SPA	Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain the population	Formerly ground-nesting in heather, merlin is now largely tree-nesting, often utilising old crows' nests (McElheron 2005; Norriss et al., 2010; Lusby et al., 2017).
Extent and condition of suitable open habitats for foraging	Hectares; condition assessment	Sufficient availability of suitable foraging habitat across the SPA to support the targets relating to population size, productivity rate and range	The SPA consists of a variety of upland habitats with 52% afforested (Moran and Wilson-Parr, 2015).

TABLE 5.1.2 CONSERVATION OBJECTIVES: SLIEVE AUGHTY MOUNTAINS SPA [004168]			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Disturbance to breeding sites	Level of impact	Disturbance occurs at levels that does not significantly impact upon breeding merlin	

Slieve Aughty Mountains 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 interest of the Slieve Aughty Mountains SPA is outlined the table below.

TABLE 5.1.3: CONSERVATION STATUS

CODE	SPECIAL CONSERVATION INTEREST	NATIONAL CONSERVATION STATUS*
A082	Hen Harrier	Amber
A098	Merlin	Amber

** Birds of Conservation Concern in Ireland 2021- 2026 (Gilbert, Stanbury & Lewis, 2021)*

5.2 PETERSWELL TURLOUGH SAC (SITE CODE: 000318)

This elongated turlough, running north-east to south-west lies parallel to the Peterswell-Castledaly section of the Gort-Loughrea road in Co. Galway. The surrounding land is gently rolling and drift-covered.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive:

TABLE 5.2.1: ANNEX I HABITATS

CODE	DESCRIPTION
3180	Turloughs
3270	Chenopodion rubric p.p. and Bidenton p.p. vegetation

** denotes a priority habitat*

An excerpt from the site synopsis for Peterswell Turlough SAC (NPWS, 2015) is included below;

The site can be divided into two main sections linked by a narrow wooded valley at Limepark: Blackrock or Peterswell Turlough which is confined to a deep circular basin at the south-western end, and to the north, Bullaunagh, a broader valley which also floods in winter. Bullaunagh itself can be divided into two parts, the northern part which at times of low flood

is a waterbody with swallow holes separate from Peterswell, and the southern broad valley which tends to flood from rising water levels at Peterswell.

The site is the lower valley and sink for the Kilchreest River, with a tributary from Castledaly. At times of high flow the sink is in the north-centre of Blackrock but it works progressively northwards as the water-table declines. The river runs along an artificial channel and the valley bottom has signs of its former course in the form of pools, etc. A large swallow-hole occurs in the south-western slope of Blackrock. Sinks are generally along the river channel.

Blackrock has a flat base with a small low-lying section kept irrigated by the stream from the south-east corner. This has a cover of annual plants, including Toad Rush (*Juncus bufonius*) and the rare species Northern Yellow-cress (*Rorippa islandica*) and Mudwort (*Limosella aquatica*). Much of the rest of this central part consists of a stand of fairly uniform Common Sedge (*Carex nigra*), which also includes Silverweed (*Potentilla anserina*) and locally abundant Fen Violet (*Viola persicifolia*). As the soil thins towards the edge of the basin Creeping Cinquefoil (Potentilla reptans) occurs with Common Bird's-foot-trefoil (*Lotus corniculatus*), Northern Bedstraw (*Galium boreale*) and Heath Dog-violet (*Viola canina*). Buckthorn (*Rhamnus catharticus*) forms a coherent woodland with Hawthorn (*Crataegus monogyna*) and Alder (*Alnus glutinosa*) along the south-eastern slope. On the boulder strewn areas a limestone grassland is characteristic.

Peterswell Turlough is a large and important site which shows an excellent range of vegetation along the turlough-callow gradient and includes a summer-dry turlough filled by a river. Further, Peterswell Turlough is part of a complex of turloughs running down to Lough Coy and Ballylee. Turloughs are listed on Annex I of the E.U. Habitats Directive with priority status. The presence of flooded woodland on limestone and drift, and a large dry woodland on limestone pavement enhances the ecological diversity of the site. Drainage works have been minimal at the site, though grazing continues to disrupt natural vegetation processes. The site includes populations of three rare Red Data Book vascular plant species as well as the scarce Red Goosefoot. It is regularly used by good numbers and a wide diversity of wintering waterbirds, including the E.U. Birds Directive Annex I species Whooper Swan and Golden Plover. A colony of breeding Sand Martin in the river alluvium adds further interest to the site.

The main site vulnerabilities, including any key pressures or trends within and around the Peterswell Turlough SAC that have been identified as impacting upon the site, may be summarised as:

- Intensive grazing or overgrazing by livestock
- Agricultural activities generating diffuse pollution to surface or ground waters
- Drainage for agricultural land
- Invasive species

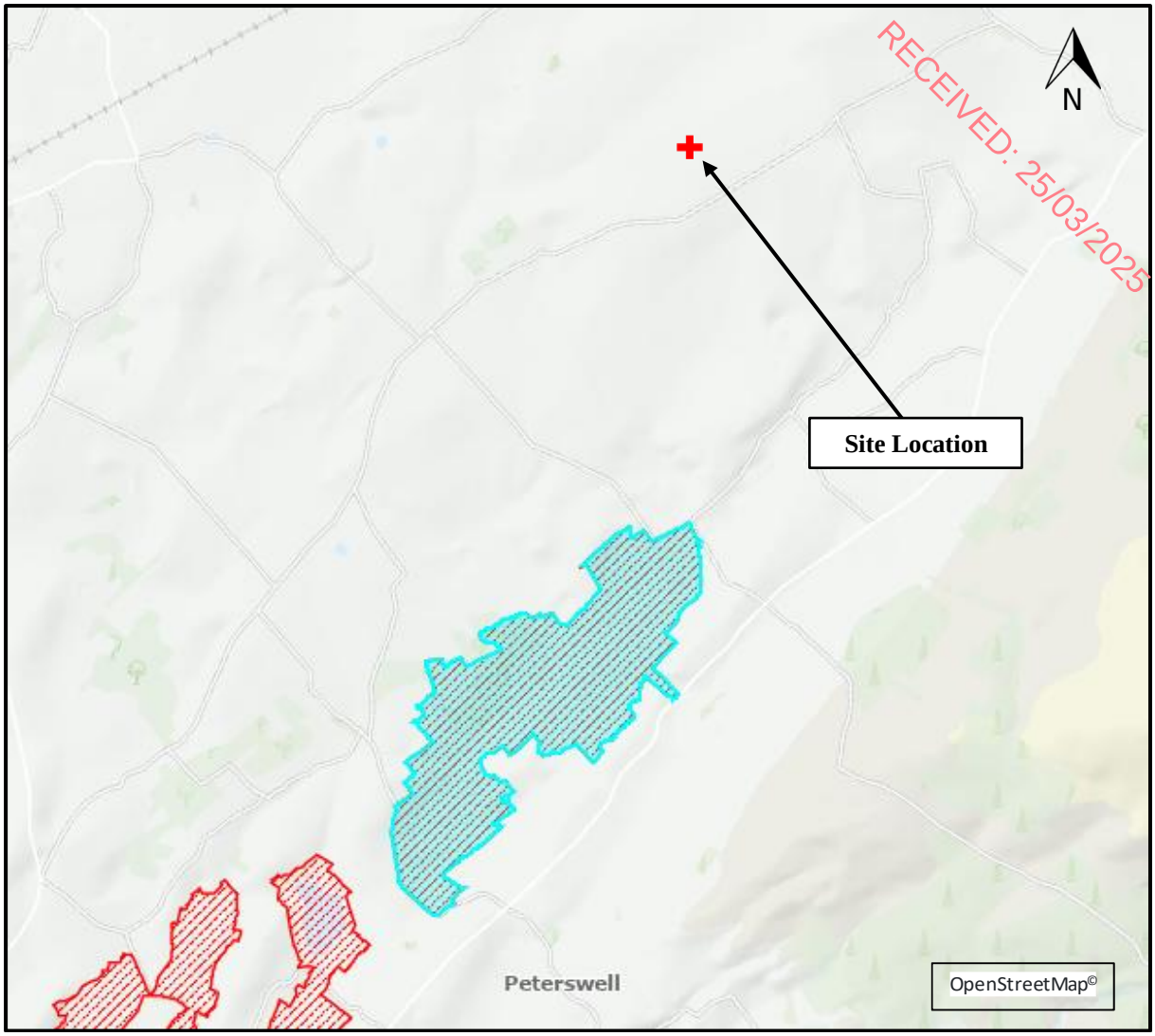

Figure 5.2: Peterswell Turlough SAC

The conservation objectives for the SAC site are to maintain or restore the favourable conservation condition of the qualifying interests. Site specific conservation objectives (SSCOs) for the qualifying interests of the Peterswell Turlough SAC are provided in the table below, where available from the NPWS document "Conservation Objectives: Peterswell Turlough SAC 002162" (NPWS, 2021).

TABLE 5.2.2 CONSERVATION OBJECTIVES: PETERSWELL TURLOUGH SAC			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[3180] Turloughs			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The turlough area within the SAC is calculated as 141ha based. It is partly fed by the Owenshree river from the acid Slieve Aughtys. This river flows through the basin from the north-east, and is channelised.
Community distribution	Occurrence	No decline, subject to natural processes	
Hydrological regime	Various	Maintain appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	
Soil type	Hectares	Maintain variety, area and extent of soil types necessary to support turlough vegetation and other biota	-
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Maintain/restore nutrient status appropriate to soil types and vegetation communities	-
Physical structure: bare ground	Presence	Maintain sufficient wet bare ground, as appropriate	
Chemical processes: calcium carbonate deposition and concentration	Calcium carbonate deposition rate/soil concentration	Maintain appropriate calcium carbonate deposition rate and concentration in soil	
Active peat formation	Flood duration	Maintain active peat formation	
Water quality	Various	Restore appropriate water quality to support the natural structure and functioning of the habitat	Peterswell Turlough SAC should, typically, be naturally oligotrophic and requires targets of ≤20 µg/l TP, <8 µg/l annual mean chlorophyll a, <25 µg/l annual maximum chlorophyll a, and should maintain trace/absent epiphyton as algal mats (<2% cover) to reach favourable condition.
Vegetation composition: area of vegetation communities	Hectares	Restore area of sensitive and high conservation value vegetation communities/units	-
Vegetation composition: vegetation zonation	Distribution	Maintain vegetation zonation/mosaic characteristic of the turlough	-

TABLE 5.2.2 CONSERVATION OBJECTIVES: PETERSWELL TURLOUGH SAC			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation structure: sward height	Centimetres	Restore sward heights appropriate to the vegetation unit, and a variety of sward heights across the turlough	
Typical species	Presence	Maintain typical species within the turlough	Four notable vascular plant species have been recorded from Peterswell Turlough. Waldren (2015) recorded *Viola persicifolia*, listed as Near Threatened in Wyse Jackson et al. (2016). *Limosella aquatica* and *Rorippa islandica* and *Callitriche palustris*, listed as Vulnerable in a small area of Chenopodion vegetation (Annex I habitat 3270)
Fringing habitats: area	Hectares	Maintain/restore marginal fringing habitats that support turlough vegetation, invertebrate, mammal and/or bird populations	Peterswell Turlough SAC is of high conservation importance for its mosaic of Annex I and other habitats, particularly the transitions and gradations between habitats, e.g. between turloughs, grassland communities, scrub and woodland.
Vegetation structure: turlough woodland	Species diversity and woodland structure	Maintain/restore appropriate turlough woodland diversity and structure	-
[3270] River with muddy banks with Chenopodion rubric p.p. and Bidenton p.p. vegetation			
Habitat area	Hectares	Area stable, subject to natural fluctuations	The area of habitat 3270 can vary significantly inter-annually with flooding regime between 0.65ha and 0.3ha.
Habitat distribution	Occurrence	No decline, subject to natural processes	-
Hydrological regime	Various	Maintain appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	-
Soil type	Hectares	Maintain area and extent of soil types necessary to support the habitat	The habitat occurs on exposed mud, much of which was heavily poached by cattle.
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Maintain nutrient status appropriate to soil types and vegetation communities/units	-

TABLE 5.2.2 CONSERVATION OBJECTIVES: PETERSWELL TURLOUGH SAC			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Physical structure: bare ground	Presence	Maintain sufficient wet bare ground	-
Chemical processes: calcium carbonate deposition and concentration	Calcium carbonate deposition rate/soil concentration	Maintain appropriate calcium carbonate deposition rate/soil concentration	-
Water quality	Various	Restore appropriate water quality to support the natural structure and functioning of the habitat	Peterswell Turlough SAC should, typically, be naturally oligotrophic and requires targets of ≤20 µg/l TP, <8 µg/l annual mean chlorophyll a, <25 µg/l annual maximum chlorophyll a, and should maintain trace/absent epiphyton as algal mats (<2% cover) to reach favourable condition.
Vegetation composition: vegetation communities	Hectares	Maintain area of sensitive and high conservation value vegetation communities/units	-
Vegetation composition: vegetation zonation	Distribution	Maintain vegetation zonation/mosaic characteristic of the site	-
Typical species	Presence	Maintain typical species	-
Fringing habitats: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of the habitat	-

Peterswell Turlough 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.

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 qualifying interests of the Peterswell Turlough SAC site are outlined below.

Table 5.2.3: Conservation Status: Peterswell Turlough SAC

CODE	QUALIFYING INTEREST	NATIONAL CONSERVATION STATUS*
3180	Turloughs	Inadequate
3270	Rivers with muddy banks with Chenopodion rubric p.p. and Bidenton p.p. vegetation	Favourable

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

5.3 RAHASANE TURLOUGH SPA (SITE CODE: 004089)

Rahasane Turlough lies in gently undulating land, approximately 2 km west of Craughwell, Co. Galway. It consists of two basins which are connected at times of flood but separated as the waters recede. The larger of these, the northern basin, takes the Dunkellin River westwards. Rahasane was formerly the natural sink of the Dunkellin River, but now an artificial channel takes some of the water further downstream. Water escapes the artificial channel to sweep around the northern basin, and again in the west, where it flows into an active swallowhole system. Some minor collapses are found elsewhere in the turlough, as well as a small number of more permanent pools. The substrate consists largely of silty clay.

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

TABLE 5.3.1: QUALIFYING INTERESTS		
CODE	**COMMON NAME**	**SCIENTIFIC NAME**
A038	Whooper Swan	*Cygnus cygnus*
A050	Wigeon	*Anas penelope*
A140	Golden Plover	*Pluvialis apricaria*
A156	Black-tailed Godwit	*Limosa limosa*
A395	Greenland White-fronted Geese	*Anser albifrons flavirostris*
A999	Wetland and waterbirds	

An excerpt from the site's Site Synopsis (NPWS, 2014) is included below.

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

Rahasane is a traditional site for Greenland White-fronted Goose, and supports a population of national importance (157 individuals - five year mean peak for the period 1994/95 to 1998/99). It is of international importance for Black-tailed Godwit (437 - all figures are five year mean peaks for the period 1995/96 to 1999/2000). It also has nationally important populations of Whooper Swan (165), Wigeon (3,430), and Golden Plover (6,613). The site has the largest inland population of Dunlin (864) in the country and also supports Mute Swan (57), Teal (307), Mallard (142), Pintail (19), Shoveler (28), Tufted Duck (32), Grey Heron (31), Lapwing (2,220), Curlew (197), Redshank (134) and Black-headed Gull (280). Little Egret, a species which has recently colonised Ireland, also occurs at this site.

Rahasane Turlough SPA is of high ornithological importance; it supports nationally important populations of four species and an internationally important population of one. The Wigeon and Golden Plover populations are of particular note as they each represent approximately 4% of the All-Ireland totals of these species. The regular occurrence of Greenland White-fronted Goose, Whooper Swan and Golden Plover is of note as these species are listed on Annex I of the E.U. Birds Directive.

The main site vulnerabilities, including any key pressures or trends within and around the Rahasane Turlough SPA that have been identified as impacting upon the site, may be summarised as:

- Pollution to surface and groundwaters
- Loss of suitable breeding/foraging habitats
- Pesticides/chemicals
- Loss of prey availability

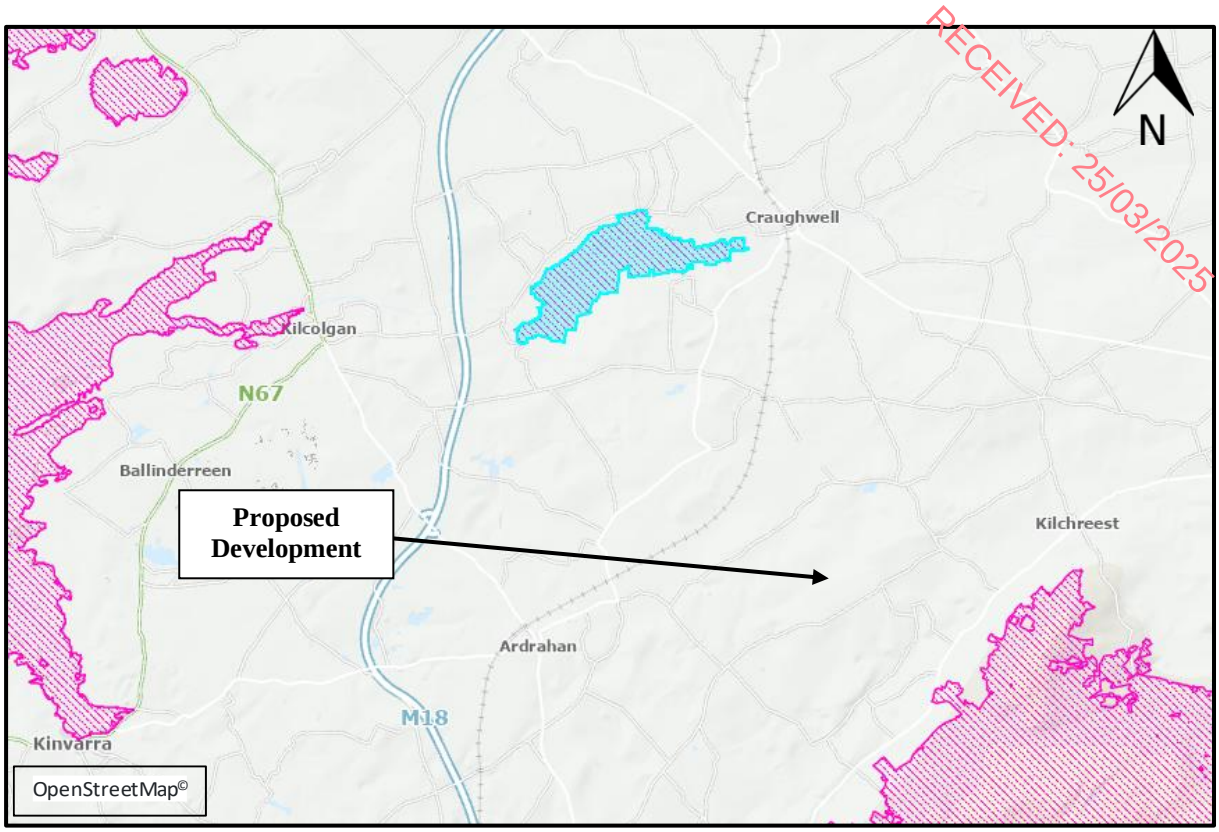

Figure 5.3: Rahasane Turlough SPA

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 Rahasane Turlough SPA are provided in the table below, where available the NPWS document "Conservation Objectives: Rahasane Turlough SPA 004089" (NPWS, 2023) notes that the conservation objectives for the SPA site are to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

TABLE 5.3.2 CONSERVATION OBJECTIVES: RAHASANE TURLOUGH SPA [004089]			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[A038] Whooper Swan			
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of whooper swan over wintering in Ireland has increased in the long term, with a 40% population increase from 1991 to 2015 (Lewis et al., 2019). During the baseline assessments to inform SPA designation, 165 whooper swans were estimated to be using this SPA.
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	-
Disturbance at wintering site	Intensity, frequency, timing and duration	The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution	-
Barriers to connectivity and site use	Number, location, shape and hectares	The number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	-
Forage spatial distribution, extent and abundance	Location and hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	Overnight roosting habitat is primarily permanent waterbodies, such as rivers, lakes, turloughs, lagoons and other open waterbodies.
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The wintering population can make extensive use of suitable habitats in important areas outside the SPA, for foraging and roosting.
[A050] Wigeon			
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	During the baseline assessments to inform SPA designation, 3,430 wigeon were estimated to be using this SPA.

TABLE 5.3.2 CONSERVATION OBJECTIVES: RAHASANE TURLOUGH SPA [004089]			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	
Disturbance at wintering site	Intensity, frequency, timing and duration	The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution	-
Barriers to connectivity and site use	Number, location, shape and hectares	The number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	-
Forage spatial distribution, extent and abundance	Location and hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	This dabbling duck feeds primarily on aquatic vegetation, at surface level in waterbodies or at ground level in wetland habitats. Key forage materials include leaves, stems, stolons, roots, rhizomes, and seeds (including cereals). Key over wintering habitats are marshes, lagoons, estuaries, coastal bays, lakes, rivers and river floodplains, turloughs and other wetland habitats, as well as pastures.
Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Wigeon rely primarily on wetlands or waterbodies for roosting.
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The wintering population can make extensive use of suitable habitats in important areas outside the SPA, for foraging and roosting.

Rahasane Turlough 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 interest of the Rahasane Turlough SPA is outlined the table below.

TABLE 5.3.3: CONSERVATION STATUS		
CODE	**SPECIAL CONSERVATION INTEREST**	**NATIONAL CONSERVATION STATUS***
A038	Whooper Swan	Amber
A050	Wigeon	Amber
A140	Golden Plover	Red
A156	Black-tailed Godwit	Red
A395	Greenland White-fronted Geese	Green

** Birds of Conservation Concern in Ireland 2021- 2026 (Gilbert, Stanbury & Lewis, 2021)*

5.4 COOLE-GARRYLAND SPA (SITE CODE: 004107)

The Coole-Garryland SPA is situated in a low-lying karstic limestone area west of Gort, Co. Galway. It comprises a series of turloughs, which are fed by springs and a partly submerged river, surrounded by woodland, pasture and limestone heath. Coole Lough is the largest and most permanent of the turloughs, and retains some water throughout the year. Water levels vary greatly depending on rainfall and this has consequences on the numbers of birds present. During prolonged dry spells, higher numbers of some species are present as birds from other sites in the catchment are attracted to the permanent waters of Coole Lough.

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

TABLE 5.4.1: QUALIFYING INTERESTS		
CODE	**COMMON NAME**	**SCIENTIFIC NAME**
A038	Whooper Swan	*Cygnus cygnus*

An excerpt from the site's Site Synopsis (NPWS, 2014) is included below.

The site is of international importance for Whooper Swan (214), which utilise it for both feeding and roosting purposes. In the past the site was frequented by Bewick's Swan but birds have not been present in recent winters, reflecting a decline that has occurred throughout the country. A good diversity of other wintering birds occurs, including Wigeon (606), Teal (157), Mallard (214), Shoveler (14), Pochard (90), Tufted Duck (67), Lapwing (215) and Curlew (72) – all figures are five year mean peaks for the period 1995/96 to 1999/2000. Dunlin, a scarce species inland, is a visitor to the site at times. In 1996 two pairs of Common Sandpiper bred at Coole Lough. Coole-Garryland SPA is of international importance for its population of Whooper Swan, a species that is listed on Annex I of the E.U. Birds Directive. Coole Lough, a Wildfowl Sanctuary, has particular significance for wintering waterfowl as during prolonged dry spells it is one of the few sites in the catchment which retains open water. Coole Lough and Garryland Wood is a Ramsar Convention site, and parts of the Coole-Garryland SPA are designated as Statutory Nature Reserves and are managed by the National Parks and Wildlife Service.

The main site vulnerabilities, including any key pressures or trends within and around the Coole-Garryland SPA that have been identified as impacting upon the site, may be summarised as:

- Pollution to surface and groundwaters
- Loss of suitable breeding/foraging habitats
- Pesticides/chemicals
- Loss of prey availability

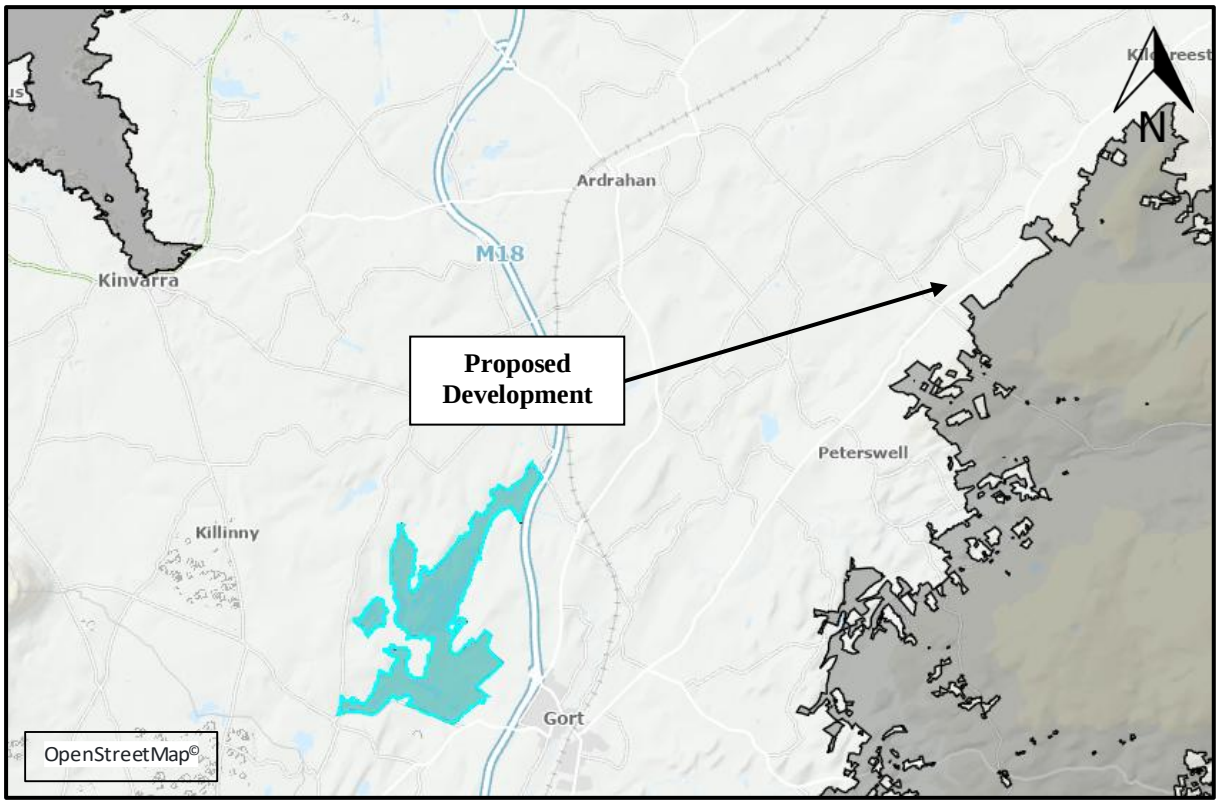

Figure 5.4: Coole-Garryland SPA

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 Coole-Garryland SPA are provided in the table below, where available the NPWS document "Conservation Objectives: Coole-Garryland SPA 004107" (NPWS, 2022) notes that the conservation objectives for the SPA site are to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

Coole-Garryland 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 interest of the Coole-Garryland SPA is outlined the table below.

TABLE 5.4.2: CONSERVATION STATUS		
CODE	**SPECIAL CONSERVATION INTEREST**	**NATIONAL CONSERVATION STATUS***
A038	Whooper Swan	Amber

** Birds of Conservation Concern in Ireland 2021- 2026 (Gilbert, Stanbury & Lewis, 2021)*

5.5 RAHASANE TURLOUGH SAC (SITE CODE: 000332)

Rahasane Turlough lies in gently undulating land, approximately 2 km west of Craughwell, Co. Galway. It consists of two basins which are connected at times of flood but separated as the waters decline. The larger of these, the northern basin, takes the Dunkellin River westwards The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive:

TABLE 5.5.1: ANNEX I HABITATS	
CODE	**DESCRIPTION**
3180	Turloughs

** denotes a priority habitat*

An excerpt from the site synopsis for Rahasane Turlough SAC (NPWS, 2013) is included below;

The vegetation of Rahasane is divided between dry and wet communities. Because of its large catchment, the turlough is naturally eutrophic and this, together with a lack of peat, limits the sedges (*Carex* spp.) which are usually abundant in turlough vegetation. In places with outcropping limestone, the vegetation is predominantly dry grassland with Red Fescue (*Festuca rubra*) and Crested Dog's-tail (*Cynosurus cristatus*), among a generally calcicole community. Large areas in the drier parts of the turlough are covered by a community characterised by an abundance of Creeping Cinquefoil (Potentilla reptans), with Common Sedge (*Carex nigra*), Silverweed (*Potentilla anserina*) and Creeping Bent (*Agrostis*

stolonifera). Where the soil is less well-drained, Creeping Cinquefoil disappears from this community and the rare species, Fen Violet (*Viola persicifolia*), which is listed in the Irish Red Data Book, occurs. In these areas, the presence of Common Spike-rush (*Eleocharis palustris*) suggests that water is close to the surface. Wet communities are associated with the river channels and pools. Fully aquatic communities include such species as Fan-leaved Water Crowfoot (*Ranunculus circinatus*), Fennel Pondweed (*Potamogeton pectinatus*), Lesser Pondweed (*P. pusillus*), Fat Duckweed (*Lemna gibba*), Whorled Water-milfoil (*Myriophyllum verticillatum*) and Needle Spike-rush (*Eleocharis acicularis*). Semi-aquatic communities fringe the main channel of the river and colonise muddy pools in the basin. Species such as Lesser Water-parsnip (*Berula erecta*), Fool's Water-cress (*Apium nodiflorum*), River Water dropwort (*Oenanthe fluviatilis*) and Amphibious Bistort (*Polygonum amphibium*) occur, along with the rare species, Northern Yellow-cress (*Rorippa islandica*), which is listed in the Irish Red Data Book. There are also some narrow fields with Yellow Iris (*Iris pseudacorus*).

Rahasane Turlough is renowned for its wintering wildfowl populations, but it also supports nesting waders in summer, which include Lapwing, Redshank, Snipe and Dunlin. Figures stated in the following account represent mean (and peak) counts obtained during the three seasons, 1984/85 to 1986/87. Internationally important numbers of Whooper Swan 179, Golden Plover 17680, Wigeon 7760 and Shoveler 498 are found. The first two species, together with Bewick's Swan, below, are listed on Annex I of the E.U. Birds Directive. Species recorded in nationally important numbers are Bewick's Swan 132, Mute Swan 125, Teal 3005, Mallard 777, Pintail 102, Pochard 356, Tufted Duck 381, Coot 1289, Lapwing 3995, Dunlin 3569 (5653), Black tailed Godwit 170 and Curlew 1205. Small numbers of the internationally important Greenland White-fronted Goose regularly overwinter at Rahasane (average count, as above, 59), but numbers have been declining over the years. There is a small run of Atlantic Salmon (Salmo salar) through the Dunkellin River when it is flowing overground. The fish pass through the turlough but do not use it for spawning. This species is listed on Annex II of the E.U. Habitats Directive.

The turlough is closely grazed by cattle, sheep and horses. Grazing is a critical factor in maintaining a balance between open swards and woodland development at the edges of the turlough. Drainage is a major threat to turloughs, but the Dunkellin River has not been arterially drained. The river was straightened many years ago where it crosses the turlough, and the artificial channel was dredged again in 1992, but this does not appear to have affected winter flooding. Some degree of artificial enrichment of the basin is occurring from the farming areas upstream, and local enrichment is associated with grazing practices. Eutrophication is among the major threats to turlough systems in general. Rahasane Turlough is of major ecological significance as one of only two large turloughs in the country which still function naturally. It is the most important turlough in Ireland for birdlife. In a relatively recent national survey, it was also rated very highly for its vegetation, and supports two rare species listed in the Irish Red Data Book. Turloughs are a rare habitat type and are given priority status under Annex I of the E.U. Habitats Directive.

The main site vulnerabilities, including any key pressures or trends within and around the Rahasane Turlough SAC that have been identified as impacting upon the site, may be summarised as:

- Intensive grazing or overgrazing by livestock
- Drainage for agricultural land

- Agricultural activities generating diffuse pollution to surface or ground waters
- Invasive species

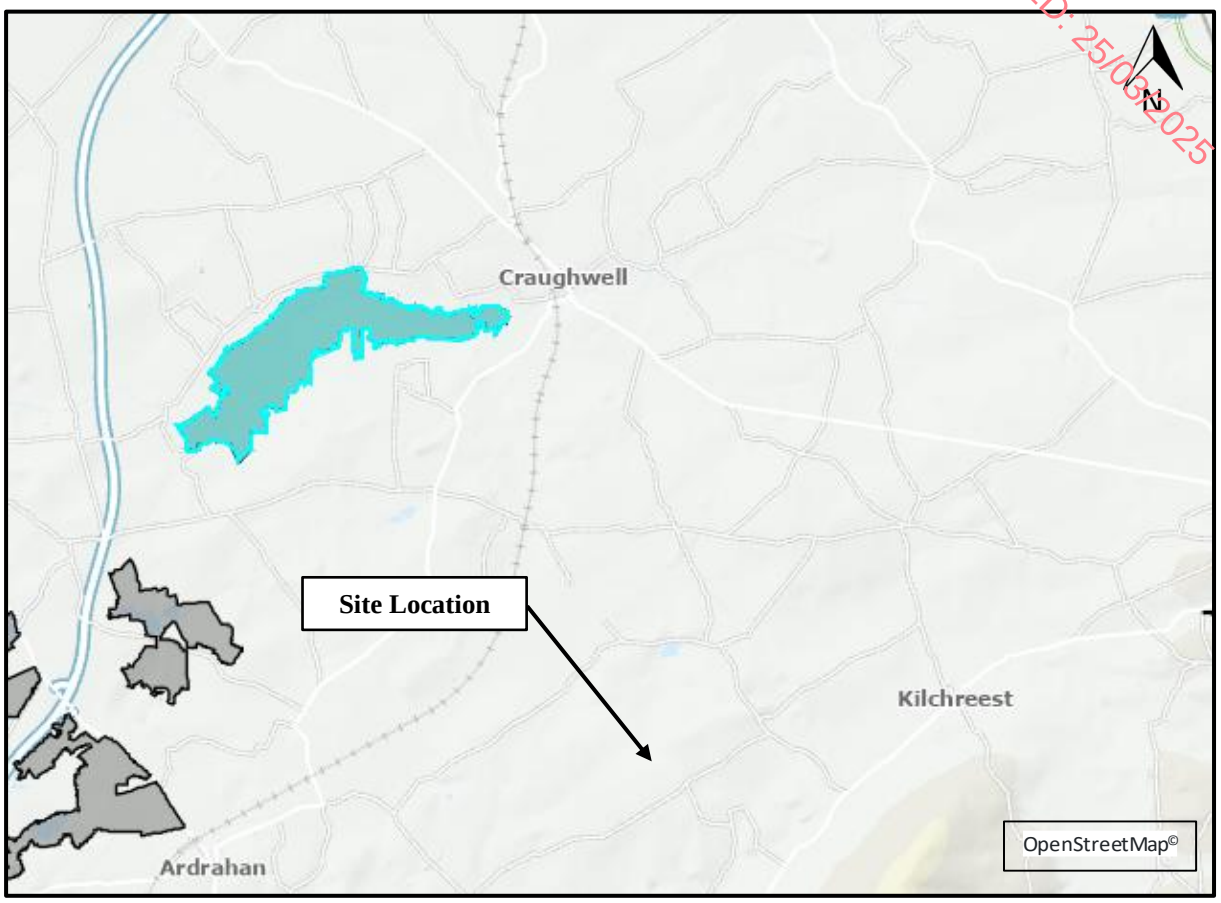

Figure 5.2: Peterswell Turlough SAC

The conservation objectives for the SAC site are to maintain or restore the favourable conservation condition of the qualifying interests. Site specific conservation objectives (SSCOs) for the qualifying interests of the Rahasane Turlough SAC are provided in the table below, where available from the NPWS document "Conservation Objectives: Rahasane Turlough SAC 000322" (NPWS, 2020).

TABLE 5.5.2 CONSERVATION OBJECTIVES: RAHASANE TURLOUGH SAC			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[3180] Turloughs			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The turlough area within the SAC is calculated as 257.2 ha. Goodwillie (1992) recorded that the turlough was formerly the natural sink of the Dunkellin River. He noted several permanent pools within the turlough and observed that the northern side of the main basin could remain wet throughout the year. At that time there had been no successful drainage to date, with the artificial river channel that was dug having little effect on the hydrology of the turlough
Community distribution	Occurrence	No decline, subject to natural processes	
Hydrological regime	Various	Maintain appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	
Soil type	Hectares	Maintain variety, area and extent of soil types necessary to support turlough vegetation and other biota	-
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Maintain/restore nutrient status appropriate to soil types and vegetation communities	-
Physical structure: bare ground	Presence	Maintain sufficient wet bare ground, as appropriate	
Chemical processes: calcium carbonate deposition and concentration	Calcium carbonate deposition rate/soil concentration	Maintain appropriate calcium carbonate deposition rate and concentration in soil	
Active peat formation	Flood duration	Maintain active peat formation	Peat is not a feature of the turlough habitat in this SAC.
Water quality	Various	Restore appropriate water quality to support the natural structure and functioning of the habitat	A target of ≤20 µg/l total phosphorus may therefore be sufficient to support the natural structure and functioning of the turlough habitat at Rahasane.
Vegetation composition: area of vegetation communities	Hectares	Restore area of sensitive and high conservation value vegetation communities/units	-

TABLE 5.5.2 CONSERVATION OBJECTIVES: RAHASANE TURLOUGH SAC			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation composition: vegetation zonation	Distribution	Maintain vegetation zonation/mosaic characteristic of the turlough	-
Vegetation structure: sward height	Centimetres	Restore sward heights appropriate to the vegetation unit, and a variety of sward heights across the turlough	
Typical species	Presence	Maintain typical species within the turlough	
Fringing habitats: area	Hectares	Maintain/restore marginal fringing habitats that support turlough vegetation, invertebrate, mammal and/or bird populations	Rahasane Turlough is of high conservation importance for its mosaic of Annex I and other habitats, particularly the transitions and gradations between habitats, e.g. between turloughs and limestone grassland, scrub and woodland.
Vegetation structure: turlough woodland	Species diversity and woodland structure	Maintain/restore appropriate turlough woodland diversity and structure	-

Rahasane Turlough 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.

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 qualifying interests of the Peterswell Turlough SAC site are outlined below.

Table 5.5.3: Conservation Status: Peterswell Turlough SAC

CODE	QUALIFYING INTEREST	NATIONAL CONSERVATION STATUS*
3180	Turloughs	Inadequate

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

6.0 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

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.

The closest Natura 2000 site is the Slieve Aughty Mountains SPA (Site Code: 004168) located approximately 2.2km to the south-east of the proposed development. The Peterswell Turlough SAC (Site Code: 000318) is located approximately 2.7km to the south-west. The Rahasane Turlough SPA (Site Code: 004089) and the Coole-Garryland SPA (Site Code: 004107) are also located approximately 7km and 9.1km from the development boundary. Therefore, ex-situ effects must be considered.

It is considered that the development site would not contain the habitats for which the Peterswell Turlough SAC or Rahasane Turlough SAC have been designated. The habitats Turloughs [3180] and rivers with muddy banks [3270] are not found onsite. The habitats onsite have been modified, some more recently than others. The ponds onsite are artificial and as a result of rainwater. The overall area of the ponds is not significant. There is also no direct hydrological connection from the proposed development to this SAC. The closest mapped examples of Turlough habitat is 2.7km to the south-west while the closest mapped example of rivers with muddy banks is 5km to the south-west. Therefore, no direct impacts are anticipated.

The proposed development would not offer suitable breeding or nesting habitats associated with the qualifying interests Hen Harrier and Merlin, for which the Slieve Aughty Mountains SPA has been designated. The habitats within the red line boundary do not contain any areas of moorland, peatland or young forestry plantations associated with these species. There will also be no proposed works within the boundary of the SPA. Therefore, no direct significant effects are anticipated. Merlin prey upon small birds such as Meadow Pipits and Skylark while Hen Harrier prey upon small birds and mammals. The proposed development could be used by Merlin and Hen Harrier for hunting if in the area. Given that most of the trees and hedgerows are to be retained, it is considered that there would be no significant effect on these birds. The landscape plan incorporates new planting of trees and hedgerows providing new nesting opportunities for birds/mammals and hunting opportunities for the qualifying interests of the SPA. Therefore it is considered that the development will not have any indirect impacts on these species.

The Rahasane Turlough SPA is designated for a number of bird species, most of which are mainly associated with freshwater habitats. Given that the onsite artificial ponds would not support the qualifying interests, it can be concluded that no suitable nesting or breeding habitats are onsite. The development site does not contain the following habitats: Marshes, lake islands, estuaries, bays, rivers, significant areas of freshwater habitats, peatlands, acid grasslands, wet grassland, coastal habitats, arable land or dune grasslands. Therefore, no direct significant effects are anticipated. The site does contain areas of improved agricultural grassland which could be utilised by Greenland White-fronted Geese, Golden Plover and Whooper Swan for

foraging. Given the availability of agricultural grassland within the wider environment, it is considered that the loss of this habitat would not be considered significant and therefore would not be anticipated to have any significant effect on the qualifying interests. The agricultural grasslands within the wider area will still be available. Therefore it is considered that the development will not have any indirect impacts on these species.

Whooper Swan is listed as a qualifying interest of the Coole-Garryland SPA as well as the Rahasane Turlough SPA. As noted above, it is considered that the proposed development would not offer any suitable breeding/nesting habitat for this species and suitable foraging habitat would still be available.

Given the size of the artificial ponds onsite and limited prey availability, it is considered that the ponds would offer limited suitable habitat for any of the qualifying interests listed above. Therefore, the loss of this habitat would not be significant and given the availability of other larger lakes in the area.

There will be no works within any drainage ditch or mapped watercourse as there are none within the red line boundary. During the operational phase, surface water will percolate to ground or be directed to the new proposed soakaways (Refer to section 4.1 and drainage plans).

The majority of vegetation to the east, north and south-east will be retained. One mature tree along the access road will be removed for sightlines. No other mature tree will be removed. Some existing hedgerows to the south and west and scrub habitats will be permanently removed. This will be conducted outside the bird nesting season (1st March to 31st August). Areas of improved agricultural grassland, recolonising bare ground and dry meadows and grassy verges will also be permanently removed. These habitats have been modified due to the ongoing activities at the existing quarry and management of the agricultural lands. The loss of the improved grassland and recolonising habitats would not be considered significant. The scrub, hedgerows and grassy verges habitats could offer potential foraging and commuting for mammals and birds. The loss of these habitats would be minor until new areas of trees, hedgerows and boundary vegetation become established within a 5m strip to the north, south, south-east and west, acting as a wildlife corridor.

A lighting plan will be sensitive to nocturnal species by using directional lighting. Only lighting of the proposed buildings is required.

It is therefore considered that the proposed development would not result in any significant risk either directly or indirectly to the protected habitats and species of the Peterswell Turlough SAC, Slieve Aughty Mountains SPA, Rahasane Turlough SPA/SAC or the Coole-Garryland SPA due to habitat fragmentation or loss, disturbance or reduction in species density.

6.2 POTENTIAL IMPACTS FROM NOISE DISTURBANCE, AIR QUALITY AND DUST

Noise during the operational and construction phases of a development can cause a disturbance and have a significant impact on breeding success of fauna within the area. Increased noise disturbance can also displace fauna.

Air emissions released during the construction and operational phase of development can have a negative impact on sensitive and protected habitats. Sources of air emissions arise from a

number of different activities such as heating homes, vehicles, agriculture, burning and extractive industries. Weather plays an important part in the transfer of harmful air borne emissions. Elements such as Nitrogen (N) can have significant impacts on "*biodiversity through eutrophication, acidification or direct toxic effect*" (IWM, 2022) if above the critical limits. Both Ammonia and Nitrogen can have a negative impact on Natura 2000 sites. Nitrogen promotes fast-growing species outcompeting some of the more sensitive species while ammonia causes "*direct foliar damage*" and can ultimately result in a loss of sensitive species.

Particulate Matter contains microscopic solids or liquid droplets that can be inhaled by mammals and cause serious health problems.

It is not envisaged that protected species would be adversely impacted upon by the development due to noise generated by the proposed quarry extension, distance to protected sites and design of the quarry face. The surrounding area is located within a rural setting and adjacent the existing quarry to the east. Fauna in the area would be accustomed to human generated noise from the existing quarry. A noise and vibration impact assessment report has been prepared by AONA Environmental Consulting Ltd to accompany the Environmental Impact Assessment Report (EIAR). It is recommended that during the operational phase "*sound levels attributable to all on-site operations associated with the development shall not exceed 55 dB(A) L_{eq} over a continuous one hour period between 0700 hours and 1900 hours on Monday to Friday inclusive, and 0700 hours and 1400 hours on Saturday, when measured at any noise sensitive receptor. Sound levels shall not exceed 45 dB(A) at any other time"*. Some sources of noise such as blasting or drilling will not be undertaken daily but rather over two days every two months. The existing background noise level L_{A90} is approximately 31 dB(A) and were "*noted to be insignificant at the noise sensitive receiver locations along the local road*." The noise predictions are based on a worst case scenario and determined that "*There is no predicted exceedance of the noise limit of 55 dB $L_{Aeq,\ 1\ Hour}$ during the quarry face removal, associated crushing and screening of the mineral and transport off site. A highest predicted noise level of <50 dB $L_{Aeq,\ 1\ Hour}$, occurs during all of the future proposed extraction Phases at a noise sensitive receivers when extraction in the proposed extraction area progresses from Phase 1 - 5*." The proposed quarry face design will act as an effective noise barrier to sensitive locations. Given the nature and operational hours of the quarry it is considered that predicted noise levels would not cause a significant impact on nocturnal fauna. The quarry is active during the day and birds/mammals within the vicinity of the site would be accustomed to the noise from movement of vehicles and machinery at the site. The report concludes that "*when the measured baseline noise levels and the predicted noise levels from the proposed mineral extraction are compared, there will be no exceedance of the relevant noise limits*." Therefore, no significant impacts in relation to noise are anticipated.

The potential disturbance on protected habitats and species due to dust during the construction phase would not be considered significant. According to the Air quality and dust impact assessment prepared as part of the accompanying Environmental Impact Assessment Report (EIAR), there is no Irish statutory standards or EPA guidelines relating to dust depositions for inert materials. Recommendations on dust limits are based on the German TA Luft Dust air quality standards - Total dust deposition (soluble and insoluble): 350 mg/m^2/day (when averaged over a 30-day period). The potential for any significant effects on ecological receptors was also undertaken. According to the assessment, the site is located within Zone D (good quality). The report states "*There are no sensitive habitats in close proximity to the quarry with the Slieve Aughty SPA located 2.7 km south-east of the proposed development and Peterswell*

turlough SAC located 2.8 km south-west of the proposed development. Therefore, no further assessment of the potential ecological effects resulting from the predicted dust impact is required." "*It is predicted that the potential for nuisance impact has been and is limited to the immediate vicinity of the existing activities*." In addition, regular dust monitoring is undertaking as part of the operational phase of the development to ensure dust deposition rates are below the recommended threshold. Other than standard measures for the control of dust, it is considered that the proposed development will not have a significant impact on any protected habitat or species listed as part of the Peterswell Turlough SAC, the Slieve Aughty Mountains SPA, Rahasane Turlough SPA/SAC and the Coole-Garryland SPA.

It is therefore considered that the proposed development would not result in any significant risk either directly or indirectly to the protected habitats and species of the Peterswell Turlough SAC, Slieve Aughty Mountains SPA, Rahasane Turlough SPA/SAC or the Coole-Garryland SPA due to noise disturbance, air quality or dust emissions.

6.3 INVASIVE SPECIES

Under Regulation 49(2) of the European Communities (Birds and Natural Habitats) Regulations 2011-2015 (S.I. No. 477 of 2011, Amended 2015 (S.I No. 355 of 2015), 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 2011-2015, it is a legal requirement to obtain a license to move "vector materials" listed in the Third Schedule, Part 3.

There are no NBDC records of any third schedule invasive species recorded within the 10km tetrad M51 in which the site is located.

The spread of invasive plant and animal species can negatively impact on the conservation objectives of certain Annex I habitats and species designated within protected sites.

No third schedule invasive species was recorded within the red line boundary.

Wall Cotoneaster (*Cotoneaster horizontalis*) and Sycamore (*Acer pseudoplatanus*) were recorded within the red line boundary of the site. These are unscheduled species but considered medium impact.

The risk of invasive species being introduced onto the site during the construction and operational phase of the project is considered to be low, with no import of materials with the potential to contain invasive flora species.

The landscape plan will include a mix of native and non-native non-invasive plant species within its design. The proposed development will retain most hedgerows and trees with additional planting proposed.

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

6.4 POTENTIAL IMPACTS ON WATER QUALITY

The development site is mostly located within the Kilcogan sub-catchment and partly within the Kilchreest sub-catchment which are part of the Galway Bay South East Catchment. The closest mapped watercourse to the proposed development site is the Meheranspark where it rises approximately 1.1km south-west of the proposed development. As there are no watercourses within the development site and no proposed works within any watercourse or drainage ditch, it can be concluded that there is no direct surface water connection between the proposed quarry extension area and the following protected sites: Peterswell Turlough SAC, Slieve Aughty Mountains SPA, Rahasane Turlough SPA and the Coole-Garryhill SPA.

During the construction phase/excavation 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). The risk of water quality deterioration as a result of uncured concrete would be considered low, given that precast concrete would be used where possible and surplus concrete would be returned to the batching plant. In the event suspended solids become entrained in surface water run-off during the construction phase, there is considered to be no significant risk of impact on water quality as suspended solids would likely be retained on site as run-off percolates to the ground and given the distance to any nearby mapped watercourses.

Construction works would be confined to the proposed development footprint, with no works taking place within a watercourse or drainage ditch.

The proposed development site is not located within an area of pluvial flooding, therefore, it is not anticipated that flood waters would come into contact with any hazardous materials onsite that would pose a significant risk to any protected site.

As noted in section 4.3.2, groundwater permeability is moderate and vulnerability is high. The main risk to groundwater would be associated with any chemicals and any hydrocarbons from machinery or re-fuelling onsite that could enter a groundwater sources during the operational/extraction phase. There will be no re-fuelling within in the proposed and existing extraction areas. Re-fuelling of machinery will be undertaken on higher ground at the truck/car parking area and over a designated re-fuelling slab. Any hydrocarbon run-off would be directed to a new soakpit and will pass through a petrol interceptor prior. Therefore, the risk of hydrocarbons significantly impacting any protected habitat or species via groundwater is considered low. Groundwater is estimated to be 45m OD. A hydrological assessment was completed as part of this development. The report within the accompanying EIAR (Chapter 7) states in reference to potential groundwater impacts "*There is no specific mitigation required to protect any of the European and national Sites that have a hydrological pathway from the quarry site to these receptor in respect to pollution*."

During the operational phase, wastewater from the proposed development will be directed to an existing septic tank onsite. This septic tank is located greater than 10m from any watercourse or drainage ditch as is standard practice.

Surface water comprised of rainwater run-off from the roofs and hard surfaces of new buildings will be directed to a new soakpit. Surface water from the existing road and proposed car/truck parking area will percolate to ground via permeable substrates and grassy verges. Re-fuelling will be conducted over a re-fuelling slab. Prior to water entering the new soakpit, water will pass through a petrol interceptor. Therefore, no significant impacts in terms of water quality deterioration are anticipated during the operational phase of the development.

It is therefore considered that, due to the nature and location of the development, extent of works, no excavation works within a watercourse or drainage ditch, distance to designated sites current operations and the proposed drainage system, the development would not pose a significant risk upon the Peterswell Turlough SAC, Slieve Aughty Mountains SPA, Rahasane Turlough SPA/SAC or the Coole-Garryland SPA due to a deleterious effect on water quality during either the construction or operational phases.

6.5 IN COMBINATION EFFECTS

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

- Galway County Development Plan 2022-2028;
- Proposed and permitted developments in the area available on Galway County Council planning system.

The development site is located approximately 10km from the town of Kilchreest. It is accessed via an existing entrance from a local road to the south. The local road provides connectivity to the L4219 approximately 1.7km to the north-east of the site. The L419 provides connectivity to Craughwell and Kilchreest via the regional roads. The M18 is located just 8km to the west of the development providing further connectivity to towns and villages. The surrounding land use is predominantly rural with agricultural farmland dominating the landscape. The Roadstone Quarry is located adjacent north of Kilchreest Quarries. It had operated for many decades however closed in July 2024. Its reinstatement is unknown. In combination effects will be discussed further below.

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

Table 6.1: Recent planning applications close to the proposed site

Application No.	Development Type	Outcome	Approximate Distance
23180	Permission to construct an extension to the rear of a dwellinghouse including all associated works & services, & construct a new septic tank with percolation.	Granted - Conditional	180m E
15359	Permission for the erection and operation of a semi-mobile asphalt/macadam mixing plant on C.0.3 hectares at Kilchreest Quarry.	Granted - Conditional	217m N

Application No.	Development Type	Outcome	Approximate Distance
181097	Permission for construction of a dwelling house, domestic garage, sewage treatment system & percolation area, along with all ancillary works. Gross floor space of proposed works(house) 294 sqm. (garage) 51.5 sqm.	Granted - Conditional	250m SE
16291	Permission for a new house, garage, sewage treatment system & percolation area, along with all ancillary work (Gross floor space house 213sqm;garage 51.5sqm).	Granted - Conditional	259m SE
201811	Permission for the construction of a new dwelling house, domestic garage, sewage treatment system and all associated site development works. Gross floor space of proposed works; 227.6sqm & 43.1sqm.	Granted - Conditional	298m E
161745	Permission to construct a dwelling house, waste water treatment system. (Gross floor space of proposed works: 141 sqm.).	Granted - Conditional	436m SW
211170	Permission for construction of a new dwelling house, domestic garage, sewage treatment system, and all associated site development works. Gross floor space of proposed works is 212 sqm.	Granted - Conditional	467m SW
16112	Permission for the construction of new slatted shed and creep areas, a manure pit, extension to an existing slatted shed and the proposed realignment of the entrance to the farmyard (Gross floor space 361.25sqm).	Granted - Conditional	550m NE
16184	Permission for the construction of a slatted shed, creep areas, manure pit with all associated works and ancillary services (gross floor space 187.28286sqm).	Granted - Conditional	514m SW
211854	Permission for a new dwelling house, domestic garage, on-site wastewater treatment system, along with all associated works. Gross floor space of proposed works: 262.6 sqm (house) & 30 sqm (garage).	Granted - Conditional	800m NE
2260855	Permission construction of a Dwelling House, domestic garage, Treatment Unit, Percolation area and all associated site services. Gross floor space of proposed works 132.00 sq m.	Granted - Conditional	851m NE

The most recent planning applications within the vicinity of the development site are mainly residential and agricultural. All were granted subject to conditions. There are no recent applications for any extractive developments in the area. Details of an existing nearby quarry are included below.

The proposed primary heating system for the proposed office buildings will be a heat pump. Air emissions from the proposed buildings would be typical of a residential building with the main source of emissions coming from heating and therefore low impact in-and-of-itself. In-

combination residential impacts would be controlled by national energy policies, grant schemes and motor fuel emission targets.

In terms of air emissions during the extraction phase of the development, the Air and dust impact assessment report determined that "*when the measured baseline noise levels and the predicted noise levels from the proposed mineral extraction are compared, there will be no exceedance of the relevant noise limits*." Therefore, no significant impacts in relation to noise are anticipated. In addition, the nearest mapped protected site is the Slieve Aughties Mountains SPA located approximately 2.2km from the development. The avifauna for which this SPA has been designated would be accustomed to noises generated from the existing quarry which now forms part of the background noise in the area. It should also be noted that blasting and drilling will only be undertaken over two days every two months, further reducing noise disturbance. The quarry face design will effectively limit noise disturbance to the surrounding areas. All other fauna within the area would be accustomed to agricultural, residential, extractive and vehicular noise commonly audible within the area.

Continued implementation of the Water Framework Directive would result in achieving, or maintaining, improvements to water quality in the Galway Bay South East Catchment. Developments such as this proposed development could act in combination with existing environmental pressures on the Galway Bay South East Catchment, including agriculture, anthropogenic, domestic and urban wastewater, urban run-off, industry and forestry. However, as noted in Section 6.3, it is considered that the development would not pose a significant risk upon any Natura 2000 site due to a deleterious effect on water quality, during either the construction or operational phase. There are no mapped watercourses or drainage ditches within the red line boundary of the site limiting any direct hydrological connection to a protected site. Waste water from the new proposed offices and toilets will be directed to an existing septic tank. No re-fuelling will take place within the proposed extraction area and therefore, any potential impacts to groundwater would be considered low. Surface water from the quarry roads and car/truck park will percolate to ground via permeable gravel substrates while surface water from the re-fuelling slab will be directed to a soakpit after passing through a petrol interceptor. Standard measures for the protection of the environment will be implemented however, the absence of such measures would not result in any likely significant effects on any Natura 2000 site given the distance and absence of a direct flow pathway.

In-combination effects in relation to the potential reinstatement of the Roadstone Quarry north of the site are discussed as follows.

A long established Roadstone quarry is located c.60m north of the proposed development site and existing quarry boundary. As noted further above, the Roadstone Quarry has been in operation over a long term period and recently closed in July 2024. The accompanying noise and vibration and air and dust impact assessment reports undertook an assessment based on a worst case scenarios and based on the closure of the Roadstone Quarry. The air and dust quality impact assessment states "*As the Roadstone quarry is currently closed and its reinstatement is unknown, the background air quality at present is most likely to be typical of rural areas, being primarily influenced by the existing quarry activities associated with the proposed site, local traffic and agricultural activities, etc*". The reports determined no significant impact to any ecological receptors in terms of air quality and no significant increase in noise disturbance from baseline conditions. Therefore, no in-combination effects are anticipated. Should the Roadstone Quarry become re-instated, in-combination effects will be determined on a case by

case basis and will take into consideration the proposed extension at Kilchreest Quarry. Where appropriate and if so determined by the council, specific designs or measures will be incorporated to prevent any in-combination effects.

As discussed in Sections 6.1 – 6.3 above, it is considered that there would be no significant in-combination risk to any European site owing to the development. As there are no anticipated significant risks from the development and proposed works, given the scale and nature of recent nearby developments, the type of development (extension to existing quarry), the distances of other developments in the area, the distances to nearby designated sites, absence of direct hydrological pathways, proposed design measures, it is considered that there would be no cumulative water, noise or air impacts which would pose a significant risk to designated sites or species.

7.0 SCREENING STATEMENT AND CONCLUSIONS

This report identified the presence of European sites (Natura 2000) within the potential zone of influence. The potential for likely significant effects to European sites as a result of the development site such as potential water quality impacts, introduction of invasive species, habitat destruction and impacts from noise and dust were considered and the level of risk posed assessed.

It is noted that environmental control measures will implemented during construction in line with standard guidelines. Whilst the implementation of such measures during construction will assist in minimising impacts on the local environment, the implementation of these measures has not been taken into consideration in this screening report when reaching a conclusion as to the likely impact of the development on Natura 2000 sites.

During Stage 1 Screening for Appropriate Assessment, it was considered that there would be no potential for a significant impact upon the qualifying interests / special conservation interests of the Slieve Aughty Mountains SPA (Site Code: 004168), Peterswell Turlough SAC (Site Code: 000318), Rahasane Turlough SPA (Site Code: 004089), the Rahasane Turlough SAC (Site Code: 000322) and the Coole-Garryland SPA (Site Code: 004107) during both the construction and operational phase of the development site.

This report presents a Stage 1 Appropriate Assessment Screening for the development site, outlining the information required for the competent authority to screen for appropriate assessment and to determine whether or not the development site, either alone or in combination with other plans and projects, in view of best scientific knowledge, is likely to have a significant effect on any European or Natura 2000 site. 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. Therefore, a Natura Impact Statement is not required.

Accordingly, having carried out the Stage 1 Appropriate Assessment Screening, the competent authority may determine that a Stage 2 Appropriate Assessment of the development site is not required as it can be excluded, on the basis of objective scientific information following screening under this Regulation 42 of the European Communities (Birds and Natural Habitats)

Regulations 2011, as amended, that the development site, individually or in combination with other plans or projects, will not have a significant effect on any European site.

It can be objectively concluded that no significant effects arising from the development site are likely to occur in relation to the Slieve Aughty Mountains SPA, Peterswell Turlough SAC, Rahasane Turlough SPA and the Coole-Garryland SPA or indeed any other Natura 2000 site in the wider hinterland.

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APPENDIX A

ALL QUALIFYING INTERESTS

PETERSWELL TURLOUGH SAC (SITE CODE: 000318)			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[3180] Turloughs	The development is located within the current known distribution, current range and favourable reference range of these qualifying interests (NPWS, 2019b). The nearest examples of these qualifying interests are located approximately 2.7km south-west of the development site (NPWS, 2011). There is no direct hydrological connection between the proposed development and this habitat. There are also no proposed works within any watercourse or drainage ditch connected to this habitat. Given the considerable distance, absence of source-receptor-pathway, it is not anticipated that the development would have the potential to significantly affect these qualifying interests.	No	No
[3270] Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation	The development is located outside the current known distribution, current range and favourable reference range of these qualifying interests (NPWS, 2019b). The nearest examples of these qualifying interests are located approximately 5km south-west of the development site (NPWS, 2011). Given the considerable distance, absence of source-receptor-pathway, nature and scale of the development, it is not anticipated that the development would have the potential to significantly affect these qualifying interests.	No	No

SLIEVE AUGHTY MOUNTAINS SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A082] Hen Harrier (*Circus cyaneus*)	Hen Harrier is an Annex I species of the Habitats Directive. It's diet consists of small birds and mammals. During the breeding season, Hen harrier are found in the uplands where it nests on the ground such as on moorland and young forestry plantations. During the winter, Hen Harrier are found along the coast or lowland areas. Hen Harriers will forage up to 5km from their nest site and will utilise a variety of habitats including hill farmland that is not too rank. Disturbance	Yes	Yes

SLIEVE AUGHTY MOUNTAINS SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
	due to noise and fragmentation/loss of foraging habitats can have a significant impact on Hen Harrier.		
[A098] Merlin (*Falco columbarius*)	Merlin are a local summer visitor to the uplands and a widespread winter visitor to the lowlands. Its diet consists of small birds such as Meadow Pipit and Skylark. It nests on the ground of moorlands, mountains and blanket bogs, woodlands and forestry plantations. Disturbance due to noise and fragmentation/loss of foraging habitats can have a significant impact on Hen Harrier.		

RAHASANE TURLOUGH SAC (SITE CODE: 000322)			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[3180] Turloughs	The development is located within the current known distribution, current range and favourable reference range of these qualifying interests (NPWS, 2019b). The nearest examples of these qualifying interests are located approximately 7km north-west of the development site (NPWS, 2011). There is no direct hydrological connection between the proposed development and this habitat. There are also no proposed works within any watercourse or drainage ditch connected to this habitat. Given the considerable distance, absence of source-receptor-pathway, it is not anticipated that the development would have the potential to significantly affect these qualifying interests.	No	No

RAHASANE TURLOUGH SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A038] Whooper Swan (*Cygnus cygnus*)	Winter species to wetlands from October to April. Their diet consists of aquatic vegetation but commonly found grazing on agricultural grasslands and arable land. The artificial lakes onsite would not sufficiently support this species. There is no direct hydrological connection to this SPA, therefore no potential water quality impacts. The proposed development includes areas of improved agricultural grassland. Therefore, there is potential for an impact to occur in terms of fragmentation of foraging habitat.	Yes	Yes
[A050] Wigeon (*Anas Penelope*)	Wintering species shows a preference for coastal saltmarshes, freshwater, brackish and saline lagoons, flooded grasslands, estuaries, intertidal mudflats, turloughs, rivers and lakes. It grazes on coastal seagrass and algae, within grasslands and cereal crops. The artificial lakes onsite would not sufficiently support this species. There is no direct hydrological connection to this SPA, therefore no potential water quality impacts. The proposed development includes areas of improved agricultural grassland. Therefore, there is potential for an impact to occur in terms of fragmentation of foraging habitat.	Yes	Yes
[A140] Golden Plover (*Pluvialis apricaria*)	Wintering species frequents freshwater wetlands, moist grasslands, pastures, agricultural land and highland steppe also foraging on tidal shores, coastal rocky outcrops, intertidal flats and saltmarshes, shallow bays and estuaries. Its diet consists predominantly of insects, crustaceans and some plant material (berries, seeds and grasses). The artificial lakes onsite would not sufficiently support this species. There is no direct hydrological connection to this SPA, therefore no potential water quality impacts. The proposed development includes areas of improved agricultural grassland. Therefore, there is potential for an impact to occur in terms of fragmentation of foraging habitat.	Yes	Yes
[A156] Black-tailed Godwit (*Limosa limosa*)	Winter visitor from Iceland. Feed on a range of invertebrates, including bivalves, polychaete worms and shore crabs. Breeds in lowland wet grassland and marshes. Winters in a variety of habitats, both inland (particularly grassland and river deltas) and coastal (particularly estuaries), though seldom seen along non-estuarine coast. A deterioration in water quality could have an impact on this species. The artificial lakes onsite would not sufficiently support this species.	No	No

RAHASANE TURLOUGH SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
	There is no direct hydrological connection to this SPA, therefore no potential water quality impacts.		
[A184] Greenland White-fronted Goose (*Anser albifrons flavirostris*)	This is a scare winter visitor to wetlands in Wexford and western Ireland. It typically breeds on low tundra, by lakes and river. It winters on peatlands and grasslands. Its diet consists of plant material such as the roots, shoots and leaves, grasses, clover, spilt grain, wheat and potatoes. It is known to forage on peatlands grasslands, salt marsh and dune grassland habitats. The artificial lakes onsite would not sufficiently support this species. There is no direct hydrological connection to this SPA, therefore no potential water quality impacts. The proposed development includes areas of improved agricultural grassland. Therefore, there is potential for an impact to occur in terms of fragmentation of foraging habitat.	Yes	Yes
[999] Wetland and waterbirds	Visiting and resident species found within the habitats for which the Rahasane SPA has been designated that feed on a variety of marine and terrestrial prey. A deterioration in water quality would have an impact on this species. There is no direct hydrological connection to this SPA, therefore no potential water quality impacts.	Yes	Yes

COOLE-GARRYLAND SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A038] Whooper Swan (*Cygnus cygnus*)	Winter species to wetlands from October to April. Their diet consists of aquatic vegetation but commonly found grazing on agricultural grasslands and arable land. The artificial lakes onsite would not sufficiently support this species. There is no direct hydrological connection to this	Yes	Yes

COOLE-GARRYLAND SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
	SPA, therefore no potential water quality impacts. The proposed development includes areas of improved agricultural grassland. Therefore, there is potential for an impact to occur in terms of fragmentation of foraging habitat.		

APPENDIX B

QUALIFYING INTERESTS WITHIN THE PROJECT ZONE OF INTEREST

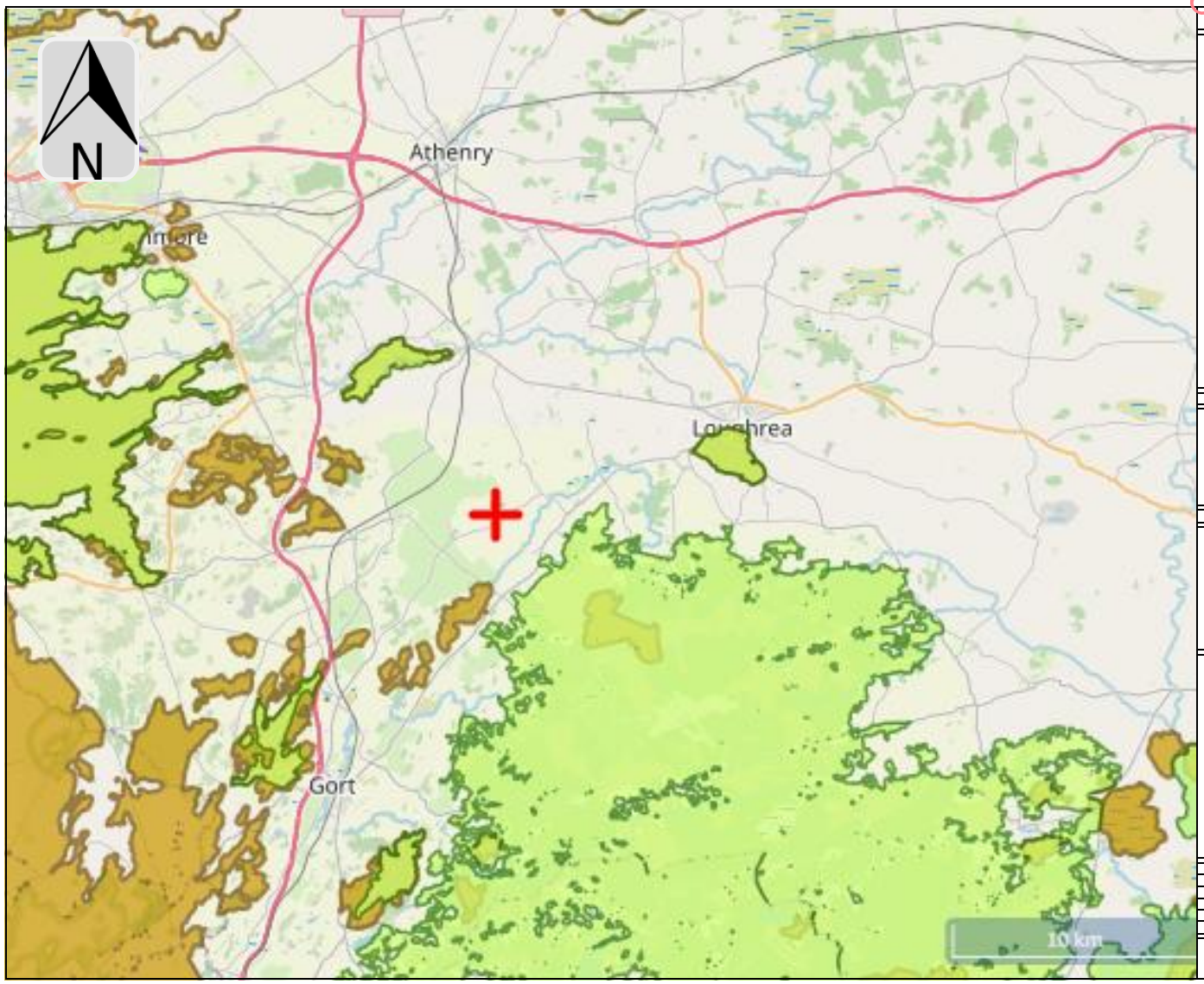
CONSERVATION OBJECTIVES (NPWS 2021-2023)	THREATS AND PRESSURES (NPWS 2019)	KEY ENVIRONMENTAL CONDITIONS	POTENTIAL IMPACTS FROM THE DEVELOPMENT
[A038] Whooper Swan [A050] Wigeon [A140] Golden Plover [A156] Black-tailed Godwit [A184] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [999] Wetland and waterbirds	• None listed	A significant impact can occur due to loss of foraging habitat. <u>Key Conservation Measures</u> • Reduce/eliminate marine pollution from marine aquaculture; • Protect from hunting and disturbance; • Protect habitat for foraging and nesting birds • Reduce/eliminate point source pollution to surface or ground waters from industrial, commercial, residential and recreational areas and activities	No potential for a significant impact on water quality as there is no potential for significant groundwater contamination or significant runoff (sediments or hydrocarbons) from the proposed site that would enter any watercourse or drainage system that is hydrologically connected to the SPA's. Improved agricultural grassland is a common habitat within the area. While this development will

CONSERVATION OBJECTIVES (NPWS 2021-2023)	THREATS AND PRESSURES (NPWS 2019)	KEY ENVIRONMENTAL CONDITIONS	POTENTIAL IMPACTS FROM THE DEVELOPMENT
			require the removal of some agricultural grassland habitat, the remainder will still be available. Therefore, no significant impact due to loss of foraging habitat is anticipated.
[A082] Hen Harrier	• Loss of suitable nesting/foraging habitat • Disturbance • Loss of prey availability • Afforestation/forest maturation • Agricultural intensification • Pesticides	A significant impact can occur due to loss of foraging habitat. <u>Key Conservation Measures</u> • Protect from hunting and disturbance; • Protect habitat for foraging and nesting birds	Improved agricultural grassland is a common habitat within the area. While this development will require the removal of some agricultural grassland habitat, the remainder will still be available. Therefore, no significant impact due to loss of foraging habitat is anticipated.

CONSERVATION OBJECTIVES (NPWS 2021-2023)	THREATS AND PRESSURES (NPWS 2019)	KEY ENVIRONMENTAL CONDITIONS	POTENTIAL IMPACTS FROM THE DEVELOPMENT
[A098] Merlin	• Loss of suitable nesting/foraging habitat • Disturbance • Loss of prey availability • Afforestation/forest maturation • Agricultural intensification • Pesticides	A significant impact can occur due to loss of foraging habitat. <u>Key Conservation Measures</u> • Protect from hunting and disturbance; • Protect habitat for foraging and nesting birds	Improved agricultural grassland is a common habitat within the area. While this development will require the removal of some agricultural grassland habitat, the remainder will still be available. Therefore, no significant impact due to loss of foraging habitat is anticipated.

APPENDIX C

PROTECTED SITES AND SITE PLANS



Notes

Site Location –

S.P.A. –

S.A.C. –

Project Title:

PROTECTED SITES MAP WITHIN ZONE OF INFLUENCE

Client Name:

Proposed Extension at Kilchreest Quarry, Co. Galway

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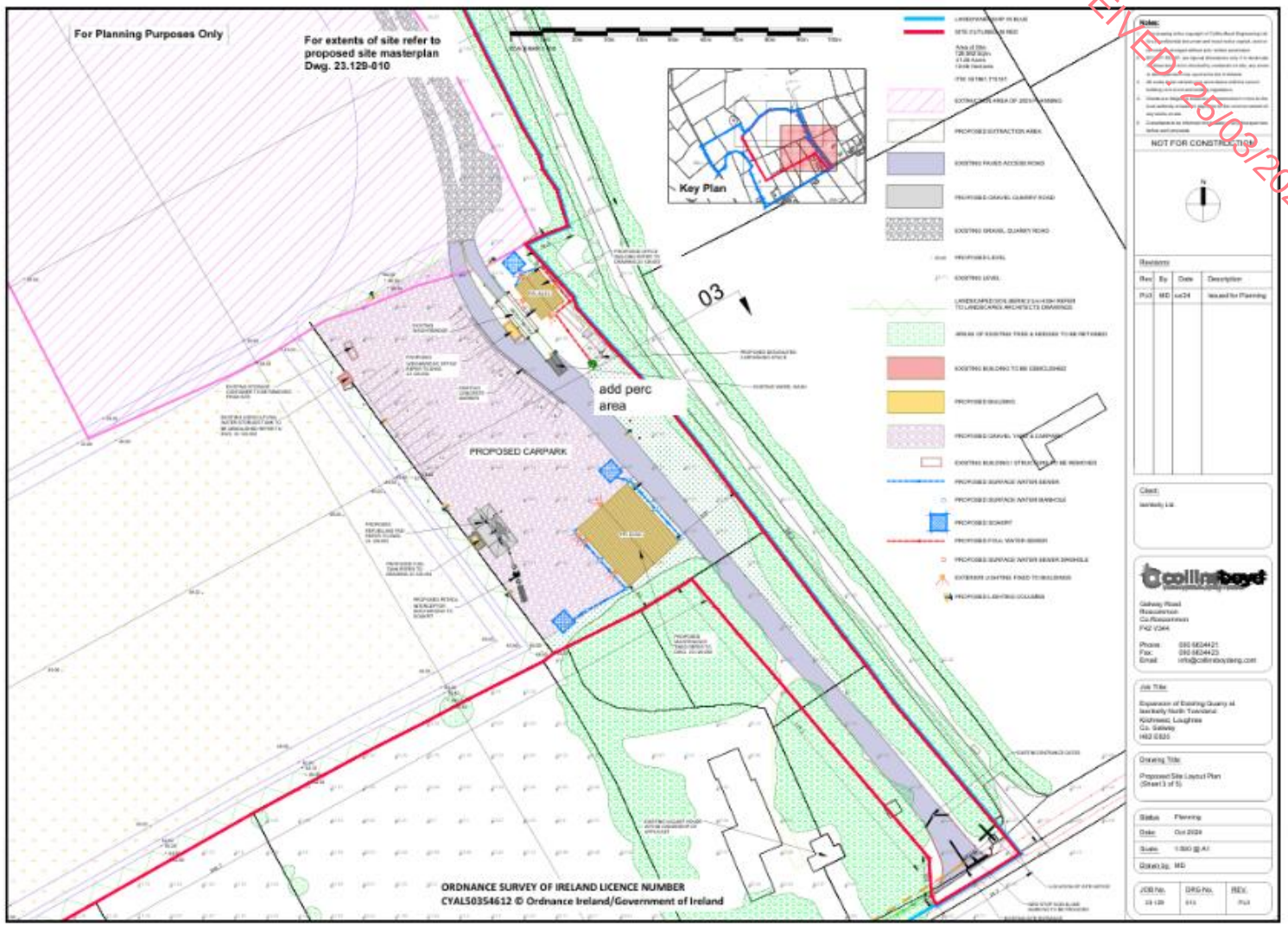
Drawing Status:	Scale:	NTS	A4
Report	Datum:	EPA Envision	
Drawing Number: PE_AA_10238	Drawn:	PE	
	Checked:	MF	
Revision:	Approved:		
R0	Date:	03/01/2025	



Drawing: Site Layout
Consultant: Collins Boyd Engineers & Architects

Drawing: Landscape Masterplan
Consultant: RMDA Landscape Architects

APPENDIX D

PHOTO LOG

Plate 1: Existing quarry access road and BL3 habitats

Plate 2: Improved agricultural grassland (GA1)

Plate 3: Hedgerows (WL1)

Plate 4: Old stonewalls and other stone work (BL1)

Notes:

APPENDIX D
PHOTO LOG

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drawing status:	REPORT	datum:	N/A
		drawn:	PES
drawing no.	rev	checked:	MF
AA_10238	A	approved:	-
		date:	September 2024

Plate 5: Dry meadows and grassy verges (GS2)

Plate 6: Scrub (WS1)

Plate 7: ED4 and BL3

Plate 8: Other artificial ponds and lakes (FL8)

Notes:

APPENDIX D
PHOTO LOG

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drawing status:	REPORT	datum:	N/A
		drawn:	PES
drawing no.	rev	checked:	MF
AA_10238	A	approved:	-
		date:	September 2024

ATTACHMENT 2

- PHOTO LOG -

Plate 1: Improved agricultural grassland (GA1)

Plate 2: Dry meadows and grassy verges (GS2)

Plate 3: BL3 habitat, with recolonising bare ground (ED3) to the foreground.

Plate 4: Old stonewalls and other stonework (BL1)

Notes:

KILCHREEST QUARRY, KILCHREEST, LOUGHREA, CO. GALWAY

ATTACHMENT 2
PHOTO LOG

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drawing status:	REPORT	datum:	N/A
		drawn:	PE
drawing no.	rev	checked:	MF
PE_10238	A	approved:	-
		date:	September 2024

Plate 5: Hedgerows (WL1)

Plate 6: Mammal movement through vegetation north

Plate 5: ED4 and BL3

Plate 6: Scrub (WS1)

Notes:

KILCHREEST QUARRY, KILCHREEST, LOUGHREA, CO. GALWAY

ATTACHMENT 2
PHOTO LOG

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file location:		scale: N/A	A4
drawing status:	REPORT	datum:	N/A
		drawn:	PE
drawing no.	rev	checked:	MF
PE_10238	A	approved:	-
		date:	September 2024

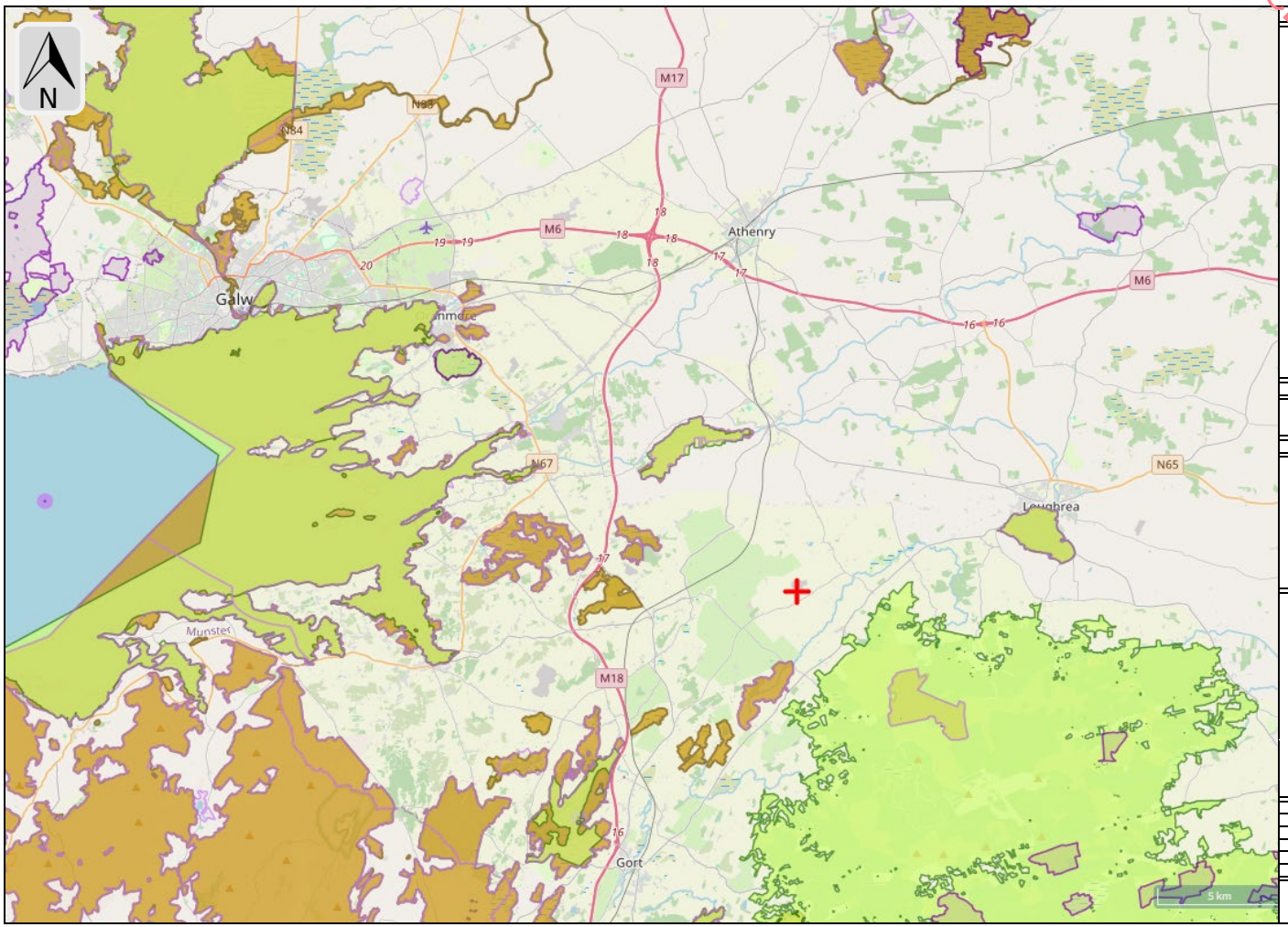
ATTACHMENT D.3

- FULL LIST OF RECORDED FLORA -

Habitat	Common Name	Scientific Name	DAFOR Classification
Improved agricultural grassland (GA1)	Yorkshire Fog	*Holcus lanatus*	A
	Fescues	*Festuca* spp.	A
	Ryegrasses	*Lolium* spp.	D
	Chickweed	*Stellaria media*	O
	Black Medick	*Medicago lupulina*	O
	Yarrow	*Achillea millefolium*	O
	Silverweed	*Potentilla anserina*	A
	Dandelion	*Taraxacum* agg.	A
	Common Hogweed	*Heracleum sphondylium*	O
	Creeping Thistle	*Cirsium arvense*	O
	Dock	*Rumex* spp.	O
	Vetch	*Vicia* spp.	O
	Ribwort Plantain	*Plantago lanceolata*	F
	Meadow Vetchling	*Lathyrus pratensis*	O
	Creeping Buttercup	*Ranunculus repens*	O
	Clover	*Trifolium* spp.	F
	Ragwort	*Jacobaea vulgaris*	O
	Nettle	*Urtica dioica*	O
	Bent Grasses	*Agrostis* spp.	O
	Crested Dog's-tail	*Cynosurus cristatus*	O
Active quarries and mines (ED4)	Yarrow	*Achillea millefolium*	O
	Rouch Hawkbit	*Leontodon hispidus*	R
	Coltsfoot	*Tussilago farfara*	F
	Bramble	*Rubus fruticosus* agg.	F
	Ribwort Plantain	*Plantago lanceolata*	O
	Moss	*Bryophyta*	F
	Sedges	Cyperaceae	O
	Hart's-tongue Fern	*Asplenium scolopendrium*	R
	Great Willowherb	*Epilobium hirsutum*	O
	Oxeye Daisy	*Leucanthemum vulgare*	O
	Knapweed	*Centaurea nigra*	R
	Daisy	*Bellis perennis*	F
	Crested Dog's-tail	*Cynosurus cristatus*	O
	False Oat-grass	*Arrhenatherum elatius*	O
	Wild Carrot	*Daucus carota*	O
	Wall Cotoneaster	*Cotoneaster horizontalis*	R
	Tutsan	*Hypericum androsaemum*	R
	Black Medick	*Medicago lupulina*	O
	Common Centaury	*Centaurium erythraea*	O
	Goat Willow	*Salix caprea*	F

Habitat	Common Name	Scientific Name	DAFOR Classification
Scrub (WS1)	Bramble	*Rubus fruticosus* agg.	D
	Blackthorn	*Prunus spinosa*	A
	Willow	*Salix spp.*	A
	Chinese Bramble	*Rubus tricolor*	F
	Hawthorn	*Crataegus monogyna*	O
Hedgerows (WL1)	Hawthorn	*Crataegus monogyna*	D
	Elder	*Sambucus* spp.	O
	Blackthorn	*Prunus spinosa*	F
	Hazel	*Corylus avellana*	O
	Ash	*Fraxinus excelsior*	O
	Bramble	*Rubus fruticosus* agg.	D
	Ground Elder	*Aegopodium podagraria*	O
	Nettle	*Urtica dioica*	F
	Ivy	*Hedera* spp.	O
	Lime	*Tilia* spp.	R
Dry meadows and grassy verges (GS2)	False Oat-grass	*Arrhenatherum elatius*	D
	Crested Dogs-tail	*Cynosurus cristatus*	F
	Cocksfoot Grass	*Dactylis glomerata*	A
	Bent Grasses	*Agrostis* spp.	F
	Common Couch Grass	*Elymus repens*	O
	Yorkshire Fog	*Holcus lanatus*	A
	Fescues	*Festuca* spp.	O
	Nettle	*Urtica dioica*	O
	Creeping Thistle	*Cirsium arvense*	O
	Creeping Buttercup	*Ranunculus repens*	O
	Silverweed	*Potentilla anserina*	O
	Bindweed	*Convolvulus* spp.	O
	Ragwort	*Jacobaea vulgaris*	O
	Common Hogweed	*Heracleum sphondylium*	O
	Great Willowherb	*Epilobium hirsutum*	F
	Moss	Bryophyta	O
	Sorrel	*Rumex* spp.	R
	Yarrow	*Achillea millefolium*	F
	Willow	*Salix* spp.	O

Habitat	Common Name	Scientific Name	DAFOR Classification
Recolonising bare ground (ED3)	Coltsfoot	*Tussilago farfara*	O
	Yarrow	*Achillea millefolium*	F
	Horseweed	*Erigeron* spp.	F
	Ribwort plantain	*Plantago lanceolata*	O
	Moss	Bryophyta	F
	Ragwort	*Jacobaea vulgaris*	O
	Fescues	*Festuca* spp.	O
	Bent Grasses	*Agrostis* spp.	F
	Cocksfoot Grass	*Dactylis glomerata*	O
	Mouse-ear Hawkweed	*Pilosella officinarum*	F
	Sedges	*Juncus* spp.	R
Other artificial lakes and ponds (FL8)	Bullrush	*Typha* spp.	O
	Jointed Rush	*Juncus articulatus*	O
	Sedges	Cyperaceae	O
	Willow	*Salix* spp.	O
	Horsetail	*Equisetum* spp.	O
	Lesser-water Plantain	*Baldellia ranunculoides*	R
Scattered trees and parkland (WD5)	Apple	*Malus* spp.	F
	Elder	*Sambucus* spp.	O
	Ash	*Fraxinus excelsior*	O
	Hawthorn	*Crataegus monogyna*	O
	Nettle	*Urtica dioica*	O
	Ivy	*Hedera* spp.	F
Treelines (WL2)	Ash	*Fraxinus excelsior*	A
	Sweet Chestnut	*Castanea sativa*	R
	Sycamore	*Acer pseudoplatanus*	O
	Cypress	*Cupressus* spp.	A
	Scots Pine	*Pinus sylvestris*	O
	Spruce	*Picea* spp.	O



Notes

Site Location –

SPA –

SAC –

NHA –

pNHA –

RAMSAR –

Project Title:

PROTECTED SITES MAP

Client Name:

KILCHREEST QUARRY, KILCHREEST, LOUGHREA, CO. GALWAY

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