Natura Impact Statement

Enniscrone Public Realm Development

November 2022

Enniscrone, Co. Sligo

Prepared for Aona Consulting Ltd on behalf of Sligo County Council

COISCÉIM CONSULTING
Ecology and Hydromorphology services

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1 Introduction

This report has been prepared by Coiscéim Consulting Ltd. at the request of AONA Consulting Ltd for the applicants, Sligo County Council who are seeking permission for waterfront public realm works at Enniscrone Co. Sligo.

This NIS has been prepared in accordance with the requirements of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive), and with the provisions of Part XAB of the Planning and Development Act, 2000 (as amended).

The report considers the implications of the Proposed Scheme, (on its own and in combination with other plans or projects), for European sites in view of the conservation objectives of those sites. It examines the evidence and data to identify and assess the implications of the Proposed Scheme on European sites, in view of the conservation objectives of each of those sites. It considers whether the Proposed Scheme, by itself and in combination with other plans or projects, would adversely affect the integrity of any European sites. In reaching a conclusion, the mitigation measures deemed necessary to avoid or reduce any potential negative impacts, are proposed and explained.

An Appropriate Assessment of the Proposed Scheme is required for this project as, in view of the best scientific knowledge and on the basis of objective information, it cannot be excluded that the Proposed project, either individually or in combination with other plans or projects, will not have a significant effect on some European site(s) in view of their conservation objectives.

The purpose of this NIS is to provide an examination, analysis and evaluation of the potential impacts of the Proposed Scheme on European sites and to present findings and conclusions with respect to the Proposed Scheme in light of the best scientific knowledge in the field. This NIS will inform and assist the competent authority, Sligo County Council (SCC), in carrying out its Appropriate Assessment as to whether or not the Proposed Scheme will adversely affect the integrity of any European sites, either alone or in combination with other plans and projects, taking into account their conservation objectives.

The Proposed Scheme is neither connected with nor necessary to the management of any European sites.

1.1 Legislative Context

The Birds and Habitats Directives - Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive) and Council Directive 92 /43 /EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) – require Ireland to establish protected sites as part of a European wide network of sites (the Natura 2000 network which are known in Ireland as European sites) for habitats and species that are of international importance for conservation. In Ireland, European sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SACs are selected for habitats listed on Annex I of the Habitats Directive (including priority Annex I habitat types which are in danger of disappearance) and species listed on Annex II. SPAs are selected for bird species (listed on Annex I of the Birds Directive), regularly occurring populations of migratory bird species (such as ducks, geese and waders), and areas of international importance for migratory birds. The specified habitats and species for which each SAC and SPA is selected, correspond to the qualifying interests (in the case of SACs) or special conservation interest species (in the case of SPAs) for the sites, for which conservation objectives are prepared.

Article 6(3) of the Habitats Directive states that:

‘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.'

This provision is transposed into Irish law by Part XAB of the Planning and Development Acts 2000 as amended. Section 177U(4) of the said Acts provides for screening for Appropriate Assessment as follows:

'The competent authority shall determine that an appropriate assessment of [...] a Proposed Scheme [...] is required if it cannot be excluded, on the basis of objective information, that the [...] Proposed Scheme, individually or in combination with other plans or projects, will have a significant effect on a European site.'

Section 177T(1) and (2) provide that a NIS is '*a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a Proposed Scheme, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites' and specifies that it 'shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites'*.

The Court of Justice of the European Union (CJEU) has made relevant recent rulings in relation to Appropriate Assessment, regarding when it is required, its purpose and the standards it should meet. Two of the key rulings include, Case C-127/02 Waddenzee where the CJEU found that '*Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects*' and that the plan or project may only be authorised '*where no reasonable scientific doubt remains as to the absence of such effects*', and Case C-258/11 where the CJEU found that *'[The Appropriate Assessment] cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned*'.

In this report, consideration also has been given to the evolution in interpretation and application of directives and national legislation arising from recent case-law studies of the European and Irish courts, in respect of Article 6 of the Habitats Directive.

2 Methodology

2.1 Statement of Competence

This NIS was authored by Dr Niamh Burke of Coiscéim Consulting. The background and experience of the author and contributors to this report are set out below.

Niamh Burke is Director and Principal Ecologist with Coiscéim Ecology. She holds a BSc (Hons) in Natural Sciences with Environmental Science and a PhD in salmonid ecology. She is a Chartered Environmentalist (CEnv) with the Society for the Environment (Soc Env) and a Full Member of the CIEEM. Recently (2022), she attained the Higher Diploma in Environmental Law and Planning from Kings Inns. Niamh is a senior scientist with academic research and consulting experience in terrestrial ecology, aquatic ecology and fluvial geomorphology. She is an experienced project manager with a full working knowledge of EIA, the planning process and relevant environmental legislation, both national and European. With a specialism in aquatic habitats, she also has experience of terrestrial species' surveys and mitigation approaches. In her extensive consultancy roles she has acted as reviewer for all ecological reporting, ensuring consistency of standards and approach.

2.2 Guidance and Approach

This NIS has been prepared having regard to the following documents.

European Commission Guidance:

Assessment of Plans and Projects in Relation to Natura 2000 sites: Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2021)

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, 2001)

Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (European Commission, 2019)

Communication from the Commission on the Precautionary Principle (European Commission 2000)

Nature and Biodiversity Cases – Ruling of the European Court of Justice (European Commission 2006)

Article 6 of the Habitats Directive – Rulings of the European Court of Justice (European Commission Final Draft September 2014)

National Guidance:

OPR Practice Note PN01. Appropriate Assessment Screening for Development Management (Office of the Planning Regulator, 2021)

Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government 2010 revision)

Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. *Circular NPW 1/10 & PSSP 2/10* (NPWS, 2010)

The following guidance has been referenced in characterising the habitats and impacts, including determining magnitude and significance of impacts, as relevant in the application to Appropriate Assessment and European sites:

Guidelines for Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Assessment, 2018)

Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, August 2017)

Environmental Guidelines Series for Planning and Construction of National Roads (National Roads Authority, 2005-2009)

The following documents were referenced during the Desk-top study to inform the assessment:

- Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie, including conservation objectives documents
- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www.biodiversityireland.ie
- Information on the surface water network and surface water quality in the area available from www.epa.ie
- Information on groundwater resources and groundwater quality in the area available from www.epa.ie and www.gsi.ie

- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie
- Information on the location, nature and design of the Proposed Scheme supplied by the applicant's design team
- Sligo County Development Plan 2017 – 2023

2.3 Appropriate Assessment Process

Guidance on the Appropriate Assessment (AA) process was produced by the European Commission in 2002, which was subsequently developed into guidance specifically for Ireland by the Department of Environment, Heritage and Local Government (DEHLG) (2009). These guidance documents identify a staged approach to conducting an AA, as shown in Figure 2.1:

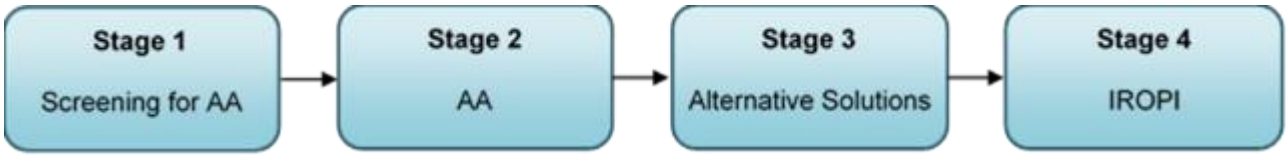


Figure 2.1 The Appropriate Assessment Process (from: Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities, DEHLG, 2009)

2.3.1 *Stage 1 - Screening for AA*

The initial, screening stage of the Appropriate Assessment is to determine:

a. whether the proposed plan or project is directly connected with or necessary for the management of the European designated site for nature conservation
b. if it is likely to have a significant adverse effect on the European designated site, either individually or in combination with other plans or projects.

For those sites where potential adverse impacts are identified, either alone or in combination with other plans or projects, further assessment is necessary to determine if the proposals will have an adverse impact on the integrity of a European designated site, in view of the site's conservation objectives (i.e. the process proceeds to Stage 2).

2.3.2 *Stage 2 - AA*

This stage requires a more in-depth evaluation of the plan or project, and the potential direct and indirect impacts of them on the integrity and interest features of the European designated site(s), alone and in-combination with other plans and projects, taking into account the site's structure, function and conservation objectives. Where required, mitigation or avoidance measures will be suggested.

The competent authority can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site(s) concerned. If this cannot be determined, and where mitigation cannot be achieved, then alternative solutions will need to be considered (i.e. the process proceeds to Stage 3).

2.3.3 *Stage 3 - Alternative Solutions*

Where adverse impacts on the integrity of Natura 2000 sites are identified, and mitigation cannot be satisfactorily implemented, alternative ways of achieving the objectives of the plan or project that avoid adverse impacts need to be considered. If none can be found, the process proceeds to Stage 4.

2.3.4 *Stage 4 - IROPI*

Where adverse impacts of a plan or project on the integrity of Natura 2000 sites are identified and no alternative solutions exist, the plan will only be allowed to progress if imperative reasons of overriding public interest can be demonstrated. In this case compensatory measures will be required.

The process only proceeds through each of the four stages for certain plans or projects. For example, for a plan or project, not connected with management of a site, but where no likely significant impacts are identified, the process stops at stage 1. Throughout the process, the precautionary principle must be applied, so that any uncertainties do not result in adverse impacts on a site.

3 Project Description

The applicants, Sligo County Council intend to apply for planning permission for a development at Enniscrone waterfront. The proposed development involves an updating of the existing amenity architecture which is currently in disrepair. The proposed development consists of:

New Pavilion:

- Demolish existing pavilion building and work with existing levels - locate new building on similar footprint.
- New access via new curved bridge/ramps
- New screening between roof deck and neighbouring apartments on southern boundary
- Extend footpaths at street level
- New landscaping - increase biodiversity, shelter, colour
- New roof deck / paved public space
- First Floor level: New Cafe + external seating area + WC + vertical circulation –
- Ground Floor (+500mm above Car Park): New Multi-purpose space + WC facilities + vertical circulation - ramped access from carpark

New Public Realm:

- Improve existing paths and ramps
- New access via new ramps, paths, staircase, steps
- Extend footpaths at street level
- New landscaping - increase biodiversity, shelter, colour
- Projecting platforms
- New covered shelters
- New arched colonnade at middle promenade
- Continuous bench seating following walls at mid and lower level
- Information points: furniture to house information -

Cliff Bath House (Conservation + Adaptive Re-use):

The Cliff Bath House is a significant landmark on the seafront and a wonderfully idiosyncratic building. The project represents an opportunity to re-vitalise this important structure by incorporating the restored Bath House as a central component in the re-imagining of the beachfront promenade. The project will prioritise the repair and restoration of the important features of the Protected Structure, in order to preserve its special character and secure its future, incorporating the following:

- New access to bath area via raised metal podium (above limestone reef)
- New bridging ramps where necessary (access to new WC)
- Conservation of building - internal and external
- New use: Seashore spa / Sauna, changing, relaxation space
- New WC: Proposed location of new accessible WC at existing stone wall close to bath building

On site drainage will include the following: wastewater will be connected to public mains and surface waters/overland flow will be to the public surface water drainage network.

Figure 3.1 Site Location in Enniscrone town (area of works shaded in blue)

4 Screening Assessment

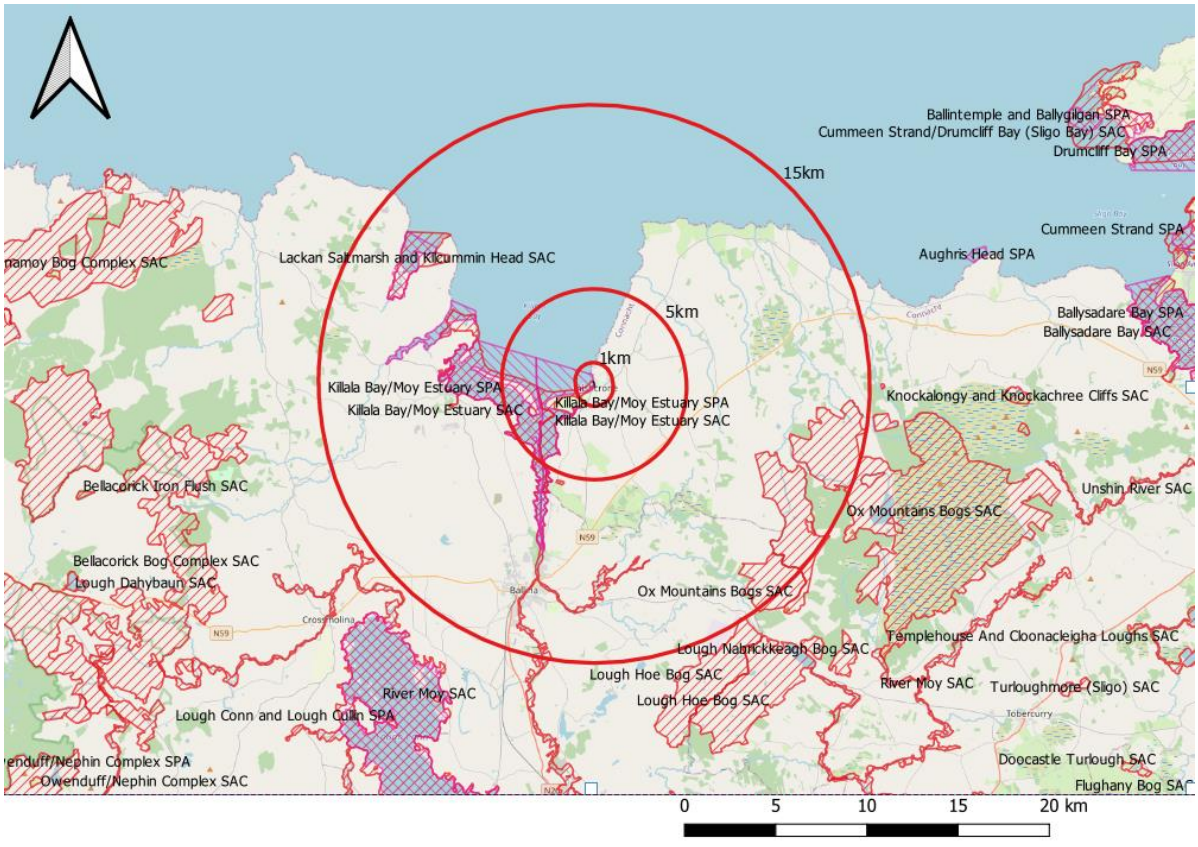
4.1 Overview of the Receiving Environment

4.1.1 *European sites*

The nearest European sites to the proposed development are Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA, immediately adjacent to the proposed development and at some points slightly within the boundary line of the Killala Bay/ Moy Estuary SAC site. Other European sites within in the potential Zone of Influence and as highlighted in the preceding Screening for Appropriate Assessment are the Ox Mountains Bogs SAC, River Moy SAC and Lackan Saltmarsh and Kilcummin Head SAC.

All of the European sites present in the vicinity of the proposed development are shown on Figure 4.1 below. The QIs/SCIs of the European sites in the vicinity of the proposed development are provided in Table 4.1 below.

Figure 4.1 European sites in the vicinity of the proposed development site, with distances of 1km, 5km and 15km highlighted.



In total, five European sites were found to fall within the 15km radius considered as the possible Zone of Influence. The details of their individual Qualifying Interests and relative distances from the proposed site development is shown in table 4.1 below.

Table 4.1 European sites in the vicinity of the Proposed Scheme

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	**Location Relative to the Proposed Scheme (as the crow flies)**
Killala Bay/Moy Estuary SAC (Site Code: 000458) Habitats 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1230 Vegetated Sea cliffs of the Atlantic and Baltic coasts 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco- Puccinellietalia maritimae) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes) 2190 Humid dune slacks Species 1095 Sea Lamprey (Petromyzon marinus) 1014 Narrow mouthed Whorl Snail (Vertigo angustior) 1365 Harbour Seal (Phoca vitulina)	0m from the Proposed development (Partly within development boundary)
Killala Bay/Moy Estuary SPA (Site Code: 004036) Birds A157 Bar-tailed Godwit (Limosa lapponica) A162 Redshank (Tringa totanus) A160 Curlew (Numenius arquata) A149 Dunlin (Calidris alpina) A144 Sanderling (Calidris alba) A141 Grey Plover (Pluvialis squatarola) A140 Golden Plover (Pluvialis apricaria) A137 Ringed Plover (Charadrius hiaticula) Habitats A999 Wetlands	0m from the Proposed development (Partly within development boundary)
Ox Mountains Bogs SAC (Site Code: 002006): Habitats: 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with Erica tetralix 4030 European dry heaths 7130 Blanket bogs (* if active bog) 7140 Transition mires and quaking bogs 7150 Depressions on peat substrates of the Rhynchosporion Species 1528 Marsh Saxifrage (Saxifraga hirculus) 1013 Geyer's Whorl Snail (Vertigo geyeri)	*c.* 9.5km from the Proposed development

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
River Moy SAC (Site Code: 002298) **Habitats** 7110 Active raised bogs* 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion 7230 Alkaline fens 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) * Species 1096 Brook Lamprey (Lampetra planeri) 1106 Salmon (Salmo salar) 1355 Otter (Lutra lutra) 1092 White clawed Crayfish (Austropotamobius pallipes) 1095 Sea Lamprey (Petromyzon marinus)	*c.* 9.6km from the Proposed development
Lackan Saltmarsh and Kilcummin Head SAC (site code: 000516) Habitats: 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco- Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)	*c.* 10km from the Proposed development

4.2 Description of Locality

Enniscrone, a small coastal town with a population of 1,156 (2016 statistics) looks out over Killala Bay and Enniscrone beach. The proposed works located along the eastern aspect of Enniscrone Beach is adjacent to the western wall along Cliff Road. This beach (with associated regulated bathing waters) is an exposed sandy beach, backed by sand dunes, a caravan park and a golf course. The bathing area (i.e. that which is patrolled by lifeguards) is approximately 500m in length. However, the beach is much longer at approximately 4.5km in length. Enniscrone Beach is classified as achieving Good Water Quality in 2020 based on the assessment of bacteriological results for the period 2017 to 2020. The WFD status for the coastal waterbody Killala Bay, is Good.

4.3 Baseline information

The proposed development site is located in a coastal setting along Enniscrone seafront, where Sligo County Council propose public realm improvements to this coastal area, to include the Conservation of Enniscrone Cliff Bathhouse, a new Pavilion and Coastal Promenade. The limit of the area of works the cliff bath house to the north and the pavilion (existing building) to the south of the village.

A baseline survey of the site was undertaken by Dr Niamh Burke on October 28th 2022 to define the habitats and potential for protected species within and close to the proposed development site.

In addition, a desktop review was carried out to collate the available information on the ecological environment within a 15km radius (or further where an ecological link exists) of the development site. The National Parks and Wildlife (NPWS) database was consulted concerning designated conservation areas, individual site synopsis for each conservation area, conservation objectives, standard Natura 2000 data

forms and GIS layering. The following documents were referenced during the desk-top study to inform the Appropriate Assessment and the baseline ecology information:

- Online data available on European sites and habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie, including conservation objectives documents.
- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www.biodiversityireland.ie
- Birds of Conservation Concern in Ireland (Gilbert et al, 2021)
- Information on the hydrology in the area available from www.epa.ie
- Information on soils, geology and hydrogeology in the area available at www.epa.ie
- Geological Survey Ireland (GSI) online Spatial Resources service. www.gsi.ie
- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie
- GeoHive online mapping (https://geohive.ie/index.html)
- Information on the proposed development supplied by Dorman Architects, Noji Architects and CORA Consulting Engineers
- Sligo County Development Plan 2017-2023 inclusive of the Enniscrone Local Area Plan 2014-2020.
- Sligo County Council planning enquiry website.

4.3.1 *Habitats recorded at the Proposed site*

This section describes the habitat as recorded currently on the stie of the proposed development.

Table 4.2 below list the Fossit habitat types noted, and Figure 4.2 provides a spatial representation of these habitat within the site and how they and the site boundary relates to Annexed Habitats in the context of the adjacent SAC site.

Table 4.2 Habitats recorded at the proposed site

Fossitt Habitat	Habitat Code
Buildings and artificial surfaces	BL3
Amenity Grassland	GA2
Dry Meadow/ Grassy verges	GS2
Scrub	WS1
Ornamental shrub	WS3
Stone walls and other stonework	BL1
Sea Cliffs	ER1
Exposed Rocky Shores	LR1
Sand Shores	LS2
Marram Dunes	CD2
Fixed Dunes	CD3

Figure 4.2 Habitats recorded within the site boundary (with Annexed habitats near site boundary)

Buildings and artificial surfaces (BL3)

Much of the seafront area is already of a built-up nature to include road, pathways and concrete steps built up to the shore.

Amenity Grassland (GA2)

Areas of lawn were present along the promenade area just above the bathhouse. Species were typically lawn grasses including *Festuca rubra, Poa annua* and some clover *T.repens, T.pratense.*

Stone walls and other stonework (BL1)

Forming much of the of the boundarybetween the road and green space to shore area, are built stone walls and some stone features witni the amenity grassland area.

Dry Meadow and Grassy Verges (GS2)

The green strip between the coastal road and the shore is steeply include and vegetated chiefly with wild grasses, frequent thistle *Cirsium arvense*, ribwort plantain *Plantago lanceolata*, Nettle *(Urtica dioica)* and Common Knapweed *(Centaurea nigra)* common vetch *Vicia sativa*, clover *Trifolium repens,* ragwort *J.vulgaris.*

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Scrub (WS1)

Towards the beach side end of the green strip between coast road and shoreline, the unmanaged grassland land had turned to scrub habitat with patches of gorse *Ulex europaeus*, bramble *Rubus fruticosus,*

Beach rose *Rosa rugosa*, New Zealand flax *Phormium tenax* and bindweed *Convolvulus arvensis*

Ornamental shrub (WS3)

Areas of the green amenity space above the bathhouse had planted borders with shrubs (Species include fuchsia *Fuchsia magellanica*, privet and some exotics including New Zealand Flax)

Exposed Rocky Shores (LR1)

The foreshore area around the bathhouse and down to the pier (the pier area is not within the scope of the proposed development) is a flat area of exposed limestone, formed through the action of waves (a wave-cut platform)

Sea Cliffs (ER1)

The limestone sea cliffs at Enniscrone run from the beach end to the pier. The cliffs have been altered and refaced with stonework and vegetation in some areas to provide pathways and amenity routes to the shoreline and bathhouse.

Sandy Shores (LR1)

The beach at Enniscrone is composed of fine to medium grained sands and is flat so that a large sand shore area is exposed at low tide. Typically shoresof this kind will have populations of invertebrates amphipods (*Pontocrates* spp.,
Bathyporeia spp., *Haustorius arenarius*) and isopods *(Eurydice pulchra)* crustaceans, with some polychaete worms *(Scolelepis squamata, Nephtys cirrosa, Lanice conchilega)* within the sand, some providing food sources for bird life. This Fossitt habitat has *Links with Annex I habitat:* Sand shores may contain examples of the annexed habitats, 'mudflats and sandflats not covered by sea water at low tide (1140)' and 'annual vegetation of drift lines (1210)'. This is the case for this site, with the entire sand shore currently designated as part of the Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA.

Fixed Dunes (Grey Dunes)

Although this habitat is not within the proposed development site boundary, it is adjacent to the area and thus is included as part of the assessment.

Grey Dunes form the upper part of the shoreline at Enniscrone and continue for a distance westwards for approximately 4km. Species include (*Ammophila arenaria*) and lyme-grass (*Leymus arenarius*), Bents (*Agrostis spp.)* with a variety of herbs including include Lady's Bedstraw *(Galium verum)*, Common Bird's-foot Trefoil *(Lotus corniculatus)*, Kidney Vetch *(Anthyllis vulneraria)*, Ribwort Plantain *(Plantago lanceolata)*, eyebrights (*Euphrasia* spp.), Yarrow *(Achillea millefolium)*, Cat's-ear *(Hypochoeris radicata)*, hawkbits (*Leontodon* spp.) and Wild Thyme *(Thymus praecox)*.
This Fossitt habitat is noted for its possible Links with Annex I habitat: 'fixed coastal dunes with herbaceous vegetation' ("grey dunes") (2130)'. This is the case for this site, with the Grey Dune habitat currently designated as part of the Killala Bay/ Moy Estuary SAC of SPA. *Links with Annex I:* Fixed dunes include the priority habitat, '*fixed coastal dunes with herbaceous vegetation ("grey dunes") (2130)'.

Marram dunes CD2 (White Dunes)

Although this habitat is not within the proposed development site boundary, it is adjacent to the area and thus is included as part of the assessment. Grey Dunes form the upper part of the shoreline at Enniscrone and continue for a distance westwards for approximately 4km. Species include Marram grass (*Ammophila arenaria*) and lyme-grass (*Leymus arenarius*) Sea Sedge (*carex arenaria)*, Cat's-ear *(Hypochoeris radicata)* and ragworts (*Senecio* spp.).
This Fossitt habitat is noted for its possible Links with Annex I habitat: shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes") (2120)'. This is the case for this site, with the Marram Dune habitat currently designated as part of the Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA.

4.3.2 *Flora and Fauna Species*

The desktop study Found several records of Annex II flora in the vicinity of the proposed development site. The Killala bay / Moy Estuary SAC and Killala bay / Moy Estuary SPA are adjacent to the proposed development site, and as such all Qualifying interest SPA species are recorded (on NBDC database) as being within the 2km grid area.

Marine mammals

The desktop study returned records for several marine mammal species in the vicinity of the proposed development site: bottle-nosed dolphin *Tursops truncates*, Common Dolphin (Delphinus delphis), common porpoise *Phocoena phocoena*, Striped Dolphin (*Stenella coeruleoalba*), Sowerby's Beaked Whale (*Mesoplodon bidens*), Minke Whale (*Balaenoptera acutorostrata*), common seal *Phoca vitulina* and grey seal *Halichoerus grypus.*

Terrestrial mammals

Records of Badger were found from the desk study, however no sightings or signs of badge were found within the proposed site boundaries. There are records of otter from 1980 and which still may occasionally use the

coastline for foraging. The nearest SAC for which this species is designated is the Moy River SAC which is 15km distance. Otter sighted at Enniscrone are thus unlikely to be part of a QI population from the Moy River SAC site.

Bird species

Records of all SCI bird species as listed for the Killala Bay/ Moy Estuary site were returned from the desk study. In addition the following protected species were noted : Little Tern (Sternula albifrons), Snowy Owl (Bubo scandiaca), Sand Martin (Riparia riparia), Northern Wheatear (Oenanthe oenanthe), Lesser Black-backed Gull (Larus fuscus), Herring Gull (Larus argentatus), Great Black-backed Gull (Larus marinus), Great Northern Diver (Gavia immer), Great Cormorant (Phalacrocorax carbo), European Shag (Phalacrocorax aristotelis), Eurasian Curlew (Numenius arquata), Common Linnet (Carduelis cannabina).

Invasive species

No species as listed on the Third Schedule list of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I number 477/2011) classes as Alien 'Invasive' were found during the site survey.

The desk top study found records of the following species in the 2km radius: Three-cornered Garlic (Allium triquetrum). Additnoally, the noxious weed species , Ragwort (*Jacobaea vulgaris*) and Thistle – Creeping and spear (*Cirsium spp*.) as listed in the noxious weeds act 1936, were also noted within and in the general vicinity of the site.

During works, care should be taken not to proliferate these species which could spread to other areas in the locality, creating a risk to local biodiversity.

4.4 Potential Impacts Identification of European Sites at Risk of Effects

This section identifies the potential impacts associated with the proposed development, examines there are pathways of impact with European sites within the Zone of Influence (ZoI) due to effects from the proposed development, and assesses whether there is any risk of the proposed development resulting in a significant effect on any European site, either alone or in combination with other plans or projects.

In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

Identification of Relevant Natura 2000 Sites

The potential zone of influence (ZoI) currently recommended for plans is a distance of 15km from the plan boundary and derives from UK guidance (Scott Wilson et al. 2006). For projects however the distance could be more or less than 15km and in some cases less than 100m, but guidance advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects.
A standard source-receptor-pathway conceptual model was used to identify 'relevant' European sites (i.e. those which could be potentially affected). For significant effects to arise, there must be a risk enabled by having all three elements fo the Source - Pathway – Receptor model.

- Source(s) – e.g. sediment run-off from construction works at proposed project site
- Receptor(s) – e.g. qualifying habitats and/or species of European Sites
- Pathway(s) – e.g. a watercourse connecting proposed project site to a European site

The identification of a pathway does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. duration of construction works), the characteristics of the pathway (e.g. water quality status of watercourse receiving run-off from construction) and the characteristics of the receptor (e.g. the sensitivities of the European site and its qualifying interests).

Having considered the potential ecological impacts through source-receptor-pathway connectivity (e.g. hydrological link) and given the nature of the proposed works, the ZoI for such project was considered as 15 km.

Due to the scale and scope of the proposed development, lack of a hydrological link and sufficient distance from the development site, it is considered that negative impacts will not occur on European Sites that have no direct or indirect connectivity to the development site, either alone or in combination with other projects and plans. Therefore, with due consideration, impacts on the conservation objectives of Ox Mountains Bogs SAC, River Moy SAC and Lackan Saltmarsh and Kilcummin Head SAC are not considered likely and are thus 'screened out'.

Two European sites Killala Bay/Moy Estuary SAC and Killala Bay/Moy Estuary SPA, however, are partly located within the area of the proposed works and are considered further in this assessment.

Killala Bay/Moy Estuary SAC (Site Code: 000458)

Killala Bay/Moy Estuary SAC is a relatively large site. North of Ballina town, the River Moy flows to the sea via a long, narrow estuarine channel. After approximately 8 km, the estuary widens to form a north-facing triangular bay, with the towns of Enniscrone (Co. Sligo) and Killala (Co. Mayo) situated on the eastern and western shores, respectively.
The estuary itself forms the County boundary along its northern part. A long sandy island (Bartragh Island) separates the south-western side of the bay from the open water. Much of the inner part of the bay is intertidal. The northern part shelves to approximately -10m depth.

Extensive sandflats and mudflats are exposed in the estuary and bay at low tide. For the most part, these flats are unvegetated, but mats of Eelgrass (Zostera spp.), Beaked Tasselweed (Ruppia maritima) and green algae (Enteromorpha spp.) occur in areas around Bartragh Island which provide important feeding material for birds. The estuary is generally in a natural state and is considered to be one of the best examples of a largely unpolluted system in Ireland.
The dune systems at Bartragh Island, Enniscrone and Ross, to the north-west, are well-developed and constitute good examples of dunes with a rich and diverse flora. Dunes dominated by Marram (Ammophila arenaria) are located at all three sub-sites, At Enniscrone they stretch the length of the strand and are particularly well developed towards the western end. They are found along the northern stretch of Ross and also run the length of Bartragh Island. Associated with the Marram dunes are embryonic foredunes and these are particularly well-represented at Enniscrone. Although much of the fixed dune area has been developed as golf course or improved for agriculture, the site still contains a relatively large area of intact fixed dunes, a priority habitat listed on Annex I of the E.U.
Habitats Directive. Humid dune slacks occur at Ross. A similar species complement is found in the wet hollows at Enniscrone and there also appears to be some large slack-like areas to the rear of Bartragh Island.
Saltmarshes are present in sheltered parts of the SAC site, some of which occur in association with the dune systems.. Elsewhere along the coastline are sandy beaches, shingle beaches and some bedrock shores which are occasionally backed by clay sea-cliffs, such as at Moyne. South-east of Killala town,

Lough Meelick adds habitat diversity to the site. It is significant for the presence of the Thin-lipped Mullet, a fish which is only occasionally found in the region.
The site holds populations of three species listed on Annex II of the E.U. Habitats Directive:
Common Seal (maximum count of 108 in the all-Ireland survey of 2003); Sea Lamprey and Narrow-mouthed Whorl Snail (Vertigo angustior). The rare snail has been known at this site for over 100 years. It occurs in an area of wet marsh and this site represents one of the few remaining examples of Vertigo angustior in its marsh "phase". This species has been declining throughout much of its range due to loss of habitat, and in particular, drainage of wetlands. The site is very important for wintering waterfowl, with eight species having populations of national importance.
Conservation Objectives for these habitats and species within the SAC were identified by NPWS (2012) and relate primarily to the requirement to maintain habitat distribution, structure and function, as defined by characterizing (dominant) species in these habitats.
For designated species the objective is to maintain various attributes of the populations including population size, cohort structure and the distribution of the species in the SAC.
Further details on conservation objectives can be found in section 5 of this report and in the supporting documents for marine habitat and species and for coastal habitats at www.npws.ie.

Killala Bay/Moy Estuary SPA (Site Code: 004036):

This large site comprises the estuary of the River Moy and the inner part of Killala Bay, including Lackan Bay and Rathfran Bay, in Counties Mayo and Sligo. It is a funnel-shaped estuary, c. 7 km wide at its outer limit. It is very well sheltered by a sandy island, Bartragh, and by a sandy peninsula that extends from Enniscrone on the eastern side. Extensive intertidal sand and mud flats are exposed at low tide. For the most part, these flats are unvegetated, but mats of Eelgrass (Zostera spp.), Beaked Tasselweed (Ruppia maritima) and green algae (Ulva spp.) occur, which provide important feeding material for waterfowl species.
The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Ringed Plover, Golden Plover, Grey Plover, Sanderling, Dunlin, Bar-tailed Godwit, Curlew and Redshank. 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. The overarching Conservation Objective for Killala Bay/Moy Estuary Special Protection Area is to ensure that waterbird populations and their wetland habitats are maintained at, or restored to, favourable conservation condition. This includes, as an integral part, the need to avoid deterioration of habitats and significant disturbance; thereby ensuring the persistence of site integrity. Conservation Objectives for Killala Bay/Moy Estuary Special Protection Area, based on the principles of favourable conservation status, are described below:
Objective 1: To maintain the favourable conservation condition of the non-breeding waterbird Special Conservation Interest species listed for Killala Bay/Moy Estuary SPA. This objective is defined by the following attributes and targets: - To be favourable, the long-term population trend for each waterbird Special Conservation Interest species should be stable or increasing. Waterbird populations are deemed to be unfavourable when they have declined by 25% or more, as assessed by the most recent population trend analysis. To be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation.

4.5 Findings of the Screening for Appropriate Assessment

The purpose of this section of the screening for appropriate assessment is to examine the possibility that the proposed project, either individually or in combination with other plans and projects, may result in significant negative effects on the Conservation Objectives and the integrity of the Natura 2000 Sites identified, which are potentially affected by the proposed project.
Table 4.3 below presents the criteria against which the impacts of the development may be measured in order to assess potential impacts on European sites.

Table 4.3 Assessment of proposed development against key criteria of the target Natura 2000 sites

Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 Sites	The proposed development incorporates the redevelopment and upgrade of the existing public realm at Enniscrone Beach and seafront. The location of the proposed works is shown in Figure 1 above. The scope of works is shown in Figures 2-5 and outlined in section 3 above. A full Preliminary Construction & Environmental Management Plan is shown in detail in Appendix I. The proposed works are located partially within Killala Bay/Moy Estuary SAC (Site Code: 000458) and Killala Bay/Moy Estuary SPA (Site Code: 004036) Given the nature of the proposed project and the range of qualifying habitats associated with the European sites listed above, the following potential effect pathways include: 1. Habitat deterioration through changes in hydrology and water quality 2. Pollution events during construction 3. Disturbance of qualifying features during construction 4. Disturbance of qualifying features during operation
Describe any likely direct, indirect or secondary impacts of the project on the Natura 2000 Sites • Size and scale; • Land-take; • Distance from Natura 2000 Site • or key features of the Site; • Resource requirements; • Emissions; • Excavation requirements; • Transportation requirements; • Duration of construction, • operation etc	The proposed works will involve demolition, excavation, construction and trackout. This raises the potential for noise, dust and vibration and the accidental release of hydrocarbons and other chemicals. Drainage works will be required around the proposed pavilion building for both rainwater and foul drainage from toilets. Also, at the Seaweed baths (Cliff Bath House), in addition to the spa/sauna it is proposed to construct a new accessible toilet adjacent to the new access walkway. With respect to this proposal, water quality deterioration may occur as a result of surface water run-off (containing suspended solids or increased nutrient loading) associated with the site construction and operation phases. The construction phase will be approximately 18 months.
Describe any likely changes to the site arising as a result of the following: • Reduction of habitat area; • Disturbance of key species; • Habitat or species fragmentation; • Reduction in species density; Changes in key indicators of conservation value; • Climate change	Fixed dunes are located for a small part at the southern point of the proposal. Overall 'Structure & Function' for the fixed dune habitat at Enniscrone is rated as Unfavorable-Bad. (NPWS, 2012). The fixed dune at Enniscrone has been impacted by the physical presence of the golf course and the associated activities. Parts of the remaining intact fixed dune habitat have in the been affected by overgrazing, leading to a loss of vegetation and an increase in natural erosion. Dune restoration works have been carried out. The fixed dunes and White dune habitats are outside of the actual footprint of the proposed works but are adjacent to the carpark upon which the site compound will be located.

	The habitat 'Mudflats and sandflats not covered by seawater at low tide' are in close proximity to the proposed works. Therefore, there is potential for indirect impact on these Annex I habitats and Annex II species for which these Natura 2000 sites are designated due to water quality impacts or noise/vibration during the construction and operational phases.
Likely impacts on the Natura 2000 sites as a whole • Interference with the Key Relationships that Define the Structure of the Natura 2000 Site; • Interference with Key Relationships that Define the site and function of the Natura 2000 Site	No significant impact on the structure or function of Natura 2000 sites is predicted due to the proposed project

4.5.1 *Summary*

Table 4.3 below summarizes those sites within the ZoI to be considered either screened in or screened out of further (stage 2) Appropriate Assessment.

Table 4.4 AA Screening conclusion summary

Site Code	*Natura 2000 Site*	*Distance (km) from Development Site to nearest point*	*Pathway for Effects*
000516	**Lackan Saltmarsh and Kilcummin Head SAC**	***11.0km northwest***	***No: separated by distance and no hydrological connection***
002006	**Ox Mountain Bog SAC**	***9.7 km southeast***	***No: separated by distance and no hydrological connection***
002298	**River Moy SAC**	***15km south***	***No: separated by distance***
004036	**Killala Bay/Moy Estuary SPA**	***Adjacent/ within***	***Yes: noise disturbance***
000458	**Killala Bay/Moy Estuary SAC**	***Adjacent/ within***	***Yes: Possible surface water run-off into SAC***

The potential impacts associated with the proposed development have the potential to affect the receiving environment and, consequently, have the potential to affect the conservation objectives supporting the qualifying interest/special conservation interests of the following European sites: Killala Bay/Moy Estuary SPA, and Killala Bay/Moy Estuary SAC. **Therefore, an Appropriate Assessment is required to fully assess the nature of these effects and to propose mitigation to avoid and /reduce those effects on the European sites.**

As the proposed development is likely to have effects on the QIs/SCIs or conservation objectives of any European sites, there is also potential for other plans or projects to act in combination with it to result in significant effects on any European sites.

The potential impacts of the proposed development on the receiving environment, their ZoI, and the European sites at risk of significant effects are summarised in Table 4.5 below. In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

Table 4.5 Summary of Analysis of Likely Significant Effects on European sites

Potential Direct, Indirect In Combination Effects and the ZoI of the Potential Effects	**Are there any European sites within the ZoI of the proposed development?**
Habitat loss Habitat loss will be confined to the lands within the proposed development boundary.	**YES** There are 2 European sites within the proposed development boundary, although no key QI habitat is included within this area
Habitat degradation as a result of hydrological impacts Habitats and species downstream of the proposed development site and the associated surface water drainage discharge points, and downstream of offsite wastewater treatment plants.	**YES** There are 2 European sites at risk of hydrological effects associated with the proposed development
Disturbance and displacement impacts Potentially up to several hundred metres from the proposed development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the proposed development, taking into account the sensitivity of the qualifying interest species to disturbance effects	**YES** Populations of waders may forage and loaf on the sandflats and shoreline close to the proposed development. Further examination of effects on these birds is warranted.

5 Stage 2 - Statement of Impact for Appropriate Assessment

This section of the NIS assesses the direct and indirect impacts of the Proposed Scheme on the European sites which fall within its zone of influence. For each of these European sites, the assessment below sets out the relevant ecological baseline information, the analysis of the potential impacts, the qualifying interests/special conservation interests at risk of these potential impacts, in view of the sites' conservation objectives, and the mitigation measures (if required) to avoid/reduce the effects of any potential impacts.

5.1 Killala Bay/ Moy Estuary SAC

5.1.1 *Ecological Baseline Description for Killala Bay/ Moy Estuary SAC*

According to the Natura 2000 Standard Data Form (NPWS, 2020), this SAC displays an excellent diversity of dune types and is one of the most important dune systems in the north-west region. There remains a substantial area of intact fixed dune despite modifications to parts of the site for recreational and agricultural purposes. Some humid dune slacks also occur, and there are good and fairly extensive examples of shifting dunes with marram, embryonic shifting dunes and annual vegetation of driftlines. Salt marshes are well represented, with both Atlantic salt meadows and Salicornia types present. The Moy estuary is an

important example of an estuary and has extensive intertidal sand and mud flats. Water quality is very good. The site is important for the occurrence of the Annex II mollusc Vertigo angustior, which occurs in marsh habitat. The site supports an important population of Phoca vitulina and both adult and juvenile Petromyzon marinus.

The Qualifying Interests of Killala Bay/ Moy Estuary SAC, and the overall Conservation Objectives, are listed below in Table 5.2.

Table 5.2 Qualifying Interests and Conservation Objectives Killala Bay/ Moy Estuary SAC

Qualifying Interest(s)	Conservation Objective(s)
Killala Bay/ Moy Estuary SAC 1014 Narrow-mouthed Whorl Snail *Vertigo angustior* 1095 Sea Lamprey *Petromyzon marinus* 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonizing mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 1365 Harbour Seal *Phoca vitulina* 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') 2130 *Fixed coastal dunes with herbaceous vegetation ('grey dunes') 2190 Humid dune slacks	To restore/ maintain the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected

In conjunction with considering the generic conservation objective for this SAC "To maintain/restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected", the site-specific conservation objectives documents for Killala Bay/ Moy Estuary SAC also informed this assessment.

The site-specific conservation objectives document sets out the attributes, measures and targets that define the favourable conservation condition of the qualifying interests within the European site. Affecting the conservation condition of the qualifying interests/special conservation interests is deemed to constitute an adverse effect on the integrity of a European site.

5.1.2 *Threats and Pressures*

The following sections provide brief characterisations of each of the European sites, together with the key threats and pressures posed to their preservation as recorded by NPWS.

The threats and pressures to the Qualifying Interests defined for Killala Bay/Moy Estuary SAC are defined according to the Natura 2000 Standard data form and shown below in table 5.3.

Table 5.23 Threats and Pressures recorded for Killala Bay/Moy Estuary SAC

Threats and pressures (code)	Threats and pressures	inside/outside [i|o|b]
I01	Invasive Non-native species	i
G01.02	Outdoor sports and leisure activities, recreational activities - Walking, horseriding and non-motorised vehicles (inside & outside N2000 site)	i/o
A02	Modification of cultivation practices	o
F02.03	Leisure fishing (positive & negative impact)	i
E01	Urbanised areas, human habitation	o
G02.08	Sports and leisure structures - Camping and caravans	o
G02.01	Sports and leisure structures – Golf course	o
A04	Agriculture - grazing	o

5.1.3 *Examination and Analysis of Potential Direct and Indirect Impacts*

The direct and/or indirect impacts by which the Proposed Scheme could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets supporting the conservation condition of the qualifying interests of Killala Bay/Moy Estuary SAC, are:

- Habitat loss and fragmentation
- Habitat degradation as a result of hydrological impacts

Construction phase impacts

5.1.3.1 Habitat loss and fragmentation

The proximity of the proposed public realm works mean that very small areas of the plan encroach very slightly beyond the boundary of the SAC. The habitat type within the area is sandflats not covered by seawater at low tide [1140].

While there is a minor area of direct spatial overlap between the site boundary and the project boundary, there is no direct habitat loss in that the area concerned is completely within the footprint of existing infrastructure – ie: concrete coastal steps, developed cliff-top gardens and access routes to the shoreline.

No part of the Proposed Development thus overlaps directly with any features of interest for which Killala Bay/Moy Estuary SAC and Killala Bay/Moy Estuary SPA are selected.

All components of the Proposed Development are restricted to public areas already used for amenity purposes at the coast, to include the cliff baths area and cliff walk with stepped concrete which extends to the sand flats.

5.1.3.1 Habitat degradation as a result of hydrological impacts

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction, (or operation), has the potential to affect water quality in the receiving aquatic environment. Such a pollution event may include: the release of sediment into receiving waters and the subsequent increase in mobilised suspended solids; and the accidental spillage and/or leaks of containments (*e.g.* fuel, oils, lubricants, paints, bituminous coatings, preservatives, weed killer, lime and concrete) into receiving waters. The associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the location of the accidental pollution event or the discharge. A reduction in water quality could have impacts for the coastal habitats and the quality of prey species for the QI species associated with this site, and knock-on effects for their health. Therefore, there is potential for the Proposed Scheme to result in significant effects which could have implications for the conservation objectives of Killala Bay/ Moy Estuary SAC as a result of hydrological impacts

It is considered that construction phase impacts may occur as a result of direct or indirect linkages to those habitats within the ZoI of the Proposed Development.
The ZoI of this project is considered to be the Qualifying Interests which occur in close proximity to the site of works and include:

i) Mudflats and sandflats not covered by seawater at low tide [1140]
ii) Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] and
iii) Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]

Harbour seals, sea lamprey and narrow-mouthed snails are not considered to be within the ZoI in this instance, due to their mobile nature (seals and lamprey) and the discrete area occupied by the narrow mouthed snail - around the Killanley marshes for this SAC site, is further south and not in the vicinity of Enniscrone.

This zone of influence has been decided based on expert judgement relative to the scale and scope of the project, corridors of connectivity and potential cumulative impacts pre, post and during the construction phase of the project.

Further detailed discussion is provided in sections 5.2.4.3 and 5.2.4.3 below as regards the specific attendant impacts and the species most affected by works in this area of Enniscrone.

5.1.3.2 Invasive species

While no species as listed on the Third schedule and thus subject to articles 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I number 477/2011) were found within the site boundary during the site visit, it is envisaged that the possibility of invasive species spread could occur as a result of the construction phase works. Thus as a precautionary measure it is considered that specific guidance and mitigation be followed so as not to proliferate any invasive species which could spread to other areas in the locality, creating a risk to local biodiversity.

Operational Phase Impacts

5.1.3.3 Habitat loss and fragmentation

The proximity of the proposed public realm works mean that very small areas of the plan encroach very slightly beyond the boundary of the SAC.

While there is a minor area of direct spatial overlap between the stie boundary and the project boundary, there is no direct habitat loss in that the area concerned is completely within the footprint of existing infrastructure – ie: concrete coastal steps, developed cliff-top gardens and access routes to the shoreline.

No part of the Proposed Development thus overlaps directly with any features of interest for which Killala Bay/Moy Estuary SAC and Killala Bay/Moy Estuary SPA are selected.

All components of the Proposed Development are restricted to public areas already used for amenity purposes at the coast, to include the cliff baths area and cliff walk with stepped concrete which extends to the sand flats.

5.1.3.4 Habitat degradation as a result of hydrological impacts

Mitigation measures are proposed to avoid and / or reduce these impacts and detailed in section 6.2 and 6.3 below.

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction, or operation, has the potential to affect water quality in the receiving aquatic environment. Such a pollution event may include: the release of sediment into receiving waters and the subsequent increase in mobilised suspended solids; and the accidental spillage and/or leaks of containments (*e.g.* fuel, oils, lubricants, paints, bituminous coatings, preservatives, weed killer, lime and concrete) into receiving waters. The associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the location of the accidental pollution event or the discharge. A reduction in water quality could have impacts for the quality of prey fish for the QI species associated with this site, and knock-on effects for their health. **Therefore, there is potential for the Proposed Scheme to result in significant effects** which could have implications for the conservation

objectives of as a result of hydrological impacts. Mitigation measures to avoid and reduce these impacts are thus proposed.

5.1.3.5 Habitat degradation as a result of increased human traffic

As stated in section 5.2.3.1 above, the ZoI of this project is considered to be the QI which occur in close proximity to the site of works and include:

i) Mudflats and sandflats not covered by seawater at low tide [1140]
ii) Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] and
iii) Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]

Of these habitats, the Fixed coastal dunes and the Shifting dunes along the shoreline (White dunes) are at risk of degradation due to increased footfall during the summer seasons.

5.1.3.6 Climate Change

Climate change predictions hold that increased storm frequency and sea level rise coupled with general temperature increases will act to change the assemblages of species and distribution of habitats. These factors require consideration in the context of the works at Enniscrone.

In relation to the two European sites under assessment, those elements which may be affected by climate change and which may also be affected by the proposed works are the dunes (Grey and White) along the Enniscrone beach which may be more susceptible to erosion. With increased footfall associated with the coastal activities at the development, this risk is further increased. Mitigation is proposed in section 6.7 to avoid and / or minimise these effects.

5.2 Killala Bay/ Moy Estuary SPA

5.2.1 *Ecological Baseline Description for Killala Bay/ Moy Estuary SPA*

According to the Natura 2000 Standard Data Form (NPWS, 2015), this SPA coastal site is a fine example of an estuarine system in a natural state. It supports an excellent diversity of wintering waterfowl and is one of the most important sites in the region. Six of the species have populations of national importance: *Limosa lapponica, Charadrius hiaticula, Pluvialis squatarola, Calidris alba, Calidris canutus and Calidris alpina. Pluvialis apricaria* also occurs in numbers close to national importance. There is a regular population of *Branta bernicla hrota* which in some winters exceeds the threshold for international importance. *Gavia stellata* is regular within the site.

The Qualifying Interests of Killala Bay/ Moy Estuary SPA, and the overall conservation objectives, are listed below in Table 5.4.

Table 5.4 Qualifying Interests of Killala Bay/ Moy Estuary SPA

Qualifying Interest(s)	Conservation Objective(s)
Killala Bay/ Moy Estuary SPA A137 Ringed Plover *Charadrius hiaticula* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A144 Sanderling *Calidris alba*	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA

Qualifying Interest(s)	Conservation Objective(s)
A149 Dunlin *Calidris alpina alpina* A157 Bar-tailed Godwit *Limosa lapponica* A160 Curlew *Numenius arquata* A162 Redshank *Tringa totanus* A999 Wetland and Waterbirds NPWS (2013) *Conservation Objectives:* Killala Bay/ Moy Estuary SPA . Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	

5.2.1.1 The site-specific conservation objectives document (NPWS 2015) sets out the attributes, measures and targets that define the favourable conservation condition of the qualifying interests within the European site. Affecting the conservation condition of the qualifying interests/special conservation interests is deemed to constitute an adverse effect on the integrity of a European site.

5.2.2 *Threats and Pressures*

The threats and pressures to the Qualifying Interests defined for Killala Bay/Moy Estuary SPA are defined according to the Natura 2000 Standard data form and shown below in table 5.5.

Table 5.5: Threats and Pressures recorded for Killala Bay/ Moy Estuary SPA

Threats and pressures (Code)	Threats and pressures	inside/outside of site [i|o|b]
F02.03	Fishing	i
A08	Fertilisation	o
E01	Human Habitation, Urbanisation	o
G01.02	Walking/Horseriding/ non-motorized vehicles	i

5.2.3 *Examination and Analysis of Potential Direct and Indirect Impacts*

The direct and/or indirect impacts by which the Proposed Scheme could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets supporting the conservation condition of the qualifying interests of Killala Bay/ Moy Estuary SPA, are:

- Habitat degradation as a result of hydrological impacts
- Disturbance and displacement impacts

5.2.3.1 Habitat degradation as a result of hydrological impacts

Construction phase impacts

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction, (or operation), has the potential to affect water quality in the receiving aquatic environment. Such a pollution event may include: the release of sediment into receiving waters and the subsequent increase in mobilised suspended solids; and the accidental spillage and/or leaks of containments (*e.g.* fuel, oils, lubricants, paints, bituminous coatings, preservatives, weed killer, lime and concrete) into receiving waters. The associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the location of the accidental pollution event or the discharge. A reduction in water quality could have impacts for the quality of prey fish for the QI species associated with this site, and knock-on effects for their health. Therefore, there is potential for the Proposed Scheme to result in significant effects which could have implications for the conservation objectives of Killala Bay/ Moy Estuary SPAas a result of hydrological impacts.

5.2.3.2 Disturbance and displacement impacts

A temporary and / or permanent increase in noise, vibration and / or human activity levels during the construction and / or operation of the proposed development could result in the disturbance to and / or displacement of SCI bird species present within footprint and / or the vicinity of the Proposed Scheme. Such disturbance effects would not be expected to extend beyond a distance of c. 300m, as noise levels associated with general construction activities would attenuate to close to background levels at that distance and beyond.

The use of large machinery and high traffic levels during the construction stage of works could amount to a level of disturbance for birds of the SPA which largely forage and roost on the sandflats in the vicinity, during the overwintering period (Nov – March).

While birds utilising this area are already accustomed to a high level of noise from traffic movement along the Cliff Road, noise from works traffic and excavations may incur another level of disturbance for these species.

According to the NPWS Waterbird Survey Report for Killala Bay /Moy Estuary SPA 2013 (NPWS 2013), the main SCI bird species using the site in the area around Enniscrone (ie: within the Disturbance ZoI) are Ringed Plover (both foraging and roosting) and Dunlin (Foraging) during the winter months.

Ringed Plover are known to frequent the sand flats close to Enniscrone, to overwinter and use the area for foraging and roosting in the area. As regards the population trends for Ringed Plover, following relatively stable numbers in the early seasons of I-WeBS, there was an increase to a peak in 2001, and numbers then declined. Although this has levelled off in recent years, numbers remain lower than those recorded in the mid to late 1990's. Nationally, numbers of Ringed Plover have shown a long-term trend for increase which contrasts to the trend for decrease found in Britain and Northern Ireland.

Dunlin were relatively widespread throughout the site during NPWS surveys, and were recorded in 18 subsites overall (16 during Low Tide surveys). The Dunlin diet is relatively wide and although this versatile species often shows a preference for muddier areas within sites (e.g. Hill et al. 1993; Santos et al. 2005), their distribution can often be widespread with no clear patterns.

Between 70% and 99% of Dunlins counted during low tide surveys were foraging and 14 subsites were used overall. Peak numbers were at Bartragh Island (South) and the adjacent Kilroe survey subsite. Two further large subsites behind Bartragh Island; and by Carrowkelly - one of the lower estuarine subsites of the Moy. Smaller numbers were observed at Enniscrone sandflats and all were foraging.

It is thus these two species – Ringed Plover and Dunlin, which are most likely to be impacted by disturbance effects resulting from construction activity at the proposed development.

Mitigation for construction phase impacts are proposed to avoid and /or reduce the impacts of the works noise and visual disturbance on the SCI species and is detailed in section 6.

Operational phase impacts

5.2.3.1 Habitat degradation as a result of hydrological impacts

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction, (or operation), has the potential to affect water quality in the receiving aquatic environment. However, operational on site drainage will include the wastewater connection to public mains and surface water/overland flow will be to the public surface water drainage network. There is thus no significant additional risk posed as a result of the new development from an operational perspective.

5.2.3.1 Disturbance and displacement impacts

Human traffic is also pronounced in this area as both locals and tourists utilise the beach and also the walk along Cliff Road. Housing, commercial developments, a 1m high wall and an extensive beach area exist in the intervening distance between the SPA and the Proposed Development site.

Due to the difference in seasonal utilisation of the seafront by humans (spring and summer) and SCI birds (overwintering), and It is unlikely that the operational effects of the project will disturb SCI birds of the nearby Killala Bay/Moy Estuary SPA. However, the development design has included some consideration for visual disturbance and may be regarded as mitigation (to include screening through walls/vegetation /landscaping) to reduce the visual impact of the development for birds. Guidance on behavioural actions which may also benefit the bird species of the SPA is also proposed.
Mitigation is outlined in section 6 below.

Finally, if disturbance events do occur, it is considered that there is ample alternative foraging in the vicinity outside the disturbance ZoI to which birds could go within the SPA site so as to ensure no population level effect for these species.

5.3 Summary

To summarize, the potential effects of the proposed works are related to hydrological degradation and disturbance impacts associated respectively with runoff from the site area and with site noise and visual impacts, chiefly during the construction phase of the development.

Potential impacts identified are the degradation of water quality and subsequent negative effects on prey species on the qualifying interests of Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA, and disturbance of roosting /foraging wader species.

6 Mitigation

Tables 6.1 and , 6.2 below describe the potential impacts of the Proposed Scheme on the qualifying interests and conservation objectives of Killala Bay/ Moy Estuary SAC, and Killala Bay/ Moy Estuary SPA respectively, and indicate where mitigation measures if any, should be applied to avoid or reduce impacts on these sites.

A full description of those measures are provided in the subsequent sections 6.1, to 6.6.

The following section describes the potential impacts on the conservation objectives of each of the sites in question and outlines the mitigation measures proposed to avoid and reduce impacts on those sites, such that the residual effect is reduced to 'insignificant'.

Table 6.1 Potential impacts and proposed mitigation for Killala Bay / Moy Estuary SAC [000458]

Killala Bay / Moy Estuary SAC [000458]			
Narrow Mouthed Whorl Snail [1014] To maintain the favourable conservation condition of the Narrow-mouthed Whorl Snail in the SAC, which is defined as follows:			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Habitat area / Hectares / The Optimal & Suboptimal habitat area is stable or increasing, at 1.465ha	None predicted. Not within the ZoI of the Proposed development	N/A	No
Habitat distribution/ Occupied sites/ Distribution is stable or increasing, (no decline)			
Presence on transect/ Occurrence/ Adults/Subadults present in at least 3 places			
Abundance/ Number per sample/ At least 2 samples on transect have more than 10 snails			
Transect habitat quality /Metres /More than 50m of habitat on transect is as optimal or sub-optimal			
Transect optimal wetness/ Metres/ Soils are of optimal wetness and with a layer of humid thatch for more than 50m along transect			
Sea Lamprey *Petromyzon marinus* [1095] To maintain the favourable conservation condition of **Sea Lamprey in Killala Bay/Moy Estuary SAC**, which is defined as follows:			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Distribution: extent of anadromy /% of estuary accessible/ No barriers	None predicted. Not within the ZoI of the Proposed development	N/A	No

Population structure of juveniles/ Number of age-size groups/ At least three age-size groups present Juvenile density in fine sediment Juveniles/m² Juvenile density at least 1/m²		The mitigation measures described in Section 6.3 to protect water quality in the receiving environment will ensure that surface water quality in Killala Bay is protected during construction and operation of the Proposed Scheme.	
1140 Mudflats and sandflats not covered by seawater at low tide To maintain the favourable conservation condition of **the 1140 habitat in Killala Bay/Moy Estuary SAC**, which is defined as follows:			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Habitat area / Hectares / The permanent habitat area is stable or increasing Community Extent/ Hectares/ Maintain the extent of the *Zostera*-dominated community Community structure: *Zostera* density/ Shoots per M2/ Conserve the high quality of the *Zostera*-dominated community	Yes An accidental pollution event during construction or operation could affect surface water downstream in Killala Bay. An accidental pollution event of a sufficient magnitude, either along or cumulatively with other pollution	Yes The mitigation measures described in Sections 6.2 and 6.3 to protect water quality in the receiving environment will ensure that surface water quality in Killala Bay is protected during construction	No

Community Distribution/ Hectares/ Conserve the following community types in a natural condition: Muddy sand to fine sand dominated by *Hydrobia ulvae, Pygospio elegans* and *Tubificoides benedii* community complex; Estuarine muddy sand dominated by *Hediste diversicolor* and *Heterochaeta costata* community complex and Fine sand dominated by *Nephtys cirrosa* community complex.	sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of intertidal/coastal habitats. The area closest to the development is sandflat habitat dominated by Nephtys community complex. For the reasons outlined in section 5, no significant impacts are foreseen but mitigation measures are proposed from a precautionary standpoint.	and operation of the Proposed Scheme.	
1130 Estuaries To maintain the favourable conservation condition of **the 1130 Estuarine habitat in Killala Bay/Moy Estuary SAC**			
Habitat area / Hectares / The permanent habitat area is stable or increasing	Yes An accidental pollution event during construction or operation could affect surface water downstream in Killala Bay. An accidental pollution event of a sufficient magnitude, either along or cumulatively with other pollution sources, could potentially affect the quality (vegetation structure and composition) and area/distribution of intertidal/coastal habitats. The area closest to the development is sandflat habitat dominated by Nephtys community complex. For the reasons outlined in section 5, no significant impacts are foreseen but mitigation measures are proposed from a precautionary standpoint.	Yes The mitigation measures described in Sections 6.2 and 6.3 to protect water quality in the receiving environment will ensure that surface water quality in Killala Bay is protected during construction and operation of the Proposed Scheme.	
Community Extent/ Hectares/ Maintain the extent of the *Zostera*-dominated community			
Community structure: *Zostera* density/ Shoots per M2/ Conserve the high quality of the *Zostera*-dominated community			
Community Distribution/ Hectares/ Conserve the following community types in a natural condition: Muddy sand to fine sand dominated by *Hydrobia ulvae, Pygospio elegans* and *Tubificoides benedii* community complex; Estuarine muddy sand dominated by *Hediste diversicolor* and *Heterochaeta costata* community complex and Fine sand dominated by *Nephtys cirrosa* community complex.			
1210 Annual vegetation of drift lines **To maintain the favourable conservation condition of Annual vegetation of drift lines in Killala Bay/Moy Estuary SAC**			

Habitat Area/ Hectare) Area stable or increasing	None predicted. Not within the ZoI of the Proposed development	N/A	No
Habitat Distribution / Ocurrence / No Decline or change in habitat distribution			
Physical structure: functionality and sediment supply /Presence and absence of physical barriers/ Maintain the natural circulation of sediment and organic matter			
Vegetation structure: zonation /Occurrence /Maintain the range of coastal habitats including transitional zones			
Vegetation composition: typical species and sub-communities /Percentage cover / Maintain the presence of species-poor communities with typical species: sea rocket (*Cakile maritima*), sea sandwort (*Honckenya peploides*), prickly saltwort (*Salsola kali*) and Orache (*Atriplex* spp.)			
Vegetation composition: negative indicator species /Percentage cover/ Negative indicator species (including non-natives) to represent less than 5% cover			
1310 Salicornia and other annuals colonizing mud and sand **To maintain the favourable conservation condition of *Salicornia* and other annuals colonizing mud and sand in Killala Bay/Moy Estuary SAC**			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Habitat area /Hectares/ Area stable or increasing (Bartragh island and Ross)	None predicted. Not within the ZoI of the Proposed development	N/A	No
Habitat distribution/ Occurrence/ No decline or change in habitat distibution			
Physical structure: sediment supply /Presence or absence of physical barriers/ Maintain natural circulation of sediments and organic matter			

Physical structure: creeks and pans/ Ha flooded & frequency / Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: Flooding regime /Presence or absence of physical barriers/ Maintain natural tidal regime			
Vegetation structure: vegetation height/ Centimeters /Maintain structural variation within sward			
Vegetation structure: vegetation cover/ Percentage cover/ Maintain more than 90% of the area outside of the creeks vegetated			
Vegetation composition: typical species & sub-communities/ Percentage cover/ Maintain the presence of species-poor communities with typical species listed in the Saltmarsh Monitoring Project (2009)			
Vegetation structure: negative indicator species- *Spartina anglica* /Hectares/ No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%			
1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) **To maintain the favourable conservation condition of Atlantic salt meadows (*Glauco- Puccinellietalia*) in Killala Bay/Moy Estuary SAC, which is defined by the following :**			
Habitat area Hectares Area stable or increasing,	None predicted. Not within the ZoI of the Proposed development	N/A	No
Habitat distribution Occurrence No decline,			
Physical structure: sediment supply /Presence and absence of physical barriers/ Maintain natural circulation of sediments and organic matter			
Physical structure: creeks and pans /Occurrence/ Maintain creek and pan Structure or allow to develop, subject to natural processes			
Physical structure: flooding regime Hectares flooded; /frequency/ Maintain natural tidal regime			
Vegetation structure: zonation /Occurrence /Maintain the range of coastal habitats including transitional zones			
Vegetation structure: vegetation height/ Centimeters /Maintain structural variation within sward			

Vegetation structure: vegetation cover /Percentage cover/ Maintain more than 90% of the area outside of the creeks vegetated			
Vegetation composition: typical species and sub-communities /Percentage cover / Maintain range of subcommunities with typical species listed in Saltmarsh Monitoring Project			
Vegetation structure: negative indicator species- *Spartina anglica*/ Hectares /No significant expansion			
1365 Harbour Seal *Phoca vitulina* **To maintain the favourable conservation condition of Harbour Seal in Killala Bay/Moy Estuary as defined by the following:**			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Access to suitable habitat /Number of artificial barriers/ Species range within the site should not be restricted by artificial barriers	None predicted. Not within the ZoI of the Proposed development	N/A	No
Breeding behaviour /Breeding sites/ Conserve the breeding sites in a natural condition.			
Moulting behaviour/Moult haul-out sites/ Conserve the moult haul-out sites in a natural condition.			
Resting behaviour/ Resting haul-out sites /Conserve the resting haul-out sites in a natural condition			
Disturbance /Level of impact/ Human activities should occur at levels that do not adversely affect the harbour seal population			
2110 Embryonic shifting dunes **To restore the favourable conservation condition of Embryonic shifting dunes in Killala Bay/Moy Estuary SAC as defined by the following:**			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Habitat area/ Hectares/ Area increasing	This habitat is not within the footprint of the works. However, there is a slight risk		No
Habitat distribution /Occurrence/ No decline			

Physical structure: functionality and sediment supply/ Presence or absence of physical barriers /Maintain the natural circulation of sediment and organic matter	of invasive plant species introduction during site works. Operational phase: The increased summer population which may occur as a result of the proposed development is a risk to the health of the Dune system in general and may result in trampling and accelerated erosion of the dunes.	Mitigation for invasive species risk management and biosecurity is proposed in section 6.8 Mitigation around landscaping design, dune management and public awareness is proposed in Section 6.7	
Vegetation structure: zonation /Occurrence/ Maintain the range of coastal habitats			
Vegetation composition: plant health of foredune grasses/ Percentage cover/ More than 95% of sand couch (*Elytrigia juncea*) and/or lymegrass (*Leymus arenarius*) should be healthy			
Vegetation composition: typical species and sub-communities/Percentage cover / Maintain presence of species-poor communities with typical species: sand couch (*Elytrigia juncea*) and/or lyme-grass (*Leymus arenarius*)			
Vegetation composition: negative indicator species /Percentage cover/ Negative indicator species (including non-natives) to represent less than 5% cover			
2120 Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')			
Habitat area/ Hectares/ Area increasing	This habitat is not within the footprint of the works. However, there is a slight risk of invasive plant species introduction during site works. Operational phase: The increased summer population which may occur as a result of the proposed development is a risk to the health of the Dune system in general and may result in trampling and accelerated erosion of the dunes.	Mitigation for invasive species risk management and biosecurity is proposed in section 6.8 Mitigation around landscaping design, dune management and public awareness is proposed in Section 6.7	No
Habitat distribution /Occurrence/ No decline			
Physical structure: functionality and sediment supply/ Presence or absence of physical barriers /Maintain the natural circulation of sediment and organic matter			
Vegetation structure: zonation /Occurrence/ Maintain the range of coastal habitats			
Vegetation composition: plant health of dune grasses/ Percentage cover/ More than 95% of marram (*Ammophila arenaria*) and/or lyme-grass (*Leymus arenarius*) should be healthy			
Vegetation composition: typical species and sub-communities/Percentage cover / Maintain presence of species-poor communities with typical species: marram (*Ammophila areanaria*) and/or lyme-grass (*Leymus arenarius*)			

Vegetation composition: negative indicator species /Percentage cover /Negative indicator species (including non-natives) to represent less than 5% cover			
2130 *Fixed coastal dunes with herbaceous vegetation ('grey dunes') **To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes) in Killala Bay/Moy Estuary SAC**			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Habitat area/ Hectares/ Area increasing	This habitat is not within the footprint of the works. However, there is a slight risk of invasive plant species introduction during site works. Operational phase: The increased summer population which may occur as a result of the proposed development is a risk to the health of the Dune system in general and may result in trampling and accelerated erosion of the dunes.	Mitigation for invasive species risk management and biosecurity is proposed in section 6.8 Mitigation around landscaping design, dune management and public awareness is proposed in Section 6.7	No
Habitat distribution /Occurrence/ No decline			
Physical structure: functionality and sediment supply/ Presence or absence of physical barriers /Maintain the natural circulation of sediment and organic matter			
Vegetation structure: zonation /Occurrence/ Maintain the range of coastal habitats			
Vegetation composition: plant health of dune grasses/ Percentage cover/ More than 95% of marram (*Ammophila arenaria*) and/or lyme-grass (*Leymus arenarius*) should be healthy			
Vegetation Structure: Bare Ground/Percentage cover / Bare ground should not exceed 10% of fixed dune habitat,			
Vegetation composition: Sward Height /centimetres /Maintain structural variation within sward.			
Vegetation composition: typical species and sub-communities /Percentage cover /Maintain range of subcommunities with typical species			
Vegetation composition: negative indicator species (including *Hippophae rhamnoides*) Percentage cover Negative indicator species (including non-natives) to represent less than 5% cover			
Vegetation composition: scrub &trees /Percentage cover/ No more than 5% cover or under control			

2190 Humid dune slacks **To maintain the favourable conservation condition of Humid dune slacks in Killala Bay/Moy Estuary SAC, which is defined as follows:**			
Habitat area/ Hectares/ Area increasing	Not within ZoI range	N/A	No
Habitat distribution /Occurrence/ No decline			
Physical structure: functionality and sediment supply/ Presence or absence of physical barriers /Maintain the natural circulation of sediment and organic matter			
Vegetation structure: zonation /Occurrence/ Maintain the range of coastal habitats			
Vegetation composition: plant health of dune grasses/ Percentage cover/ More than 95% of marram (*Ammophila arenaria*) and/or lyme-grass (*Leymus arenarius*) should be healthy			
Vegetation Structure: Bare Ground/Percentage cover / Bare ground should not exceed 10% of fixed dune habitat,			
Vegetation composition: Sward Height /centimetres /Maintain structural variation within sward.			
Vegetation composition: typical species and sub-communities /Percentage cover Maintain range of subcommunities with typical species			
Vegetation composition: cover of S. repens % cover; centimeters Maintain more than 40% cover of creeping willow (*Salix repens*)			
Vegetation composition: negative indicator species /Percentage cover /Negative indicator species (including non-natives) to represent less than 5% cover			
Vegetation composition: scrub & trees /Percentage cover/ No more than 5% cover or under control			

Table 6.2 Potential impacts and proposed mitigation for Killala Bay/ Moy Estuary SPA

Killala Bay/ Moy Estuary SPA			
A137 Ringed Plover (*Charadrius hiaticula)* **A140 Golden Plover *(Pluvialis apricaria)*** **A141 Grey Plover (*Pluvialis squatarola)*** **A144 Sanderling *(Calidris alba)*** **A149 Dunlin (*Calidris alpina alpina*)** **A157 Bar-tailed Godwit *(Limosa lapponica)*** **A160 Curlew *(Numenius arquata)*** **A162 Redshank *(Tringa tetanus)*** The site-specific conservation objectives document for these Qualifying Interest of Killala Bay / Moy Estuary SPA and their Attributes/ Measures and Targets are listed below			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Population trend /Percentage change /Long term population trend stable or increasing	Yes An accidental pollution event during construction or operation could affect	Yes The mitigation measures described in Sections 6.2, 6.3 and 6.4 to protect	None

Distribution /Range, timing and intensity of use of areas/ No significant decrease in the range, timing and intensity of use of areas by qualifying interest, other than that occurring from natural patterns of variation	surface water downstream in Killala Bay. An accidental pollution event of a sufficient magnitude, either along or cumulatively with other pollution sources, could potentially affect the quantity and quality of prey fish species and the quality and suitability of roosting sites within the SPA. Additionally, disturbance to bird species designated as QIs to this site may experience increased levels of disturbance during Construction and Operational phase of work.	water quality in the receiving environment will ensure that surface water quality in Killala Bay is protected during construction and operation of the Proposed Scheme. The mitigation measures described in section 6.6 are proposed to reduce Disturbance to SCI bird species during 1 Construction and 2. Operational phases.	
A999 Wetlands To maintain the favourable conservation condition of wetland habitat in Killala Bay/Moy Estuary SPA as a resource for the regularly occurring migratory waterbirds that utilise it. This is defined along with potential impact on this Qualifying Interest, as follows:			
Habitat area /Hectares / The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 3204 hectares, other than that occurring from natural patterns of variation	Yes An accidental pollution event during construction or operation could affect surface water downstream in Killala Bay. An accidental pollution event of a sufficient magnitude, either along or cumulatively with other pollution sources, could potentially affect the quantity and quality of prey fish species and the quality and suitability of roosting sites within the SPA.	Yes The mitigation measures described in Section 6.3 to protect water quality in the receiving environment will ensure that surface water quality in Killala Bay is protected during construction and operation of the Proposed Scheme.	No

6.2 Mitigation Measures

This section presents the mitigation measures that will be implemented during construction and operation to avoid or reduce the potential impacts of the Proposed Scheme on Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA. All of the mitigation measures will be implemented in full and are best practice, and tried and tested, effective control measures to protect the receiving environment.

In advance of commencement of works, it is important that a briefing / toolbox talk is provided to the works operatives by an Ecological Clerk of Works, so that areas of ecological sensitivity are highlighted, and all staff are made aware of the possible on-the-ground impacts of works and the advised mitigation approaches for each.

6.3 General Measures to Protect Surface Waters during Construction

- The construction contractor will be required to implement the following specific mitigation measures as a condition if granted, for release of hydrocarbons, polluting chemicals, sediment/silt and contaminated waters control:
- Specific measures to prevent the release of sediment in the nearby water environment, during the works. These measures include, but are not limited to, the use of silt fences, silt curtains, settlement lagoons and filter materials (See further details in section 6.3 below).
- Site compound should not be located near the coast, and with no pathway of connectivity to it or any surface water / drains nearby.
- Provision of exclusion zones and barriers (*e.g.* silt fences) between earthworks, stockpiles and temporary surfaces to prevent sediment washing into the existing drainage systems and hence the downstream receiving water environment.
- Provision of temporary construction surface drainage and sediment control measures to be in place before earthworks commence.
- Weather conditions will be taken into account when planning construction activities to minimise risk of run-off from the site.
- Prevailing weather and environmental conditions will be taken into account prior to the pouring of cementitious materials for the works adjacent to any surface water drainage features, or drainage features connected to same. Mixer washings and excess concrete will not be discharged to existing surface water drainage systems. Concrete washout areas will be located remote any surface water drainage features to avoid accidental discharge to watercourses.
- Any fuels or chemicals (including hydrocarbons or any polluting chemicals) will be stored in a designated, secure bunded area(s) to prevent any seepage of potential pollutants into the local surface water network. These designated areas will be clearly sign-posted and all personnel on site will be made aware of their locations and associated risks.
- All mobile fuel bowsers shall have a spill kit and all operatives must have spill response training. Fuel containing equipment such as portable generators shall be placed on drip trays. All fuels and chemicals required to be stored on-site will be clearly marked. Care and attention will be taken during refuelling and maintenance operations. Particular attention will be paid to gradient and ground conditions, which could increase risk of discharge to waters.

- A register of all hazardous substances, which will either be used on site or expected to be present (in the form of soil and/or groundwater contamination) will be established and maintained. This register will be available at all times and shall include as a minimum:
  - Valid Safety Data Sheets;
  - Health & Safety, Environmental controls to be implemented when storing, handling, using and in the event of spillage of materials;
  - Emergency response procedures/precautions for each material; and,
  - The Personal Protective Equipment (PPE) required when using the material.
- Implementation of response measures to potential pollution incidents.
- Robust and appropriate Spill Response Plan and Environmental Emergency Plan will be prepared prior to works commencing and they will be communicated, resourced and implemented for the duration of the works. Emergency procedures/precautions and spillage kits will be available and construction staff will be trained and experienced in emergency procedures in the event of accidental fuel spillages.
- All trucks will have a built-on tarpaulin that will cover excavated material as it is being hauled off-site and wheel wash facilities will be provided at site access point(s).
- The removal of any made ground material, which may be contaminated, from the site compounds and transportation to an appropriate licenced facility shall be carried out in accordance with the Waste Management Act, best practice and guidelines for same.
- Implementation of measures to minimise waste and ensure correct handling, storage and disposal of waste (most notably wet concrete, pile arisings and asphalt).
- All of the above measures implemented on site will be monitored throughout the duration of construction to ensure that they are working effectively, to implement maintenance measures if required/applicable and to address any potential issues that may arise.

6.4 Specific Measures to prevent contaminant runoff to coastal waters droning Construction

Since the proposed site is located in an elevated position above the coast, and the slope along the garden to the coastal alleyway and littoral zone represents a conduit for runoff of soils, silt and cementitious materials to the sea. This must be prevented at all times and measures put in place to ensure the minimization of runoff to the coast, especially during wet weather:

- **An Ecological Clerk of Works** shall be present on site during construction phase works to ensure that all mitigation measures proposed are fully and effectively implemented. Timing of visits will be agreed with the Heritage officer at Sligo County Council.
- Silt curtains shall be put in place - using the correct installation methodology, to ensure that no flow paths exists between the works area and the watercourse. (see figure 6.1 below).

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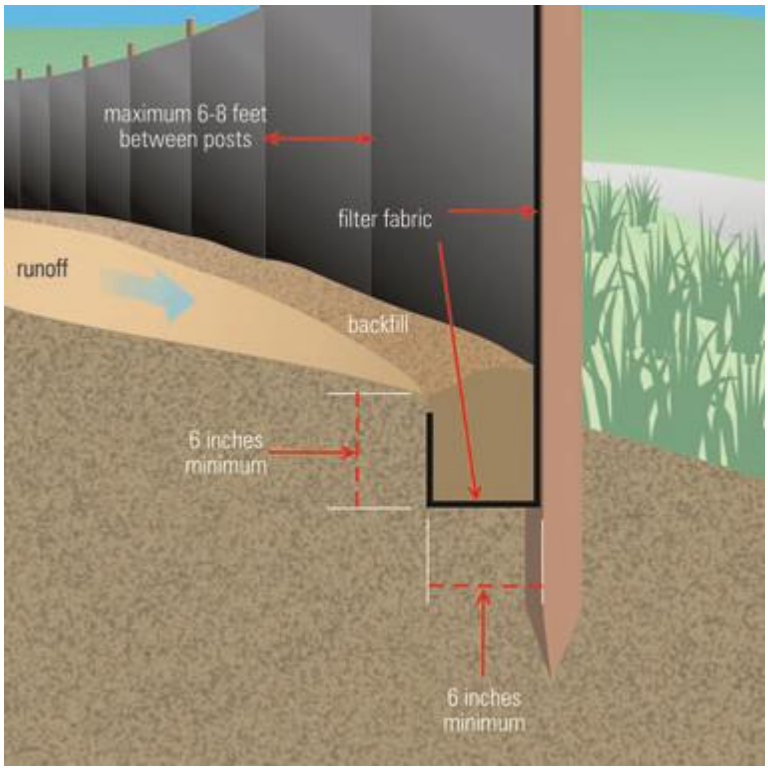

Figure 6.1. Schematic of silt fencing arrangement for site perimeter

- Any bare earth shall be covered outside active works timings to prevent rainfall induced silt mobilization.
- Disturbed areas of ground shall be kept to an absolute minimum within the site, and covered with geotextile, re-seeded or re-surfaced as per plans, as soon as possible following disturbance.
- A minimum buffer strip of vegetation of 5 metres should be kept between works and the waterbody to minimize the risk of sediment delivery.
- Monitor the effectiveness of the installed sediment control measures to ensure they are working adequately
- Ensure increased sediment levels are not generated when removing the sediment control measure
- Manage wheel washing of transport effectively;
- Retain a buffer of vegetation near the coastline to ensure no increase in sediment mobilization to the sea;
- Weather conditions: Avoid working during wet weather. Dry weather will enable the safe installation and management of sediment management apparatus and isolating works such as silt curtains are easier to manage during dry weather;
- The release of suspended solids should be minimised during works;

6.5 Measures to reduce impacts due to Operational runoff

Mitigation often requires physical action to prevent impact on habitats or species In this case the following is proposed:

- Stormwater design to distribute the rainwater across the site to closely mimic the hydrology before the development.
- Stormwater from the paved carpark to pass through a class 1 petrol interceptor before being discharged to soakaway trenches on site.

6.6 Measures to reduce Disturbance to SCI bird species

While the fact that seasonal differences in timing will shield most overwintering birds from disturbance effects, the following may help to further mitigate SCI birds from activity within overlooking coastal development.

Construction phase mitigation:

- Limit construction works to March to September seasons and do not undertake site works during the winter months.

Operational Phase mitigation:

- The use of Educative signage with explainers around off-leash dog walking may help reduce contact with SCI bird species
- The design of the development to be sympathetically undertaken, with areas of planted screening to limit the exposure of foraging waders to human activity.

6.7 Measures to protect Dune habitats at Enniscrone beach

- The project landscaping plan is sympathetically designed with no incursion into any Dune habitat and inclusion of native grass and wildflower species to reduce the risk of non-native plants in or near the dunes.
- **Suggestion of the creation of no-go areas within the Dune system at Enniscrone beach to limit footfall preserve the native vegetation and habitat for nesting birds and other species. This may be particularly pertinent in the scenario of increased erosion possibilities due to climate change and increased storm frequency.**

6.8 Measures to reduce the risk of introduction of invasive species

The presence of invasive non-native plants near or within the works areas may be addressed using the following hierarchical approach:

1. Check
2. Avoid

3. Control
4. Treatment / Removal

Checks and Avoidance

- Following the procedural hierarchy noted above, new checks by the ECoW in advance of entry of machinery to any of the sites, should be carried to confirm status of invasive non-native species in that area and to ensure no new growth.
- Depending on the proximity of the invasive non-native species close to the works site, it may be possible to avoid the area of infestation by isolating with bunding and ensuring a 7 metre exclusion zone.
- Works areas using the avoidance technique should also implement geotextile matting to isolate the soil from any machinery and thus reduce the risk of contamination with the soil based seed bank or plant fragments.
- Ensure all machinery and equipment is washed down with a power washer to ensure removal of all organic plant and soil matter before leaving site.
- All machinery used at other sites must undergo invasive species checks and washdown procedures before entering the Enniscrone works site.

- **Ensure that all PPE and clothing including footwear is washed down and all organic material removed prior to leaving site.**

6.9 In-Combination Effects

In addition to a review of current planning applications in progress or granted in the general area of the proposed development, the environmental protective policies and objectives set out in the Sligo County Development Plan 2017-2023 set out the protection of European sites (policy P-NH1 to P-NH4) its coastal zone tourism policies (P-CZT-1, P-CZT-1, P-CZT-3) and the planning of recreational amenities (P- OR-14) and the protection of County Sligo's surface waters (SWW 1 to SWW8).

Land use plans for the other local authorities (e.g. Mayo County Council) whose functional areas include surface water features which drain to the Moy Estuary / Killala Bay area, were examined and it was found that those land use plans also include protective environmental policies to protect European sites and the receiving surface water environments.

6.10 Conclusion of In Combination Assessment

As the proposed development itself will not have any effects on the conservation objectives of any European sites, and considering the protective environmental policies and objectives in the Sligo County Development Plan 2017 – 2023, and more widely across other land use plans that seek to protect European Sites, Natural Heritage and surface water quality in the catchments that drain to the Moy Estuary, there is no potential for any other plan or project to adversely affect the integrity of any European sites in combination with the proposed development.

6.11 Residual Impacts

With the implementation of the mitigation measures outlined in Sections 6.2 to Section 6.6, the Proposed Scheme poses no significant risk of affecting the conservation objectives, or the favourable conservation condition, of the qualifying interests of Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy

Estuary SPA, and there are therefore, no residual direct or indirect impacts associated with the Proposed Scheme that could adversely affect the integrity of Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA.

7 Conclusion of Assessment for Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA

Following an examination, analysis and evaluation in light of best scientific knowledge, of all relevant information in respect of the qualifying interests of the two European sites within the Zone of Influence namely Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA, the potential impacts, the proposed mitigation measures, and whether or not the predicted impacts would affect the conservation objectives that support the conservation condition of the qualifying interests, it has been concluded that the Proposed Scheme does not pose a risk of adversely affecting (either directly or indirectly) the integrity of Killala Bay/ Moy Estuary SAC and Killala Bay/ Moy Estuary SPA.

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European Commmision (2019) *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC*

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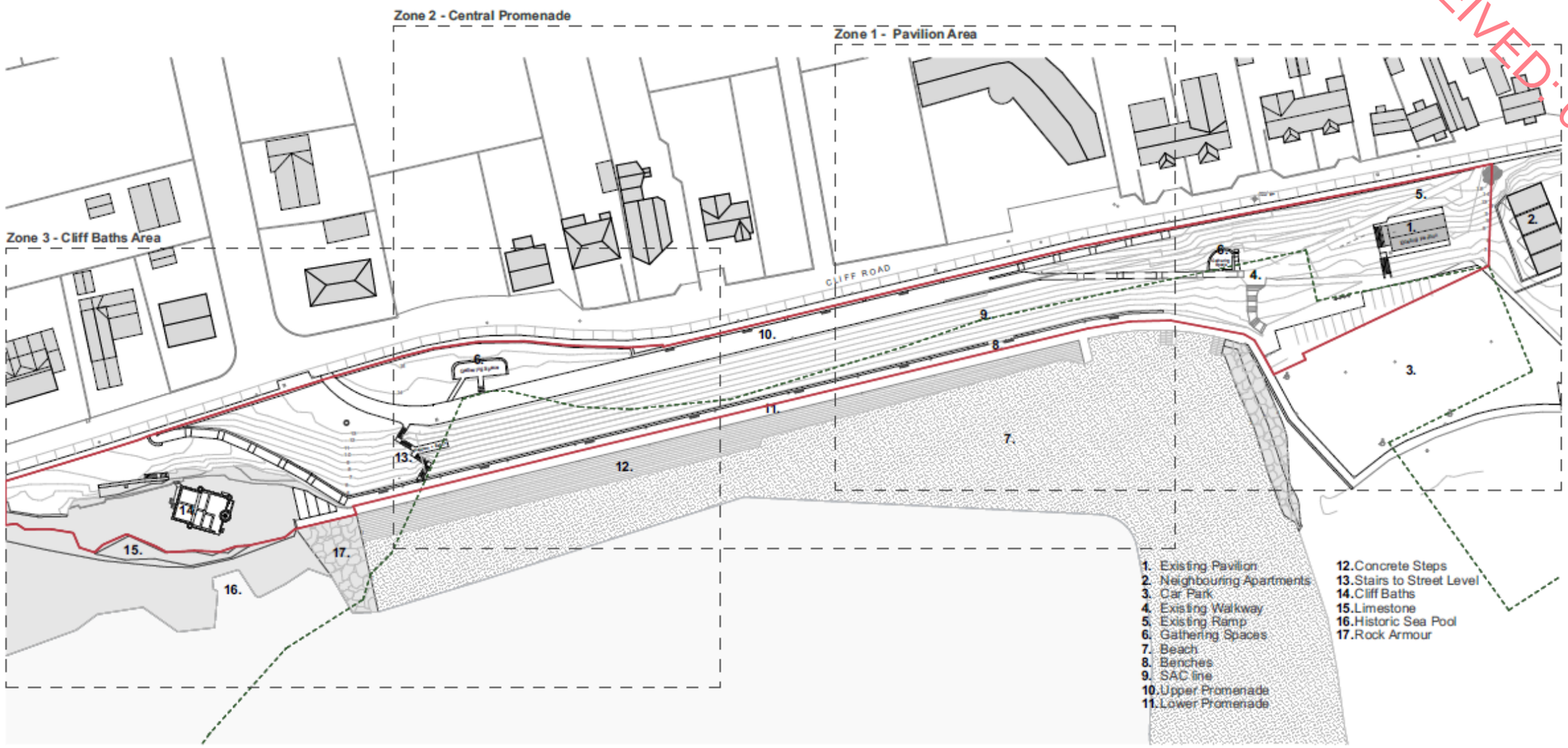
NPWS (2013) *Natura 2000 – Conservation Objectives. Killala Bay/ Moy Estuary SPA.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2020) *Natura 2000 – Standard Data Form. Killala Bay/ Moy Estuary SAC.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2020) *Natura 2000 – Standard Data Form. Killala Bay/ Moy Estuary SPA.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Appendix A Habitat Map

Appendix B Site Layout Plan



Existing Site Layout Plan
Scale 1:1,000

0 15 30 M

N

NOTE:
Do not scale from this drawing. Any discrepancies to be reported to the architect.
All dimensions will be taken on site prior to ordering and construction.
Copyright remains with the architect.
This drawing is to be read in conjunction with the specification and all other relevant drawings.

NOTES:
SAC Boundary
Site Boundary
Site Ownership
Overhead Power Lines
Areas to be removed/demolished

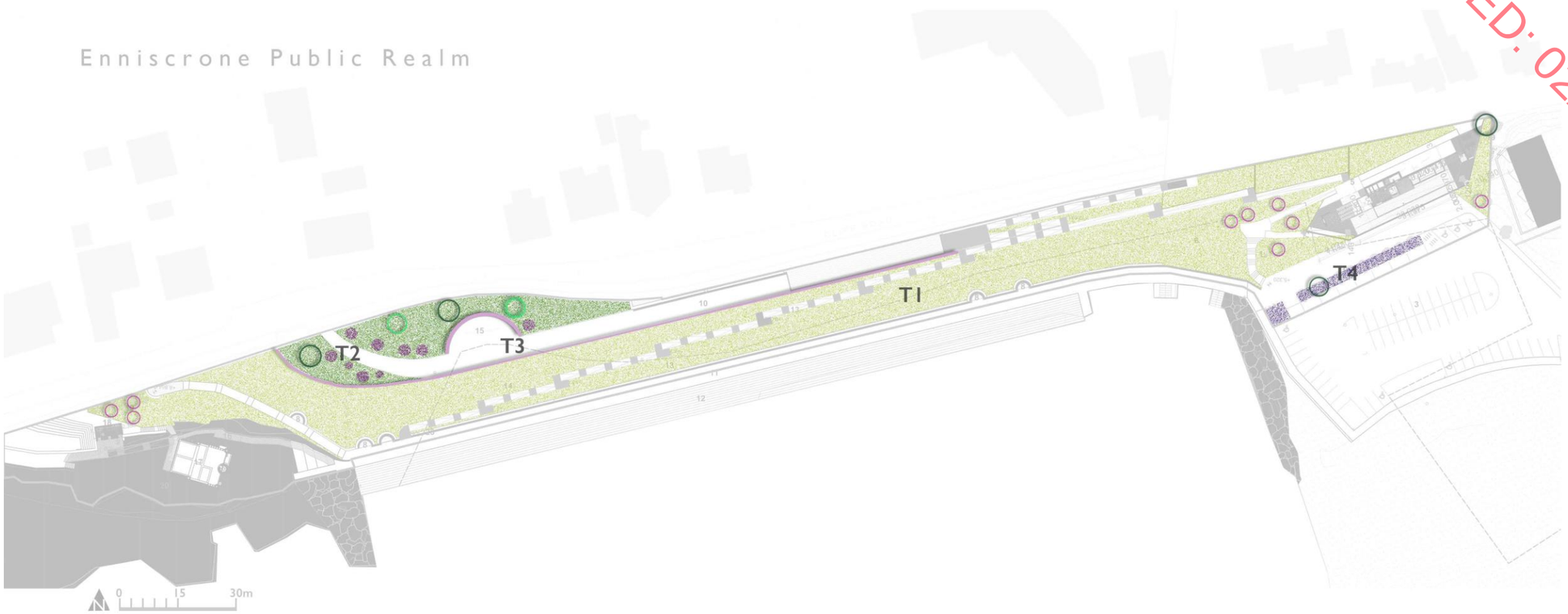
PROJECT: Enniscrone Public Realm
DRAWING TITLE: Existing Site Layout Plan
STAGE: Planning
DATE: 07/09/2022

REVISIONS:

SCALE:	DRAWING NUMBER:	DRAWN:	REVISION:
1:1000 @ A3	2001_P1.02	BC CHECKED: EC	*

NOLI ARCHITECTS

Appendix C Landscaping Plan



T1
Wild Grasses
Description: Preserve native planting on the Grey Dunes. The proposed plant assemblage for the T1 zone within the proposed development includes only native species (grasses and wildflowers/ perennials), which will not pose any risk for invasives spread to nearby ecosystems'.

T2
The Garden
Description: New Selected Herbaceous Perennial Beds in circular Corten steel beds. Planting will be coastal hardy, a combination of native & non-native species, of both the grey dune & Victorian plant styles, offering seasonal interest and adding to biodiveristy of the Garden.

T3
The Evergreen Hedges A & B
Description: New Coastal Hardy evergreen hedging will be planted in the seating area of The Garden
Quercus Ilex
Description: New linear mixed native hedge to be planted along the sea side of the Promenade

T4
The Linear Planter to Plaza Area
Description: New Selected Herbaceous Perennial planting in Linear Corten steel beds. Planting to be coastal hardy, a combination of native and non-native species, of the local coastline and further afield, offering seasonal interest and a sense of movement on the edge of the site.

Trees
Landmark Trees
Selected Trees

Project Title:	Drawing Title:	Drawing No:	Scale:	Date:	Revisions:	Drawn By:
Enniscrone Public Realm	Landscape Site Layout Plan	1122	A3 1000	10/22		GNC

Gillian Ni Chaiside
0863874976
Gillian@faoinaer.com

Faoin Aer
Landscape Studio

Appendix D Natura 2000 Site Data Forms

Database release: End2021 --- 06/10/2022

SDF

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **IE0000458**

SITENAME **Killala Bay/Moy Estuary SAC**

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Print Standard Data Form

1. SITE IDENTIFICATION

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1.1 Type

B

1.2 Site code

IE0000458

1.3 Site name

Killala Bay/Moy Estuary SAC

1.4 First Compilation date

1999-10

1.5 Update date

2020-10

1.6 Respondent:

Name/Organisation:	National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht
Address:	

Email:	datadelivery@chg.gov.ie

1.7 Site indication and designation / classification dates

Date site proposed as SCI:	1999-10
Date site confirmed as SCI:	No information provided
Date site designated as SAC:	2020-03
National legal reference of SAC designation:	117/2020

2. SITE LOCATION

Back to top

2.1 Site-centre location [decimal degrees]:

Longitude:	-9.164044
Latitude:	54.204561

2.2 Area [ha]

2187.7330

2.3 Marine area [%]

82.0410

2.4 Sitelength [km] (optional):

No information provided

2.5 Administrative region code and name

NUTS level 2 code	Region Name
IE01	Border, Midland and Western
IE01	Border, Midland and Western

2.6 Biogeographical Region(s)

Atlantic	(0.00 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
1130			736.944	0.00	M	A	B	A	A
1140			1332.34	0.00	M	B	B	B	B
1210			0.5817	0.00	M	C	C	B	B
1230			27.35	0.00	G	A	C	A	A
1310			0.545	0.00	M	B	C	B	B
1330			50.367	0.00	M	B	C	B	B
2110			1.5552	0.00	M	B	C	B	B
2120			12.7521	0.00	M	B	B	B	B
2130			259.452	0.00	M	B	B	B	B
2190			5.0879	0.00	M	B	C	B	B

PF: for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.

NP: in case that a habitat type no longer exists in the site enter: x (optional)

Cover: decimal values can be entered

Caves: for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.

Data quality: G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
B	A052	Anas crecca			w	31	31	i		G	C	B	C	C
B	A050	Anas penelope			w	270	270	i		G	C	B	C	C
B	A053	Anas platyrhynchos			w	45	45	i		G	C	B	C	C
B	A169	Arenaria interpres			w	24	24	i		G	C	B	C	C
B	A046	Branta bernicla			w	166	166	i		G	C	B	C	B
B	A144	Calidris alba			w	135	135	i		G	B	A	C	A
B	A149	Calidris alpina			w	1816	1816	i		G	C	A	C	B

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
B	A143	Calidris canutus			w	429	429	i		G	C	A	C	B
B	A137	Charadrius hiaticula			w	207	207	i		G	B	A	C	B
B	A130	Haematopus ostralegus			w	463	463	i		G	C	B	C	C
B	A157	Limosa lapponica			w	309	309	i		G	C	A	C	B
B	A070	Mergus merganser			w	38	38	i		G	C	A	C	B
B	A160	Numenius arquata			w	555	555	i		G	C	B	C	C
F	1095	Petromyzon marinus			r				P	DD	C	C	C	C
B	A017	Phalacrocorax carbo			w	43	43	i		G	C	B	C	C
M	1365	Phoca vitulina			p	108	108	i		G	B	B	C	B
B	A140	Pluvialis apricaria			w	1303	1303	i		G	C	B	C	B
B	A141	Pluvialis squatarola			w	200	200	i		G	B	A	C	A
B	A048	Tadorna tadorna			w	81	81	i		G	C	B	C	C
B	A164	Tringa nebularia			w	19	19	i		G	B	A	C	B
B	A162	Tringa totanus			w	209	209	i		G	C	A	C	C
B	A142	Vanellus vanellus			w	899	899	i		G	C	B	C	B
I	1014	Vertigo angustior			p				P	DD	B	B	A	B

Group: A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles

S: in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes

NP: in case that a species is no longer present in the site enter: x (optional)

Type: p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)

Unit: i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)

Abundance categories (Cat.): C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information

Data quality: G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
I		Ashfordia granulata												X
P		Draba incana									X			
P		Groenlandia densa									X			
F		Liza ramada												X

Group: A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles

CODE: for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name

S: in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes

NP: in case that a species is no longer present in the site enter: x (optional)

Unit: i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)

Cat.: Abundance categories: C = common, R = rare, V = very rare, P = present

Motivation categories: IV, V: Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N08	1.00
N19	1.00
N14	1.00
N04	11.00
N02	80.00
N06	1.00
N09	1.00
N07	1.00
N05	2.00
N03	1.00
Total Habitat Cover	100

Other Site Characteristics

Situated on the north Mayo/Sligo coast, this large site comprises the inner part of Killala Bay, including the estuary of the River Moy from downstream of Ballina. The towns of Enniscrone and Killala occur on the eastern and western shores respectively. Sand dunes systems, estuaries and intertidal areas are the main habitats of the site. Bartragh Island, a sand bar on which a dune system has developed, stretches across most of the outer part of the site. A further dune system protrudes westwards from Enniscrone, while more dunes occur at the Ross peninsula in the north-west of the site. Other habitats present include salt marshes, dry grassland, reedbeds and scrub.

4.2 Quality and importance

This large site displays an excellent diversity of dune types and is one of the most important dune systems in the north-west region. There remains a substantial area of intact fixed dune despite modifications to parts of the site for recreational and agricultural purposes. Some humid dune slacks also occur, and there are good and fairly extensive examples of shifting dunes with marram, embryonic shifting dunes and annual vegetation of driftlines. Salt marshes are well represented, with both Atlantic salt meadows and Salicornia types present. The Moy estuary is an important example of an estuary and has extensive intertidal sand and mud flats. Water quality is very good. The site is important for the occurrence of the Annex II mollusc Vertigo angustior, which occurs in marsh habitat. An excellent diversity of waterfowl winter at site, including two Annex I Bird Directive species (Pluvialis apricaria, Limosa lapponica). Seven other species winter in nationally important numbers, and in some winters internationally important concentrations of Branta bernicla hrota occur. Two Red Data plant species are known from site. The site supports an important population of Phoca vitulina and both adult and juvenile Petromyzon marinus.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	**Threats and pressures [code]**	**Pollution (optional) [code]**	**inside/outside [i|o|b]**
H	E01		b
H	G01.02		i
H	G02.02		b
H	G02.08		b
H	H01.08		b
L	F02.03		i
M	M01.03		i

Positive Impacts			
Rank	**Activities, management [code]**	**Pollution (optional) [code]**	**inside/outside [i|o|b]**
H	J02.04		i

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.4 Ownership (optional)

No information provided

4.5 Documentation (optional)

Bowman, J.J., Clabby, K.J., Lucey, J., Mc Garrigle, M.L. and Toner, P.H. (1996). Water Quality in Ireland 1991-1994. Environmental Protection Agency, Wexford. Cawley, M. (1996). Notes on some non-marine mollusca from Co Sligo and Co Leitrim, including a new site for Vertigo geyeri Lindholm. Irish Naturalists

Journal 25: 183-185. Colhoun, K. (1998). I-WeBS Report 1996-97. BirdWatch Ireland, Dublin. Cronin, M., Duck, C., Cadhla, O., Nairn, R., Strong, D. and O'Keeffe, C. (2004). Harbour seal population assessment in the Republic of Ireland: August 2003. Irish Wildlife Manuals No. 11. National Parks & Wildlife Service, Department of Environment, Heritage and Local Government, 7 Ely Place, Dublin 2, Ireland. 34 pp. Cronin, M., Duck, C., Cadhla, O., Nairn, R., Strong, D. and O'Keeffe, C. (2007). An assessment of harbour seal population size and distribution in the Republic of Ireland during the 2003 moult season. J. Zool. Lond. 273 Issue 2: 131-139. Curtis, T.G.F. and Sheehy Skeffington, M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and the Environment, Proceedings of the Royal Irish Academy 98B: 87-104. Curtis, T.G.F. (1991a). A site inventory of the sandy coasts of Ireland. In Quigley, M.B. (ed.) A Guide to the Sand Dunes of Ireland. E.U.C.C. Dublin. Curtis, T.G.F. (1991b). The flora and vegetation of sand dunes in Ireland. In Quigley, M.B. (ed.) A Guide to the Sand Dunes of Ireland. E.U.C.C. Dublin. Environmental Protection Agency (2001). An Assessment of the Trophic Status of Estuaries and Bays in Ireland. Report prepared for the Department of Environment and Local Government. EPA, Wexford. Harrington, R. (1990). 1989 survey of breeding herds of common seal Phoca vitulina with reference to previous surveys. Report to the National Parks & Wildlife Service. 10pp. King, J.J. (2006). The status and distribution of lamprey in the River Barooe SAC. Irish Wildlife Manuals No. 15 National Parks and Wildelife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland. Lockley, R. M. (1966). The distribution of grey and common seals on the coasts of Ireland. Irish Nat. J. 15: 136-143. Lyons, D.O. (2004). Summary of National Parks & Wildlife Service surveys for common (harbour) seals (Phoca vitulina) and grey seals (Halichoerus grypus), 1978 to 2003. Irish Wildlife Manuals No. 13. National Parks & Wildlife Service, Department of Environment, Heritage and Local Government, 7 Ely Place, Dublin 2, Ireland. 67pp. McGarrigle, M.L., Bowman, J.J., Clabby, K.J., Lucey, J., Cunningham, P., MacCarthaigh, M., Keegan, M., Cantrell, B., Lehane, M., Clenaghan, C. and Toner P.F. (2002). Water Quality in Ireland 1998-2000. Environmental Protection Agency, Wexford. Merne, O.J. (1989). Important bird areas in the Republic of Ireland. In: Grimmett, R.F.A. and Jones, T.A. (eds) Important Bird Areas in Europe. ICBP Technical Publication No. 9. Cambridge. Moorkens, E.A. (1997). An Inventory of Mollusca in Potential SAC Sites, with Special Reference to Vertigo angustior, V. moulinsiana and V. geyeri. Unpublished report, National Parks & Wildlife Service, Dublin. Norris, A. and Colville, B. (1974). Notes on the occurrence of Vertigo angustior Jeffreys in Great Britain. Journal of Conchology. 28: 140-154. O'Connor, W. (2004). A survey of juvenile lamprey populations in the Moy Catchment. Irish Wildlife Manuals No. 15 National Parks and Wildelife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland. Praeger, R.L (1934). The Botanist in Ireland. Hodges & Figgis, Dublin. Sheppard, R. (1993). Irelands Wetland Wealth. IWC, Dublin. Summers, C.F., Warner, P.J., Nairn, R.G.W., Curry, M.G. & Flynn, J. (1980). An assessment of the status of the common seal Phoca vitulina vitulina in Ireland. Biol. Conserv. 17: 115-123. Warren, A. (1879). The land and freshwater Mollusca of Mayo and Sligo. Zoologist 3: 25. Warren, A. (1892). Rare Mollusca from Co. Sligo. Irish Naturalist 1: 170. Warner, P.J. (1983). An assessment of the breeding populations of common seals (Phoca vitulina vitulina L.) in the Republic of Ireland during 1979. Ir. Nat. J. 21: 24-26. Warner, P.J. (1984). Report on the census of common seals (Phoca vitulina vitulina) in the Repubic of Ireland during 1984. Unpublished report to the Forestry & Wildlife Service. Went, A.E.J. & Kennedy, M. (1976). List of Irish Fishes. Stationery Office, Dublin.

5. SITE PROTECTION STATUS

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No information provided

5.2 Relation of the described site with other sites (optional):

Designated at national or regional level:

Type code	Site name	Type	Cover [%]
	Killalla Bay/Moy Estuary		0.00

Designated at international level:

Type	Site name	Type	Cover [%]
Other	Killalla Bay/Moy Estuary		0.00

5.3 Site designation (optional)

No information provided

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

No information provided

6.2 Management Plan(s):

An actual management plan does exist:

☐	Yes	
☐	No, but in preparation	
☒	No	

6.3 Conservation measures (optional)

No information provided

7. MAP OF THE SITE

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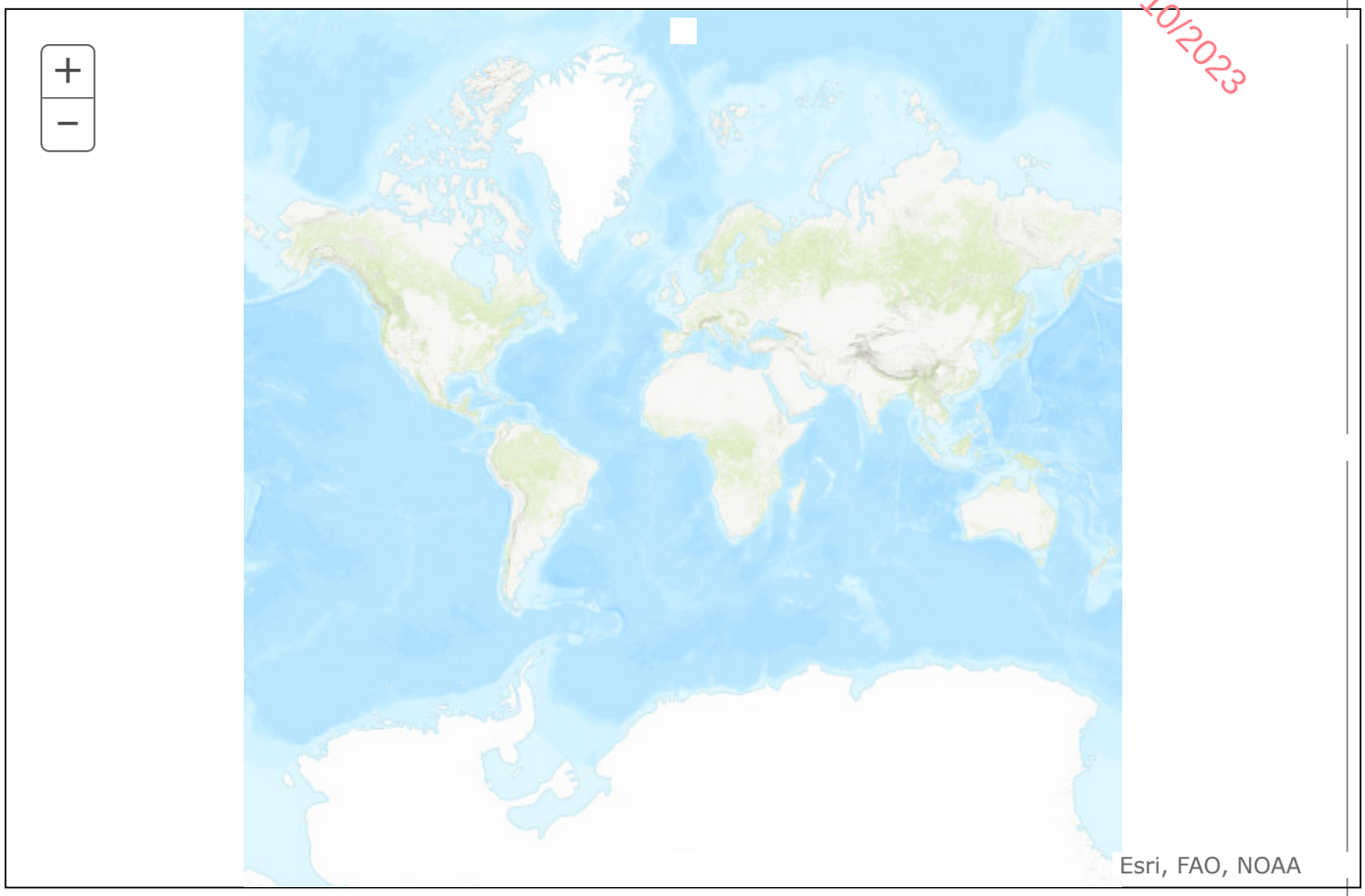
Map delivered as PDF in electronic format (optional)			
☐	Yes	X	No

SITE DISPLAY



Database release: End2021 --- 06/10/2022

SDF

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE	**IE0004036**
SITENAME	**Killala Bay/Moy Estuary SPA**

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Print Standard Data Form

1. SITE IDENTIFICATION

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1.1 Type

A

1.2 Site code

IE0004036

1.3 Site name

Killala Bay/Moy Estuary SPA

1.4 First Compilation date

2003-11

1.5 Update date

2020-10

1.6 Respondent:

Name/Organisation:	National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht
Address:	
Email:	datadelivery@chg.gov.ie

1.7 Site indication and designation / classification dates

Date site classified	1995-02

as SPA:	
National legal reference of SPA designation	No information provided

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude:	-9.172400
Latitude:	54.218100

2.2 Area [ha]

3202.0166

2.3 Marine area [%]

91.1700

2.4 Sitelength [km] (optional):

No information provided

2.5 Administrative region code and name

NUTS level 2 code	Region Name
IE01	Border, Midland and Western

2.6 Biogeographical Region(s)

Atlantic	(0.00 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

No habitat types are reported for the site

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
B	A052	Anas crecca			w	173	173	i		G	C	B	C	C
B	A050	Anas penelope			w	234	234	i		G	C	B	C	C
B	A053	Anas platyrhynchos			w	58	58	i		G	C	B	C	C
B	A169	Arenaria interpres			w	32	32	i		G	C	B	C	C
B	A046	Branta bernicla			w	157	157	i		G	C	B	C	C
B	A144	Calidris alba			w	118	118	i		G	C	A	C	B

Species					Population in the site					Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C	
						Min	Max				Pop.	Con.	Iso.	Glo.
B	A149	Calidris alpina			w	1741	1741	i		G	C	A	C	B
B	A149	Calidris alpina			w	22	22	i		G	C	B	C	C
B	A143	Calidris canutus			w	329	329	i		G	C	A	C	B
B	A137	Charadrius hiaticula			w	185	185	i		G	C	A	C	B
B	A001	Gavia stellata			w	11	11	i		G	C	B	C	C
B	A130	Haematopus ostralegus			w	450	450	i		G	C	B	C	C
B	A182	Larus canus			w	260	260	i		G	C	B	C	C
B	A179	Larus ridibundus			w	283	283	i		G	C	B	C	C
B	A157	Limosa lapponica			w	335	335	i		G	C	A	C	B
B	A069	Mergus serrator			w	33	33	i		G	C	A	C	B
B	A160	Numenius arquata			w	561	561	i		G	C	B	C	C
B	A140	Pluvialis apricaria			w	1396	1396	i		G	C	B	C	C
B	A141	Pluvialis squatarola			w	183	183	i		G	B	A	C	A
B	A048	Tadorna tadorna			w	63	63	i		G	C	B	C	C
B	A164	Tringa nebularia			w	15	15	i		G	C	A	C	C
B	A162	Tringa totanus			w	300	300	i	P	M	C	A	C	B
B	A142	Vanellus vanellus			w	1386	1386	i		G	C	B	C	C

Group: A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
S: in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
NP: in case that a species is no longer present in the site enter: x (optional)
Type: p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
Unit: i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
Abundance categories (Cat.): C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
Data quality: G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
B		Ardea cinerea			11	11	i						X	
P		Groenlandia densa									X			
B		Larus argentatus			292	292	i							X
B		Larus marinus			101	101	i							X

Group: A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles

CODE: for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name

S: in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes

NP: in case that a species is no longer present in the site enter: x (optional)

Unit: i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)

Cat.: Abundance categories: C = common, R = rare, V = very rare, P = present

Motivation categories: IV, V: Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N05	1.00
N04	1.00
N02	96.00
N03	2.00
Total Habitat Cover	100

Other Site Characteristics

This large site comprises the inner, estuarine part of Killala Bay, at the mouth of the River Moy. It is a funnel-shaped estuary that is approximately 7 km wide at its outer limit. The site is well-sheltered by a sandy island, Bartragh Island, that extends across much of the outer part, and by a sandy peninsula which extends from Enniscrone on the eastern side. Extensive intertidal sand and mud flats are exposed at low tide. Salt marshes skirt part of the intertidal flats.

4.2 Quality and importance

This site is a fine example of an estuarine system in a natural state. It supports an excellent diversity of wintering waterfowl and is one of the most important sites in the region. Six of the species have populations of national importance: Limosa lapponica, Charadrius hiaticula, Pluvialis squatarola, Calidris alba, Calidris canutus and Calidris alpina. Pluvialis apricaria also occurs in numbers close to national importance. There is a regular population of Branta bernicla hrota which in some winters exceeds the threshold for international importance. Gavia stellata is regular within the site. The Red Data Book species Groenlandia densa occurs in the site.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	**Threats and pressures [code]**	**Pollution (optional) [code]**	**inside/outside [i|o|b]**
M	F02.03		i
M	A08		o
M	E01		o
M	G01.02		i

Positive Impacts			
Rank	**Activities, management [code]**	**Pollution (optional) [code]**	**inside/outside [i|o|b]**

M	F02.03		i

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.4 Ownership (optional)

No information provided

4.5 Documentation (optional)

Colhoun, K. (2001). I-WeBS Report 1998-99. BirdWatch Ireland, Dublin. Curtis, T.G.F. and Sheehy Skeffington, M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and Environment, Proceedings of the Royal Irish Academy 98B: 87-104. Hunt, J., Derwin, J., Coveney, J. and Newton, S. (2000). Republic of Ireland. Pp. 365-416 in Heath, M.F. and Evans, M.I. (eds.). Important Bird Areas in Europe: Priority Sites for Conservation 1: Northern Europe. Cambridge, UK: BirdLife International (BirdLife Conservation Series No. 8). Irish Wetland Birds Survey (I-WeBS) Database, 1994/95-2000/01. BirdWatch Ireland, Dublin. McGarrigle, M.L., Bowman, J.J., Clabby, K.J., Lucey, J., Cunningham, P., MacCarthaigh, M., Keegan, M., Cantrell, B., Lehane, M., Clenaghan, C. and Toner P.F. (2002). Water Quality in Ireland 1998-2000. Environmental Protection Agency, Wexford. Merne, O.J. (1989). Important bird areas in the Republic of Ireland. In: Grimmett, R.F.A. and Jones, T.A. (eds). Important Bird Areas in Europe. ICBP Technical Publication No. 9. Cambridge. Sheppard, R. (1993). Ireland's Wetland Wealth. IWC, Dublin.

5. SITE PROTECTION STATUS

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No information provided

5.2 Relation of the described site with other sites (optional):

Designated at national or regional level:

Type code	Site name	Type	Cover [%]
	Killalla Bay/Moy Estuary	+	74.00

Designated at international level:

Type	Site name	Type	Cover [%]
Other	Killalla Bay/Moy Estuary	+	74.00

5.3 Site designation (optional)

No information provided

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

No information provided

6.2 Management Plan(s):

An actual management plan does exist:

☐	Yes	
☐	No, but in preparation	
☒	No	

6.3 Conservation measures (optional)

No information provided

7. MAP OF THE SITE

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Map delivered as PDF in electronic format (optional)			
☐	Yes	X	No

SITE DISPLAY