

NATURA IMPACT STATEMENT
Proposed Development at
Greenland's Campsite, Rosses Point Co. Sligo



Report prepared by
Woodrow Sustainable Solutions Ltd.



Woodrow Sustainable Solutions Ltd.,
Upper Offices, Ballisodare Centre,
Station Road,
Ballisodare,
Co Sligo,
F91 PE04.
T: +353(0)719140542

Email: info@woodrow.ie

DOCUMENT CONTROL

Document	Proposed Development at Greenland's Campsite, Rosses Point, Co. Sligo.
Client	Sligo Tourist Development Association Ltd.
Prepared by	Woodrow Sustainable Solutions Ltd., Upper Offices, Ballisodare Centre, Station Road, Ballisodare, Co Sligo, F91 PE04.
Lead Author	Emmeline Cosnett
Checked Internally	Róisín NigFhloinn
Reviewed by Client	
Approved by	Róisín NigFhloinn
Status / Version / Date	Final / R02 / 17.06.2022

STATEMENT OF AUTHORITY

This report has been written by Emmeline Cosnett BSc, MSc, QCIEEM, with input and review by Róisín NigFhloinn B.A. Mod MSc MCIEEM.

Emmeline is a field ecologist with Woodrow Sustainable Solutions Ltd. who has worked in a variety of terrestrial and aquatic environments. She has carried out research on seagrass ecology and independent botany/pollination ecology research in the process of publication. She has completed two academic internships with Dr Dara Stanley's Ecology lab at NUIG, with a focus on agri-environmental schemes and botanical habitat surveys across the mid-west. Emmeline has worked as part of the Eva Crane Project creating a pollen library of the Burren and is currently completing an accredited CIEEM MSc on Wildlife Biology and Conservation with Edinburgh Napier University. She has an BSc (Hons) in Environmental Science from NUI Galway (2018) with a focus on Botany and Entomology. In addition to her botanical and invertebrate experience, Emmeline is practiced at undertaking habitat surveys, mammal surveys, bird and bat surveys, and their associated reporting requirements.

The report has had input from, and been reviewed and approved by Róisín NigFhloinn. Róisín is a Principal Ecologist with Woodrow Sustainable Solutions Ltd. She has completed an honours B.Sc. specialising in Botany and a M.Sc. in Ecology and Management of the Natural Environment. She is a full member of CIEEM. She regularly carries out reporting on Ecological Impact Assessment (EclA) and to inform Natura Impact Statements (NIS) / Appropriate Assessments (AA) carried out by statutory authorities. Furthermore, Róisín has over ten years of experience in habitat surveys, mammal surveys, bird and bat surveys for a number of large infrastructure schemes, commercial and residential projects. Róisín has also acted as an Ecological Clerk of Works (ECoW) for road maintenance schemes and wind farms under construction.

A site visit was conducted on 13 04 2021 and 19 05 2021 by Botanical Lead Bridget Keehan (along with Emmeline Cosnett), with a late winter bird survey and a breeding bird survey being conducted on 20 03 2021 and 13 06 2021 respectively, by experienced Ornithologist, Mike Trewby. Both specialists who are intrinsic members of the Woodrow Ecology Team.

Bridget Keehan is a highly experienced Senior Ecologist, with more than 30 years practice in this area of work, Botany Lead for the Woodrow ecology team, but also regularly undertaking survey work in other ecological disciplines, with wide experience in undertaking Ecological Impact Assessment (EIA) and site monitoring at a large number of Development projects such as quarry and wind farm sites.

Mike Trewby, Senior Ecologist and Lead Ornithologist for Woodrow, is a highly experienced Ecologist with over 20 year's fieldwork and research experience. He is a full member of CIEEM (MCIEEM) and conducts detailed, technical ecological assessments of projects including for wind farm and quarry developments, as well as for other large and smaller scale infrastructure and development projects, delivering ecological reporting to a high standard. He has developed his technical expertise in conducting faunal surveys to inform detailed impact assessment and compliance monitoring reports.

Emmeline Cosnett – Qualifications:

BSc (1.1 Hons) – Environmental Science, National University of Ireland, Galway, 2018.
MSc – Wildlife Biology and Conservation, Edinburgh Napier University, 2020-2023.

Róisín NigFhloinn – Qualifications:

B.A. Mod (Hons) – Natural Sciences (specialising in Botany), Trinity College, Dublin, 2008.
M. Sc. – Ecology and Management of the Natural Environment, University of Bristol, 2011.

Bridget Keehan – Qualifications:

BSc (Hons) - Botany, University College of North Wales, Bangor, 1992.

Mike Trewby – Qualifications:

B.Sc. – Zoology and Botany, University of Namibia, 1997.
Post Grad Dip – Environmental Studies, University of Strathclyde, 2002.

Table of Contents

1. INTRODUCTION	1
1.1 Background	1
1.2 Description and features of the Proposed Development	2
1.2.1 Location.....	2
1.3 Receiving environment.....	6
1.4 General layout and details of the Proposed Development	9
2. Legislation.....	13
2.1 Requirement for a Screening of the Proposed Development	13
2.2 Requirement for a Natura Impact Statement	14
2.2.1 Structure / Layout of the report.....	14
2.2.2 Main sources of consultation and information	14
2.2.3 Bird Surveys	15
2.2.4 I-Webs Data Request	15
3. SURVEY RESULTS	16
4. IMPACT ASSESSMENT	17
4.1 European Sites identified within the Screening Assessment	17
4.1.1 Description of Natura 2000 sites within the Zone of Influence.....	25
Description of Cummeen Strand SPA.....	25
QIs of Cummeen Strand SPA being assessed further include:	26
Site-specific conservation objectives and favourable conservation status.....	26
Threats and Pressures on Cummeen Strand SPA	27
4.1.2 Description of Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC	28
QIs of Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC being assessed further:	28
Site-specific conservation objectives and favourable conservation status.....	28
Table 3: Conservation Objectives for each of the QIs being assessed	29
Threats and Pressures on Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC ..	41
5. ASSESSMENT OF POTENTIAL EFFECTS ON NATURA 2000 SITES.....	42
5.1 Assessment of effects on Cummeen Strand SPA	42
5.1.1 Potential Disturbance Impacts to Waterbirds.....	42

Construction	42
Operation.....	48
5.1.2 Potential Water Quality Impacts to Birds	48
Construction	48
Waterbirds of the SPA	48
Operation.....	50
Waterbirds of the SPA	50
5.2 Assessment of impacts and effects on Cummeen Strand/ Drumcliff (Sligo Bay) SAC	50
5.2.1 Water Quality Impacts to Aquatic Habitats and Species	50
Construction	50
5.3 Conclusion of Assessment of Effects	51
5.3.1 Context and procedure	51
5.3.2 Scientific knowledge	51
5.3.3 Conclusions.....	52
6. ASSESSMENT OF POTENTIAL IN-COMBINATION EFFECTS ON NATURA 2000 SITES.....	53
6.1 Additive/Incremental Impacts	53
7. MITIGATION	55
7.1 Mitigation of water quality impacts on Cummeen Strand SPA and Cummeen Strand/Drumcliff Bay SAC.....	55
7.1.1 Mitigation to prevent any potential for disturbance impacts upon birds using the SPA	55
7.1.2 Mitigation of Water Quality Impacts on Aquatic QI Species and Habitats during Construction	55
Control of run-off and pollution during construction	56
Mitigation of Water Quality Impacts on Aquatic QI Species and Habitats during Operation.....	56
7.1.3 General Mitigation of the Spread of Invasive Species during Construction & Operation	56
8. POTENTIAL EFFECTS AFTER MITIGATION	57
9. CONCLUSIONS	58
APPENDIX I: Screening for Appropriate Assessment report	61

APPENDIX II: Bird Survey Results.....	74
APPENDIX III: I-Webs Request Results (Source: Birdwatch Ireland)	76
APPENDIX IV: Key Roosting Sites in the SPA (Source: NPWS, 2013).....	80
APPENDIX V: Results of Botanical Survey Undertaken in May 2021	81

1. INTRODUCTION

1.1 Background

Woodrow Sustainable Solutions Ltd. (“Woodrow”) was commissioned by the Client (Sligo Tourist Development Association Ltd.) to collate information to inform an Appropriate Assessment (AA) by the Competent Authority (in this instance, Sligo County Council). This work assesses the potential for impacts upon Natura 2000 Sites (also known as European Sites) as a result of the Proposed Development. The Application Site is located adjacent to the Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC and the Cummeen Strand SPA, these are both designated European Sites. Cummeen Strand/ Drumcliff Bay is a Special Area of Conservation (SAC) this is for the protection of habitats and species, and Cummeen Strand is a Special Protection Area (SPA) for the protection of birds. The Application Site is part of a proposed extension to the Greenland’s Campsite, Rosses Point, Co. Sligo. This proposal will be hereafter referred to as the “Proposed Development”.

European Sites include Special Areas of Conservation (SACs) for the protection of Annex I habitats and Annex II species under the EU Habitats Directive (92/43/EEC, 1992) and Special Protection Areas (SPAs) for the protection of Annex I bird species and supporting wetland habitat under the EU Birds Directive (79/409/EEC, 1979). The Proposed Development is not “directly connected with or necessary to the management” of a European Site (in the context of Article 6(3) of Directive 92/43/EEC (The Habitats Directive)). These SACs and SPAs are designated for their Qualifying Interest (QI) habitats and species which are protected by the European Habitats Directive and European Birds Directive.

The Proposed Development is located adjacent to the existing Greenland’s Campsite, Rosses Point, Co. Sligo, north of which lies Rosses Point Beach; and south of which lies a navigable channel between Sligo Bay and Sligo Harbour (see **Figure 1** for the geographic location). The Proposed Development is located **adjacent** to, but **outside** of, the European Sites Cummeen Strand SPA (Site Code 004035) and Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC (Site Code 000627), (see **Figure 2** for the location of the Proposed Development in relation to these two European Sites). The Proposed Development involves creation of a grass circulation access road surrounded by an extension of a total of **17 no.** new additional 3m x 9m hardstand pitches with a 6m space between each pitch and **1 no.** new waste disposal point, including all landscaping and all associated ancillary works, adjacent to the current Greenland’s campsite at Rosses Point Beach, Co. Sligo, (see **Figure 3 and Figure 4** for the Proposed Site Layout and Section 1.4 for more detailed description of the components of the Proposed Development). This Natura Impact Statement (NIS) is submitted in support of the planning application to Sligo County Council.

A late winter bird survey was conducted at the Application Site on 20 03 2021, and a breeding bird survey was carried out on 13 06 2021. No significant ornithological constraints were identified at the Application Site during these surveys (other than commonly occurring nesting birds), and further information is provided on the results of this work in Appendix II of this report.

A detailed habitat and condition assessment was undertaken on 19 05 2021. This confirmed that the Proposed Development will be located on an area of grassy fixed-dune habitat, which is already in poor condition and will **not** be located within any recoverable Qualifying Interest habitat which could be connected to the SAC and or SPA. The results of this botanical assessment are provided in Appendix V of this report. The potential for significant impacts upon European Sites has been considered in full and the Qualifying Interest’s (QI’s) potentially affected are detailed in Section 4, Table 1.

1.2 Description and features of the Proposed Development

1.2.1 Location

The Proposed Development is located on an area of sand dune habitat (c.0.004km²) immediately adjacent to the western edge of the existing Greenland's Campsite, Rosses Point, Co. Sligo. This is located south of Rosses Point Beach (see **Figure 1** for the geographic location). The location, occupied by the existing Greenland's Campsite, has a western boundary, approximately 300m from the coastline. The Proposed Development occurs on an area that, although fenced off, is frequently visited and walked, undergoing some level of trampling by visitors and dog walkers.

The Proposed Development location (referred to as the "Application Site") is located 8 km north-west from Sligo Town off the R291. The Application Site is located adjacent to Cummeen Strand SPA and Cummeen Strand/ Drumcliff Bay SAC (see **Figure 2**). The Application Site **does not** occur directly within either of these European Sites. In addition, following a number of Site visits by Woodrow, it has been confirmed that there will be no direct loss of any EU Annex I habitat, and / or Qualifying Interest (QI) habitat of the nearby European Sites.

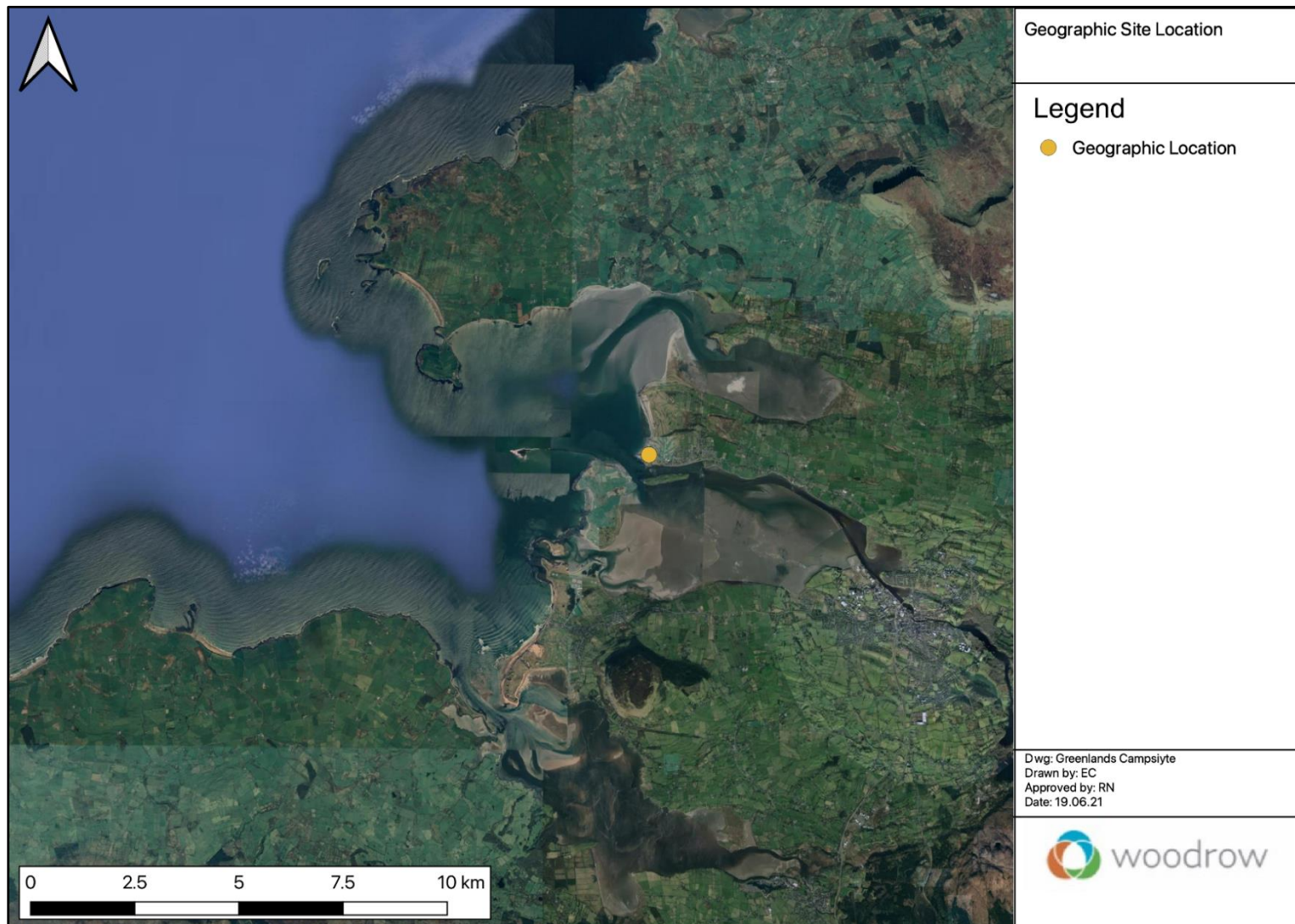


Figure 1: Geographic Location of the Proposed Development at Greenland's Campsite, Rosses Point, Co. Sligo

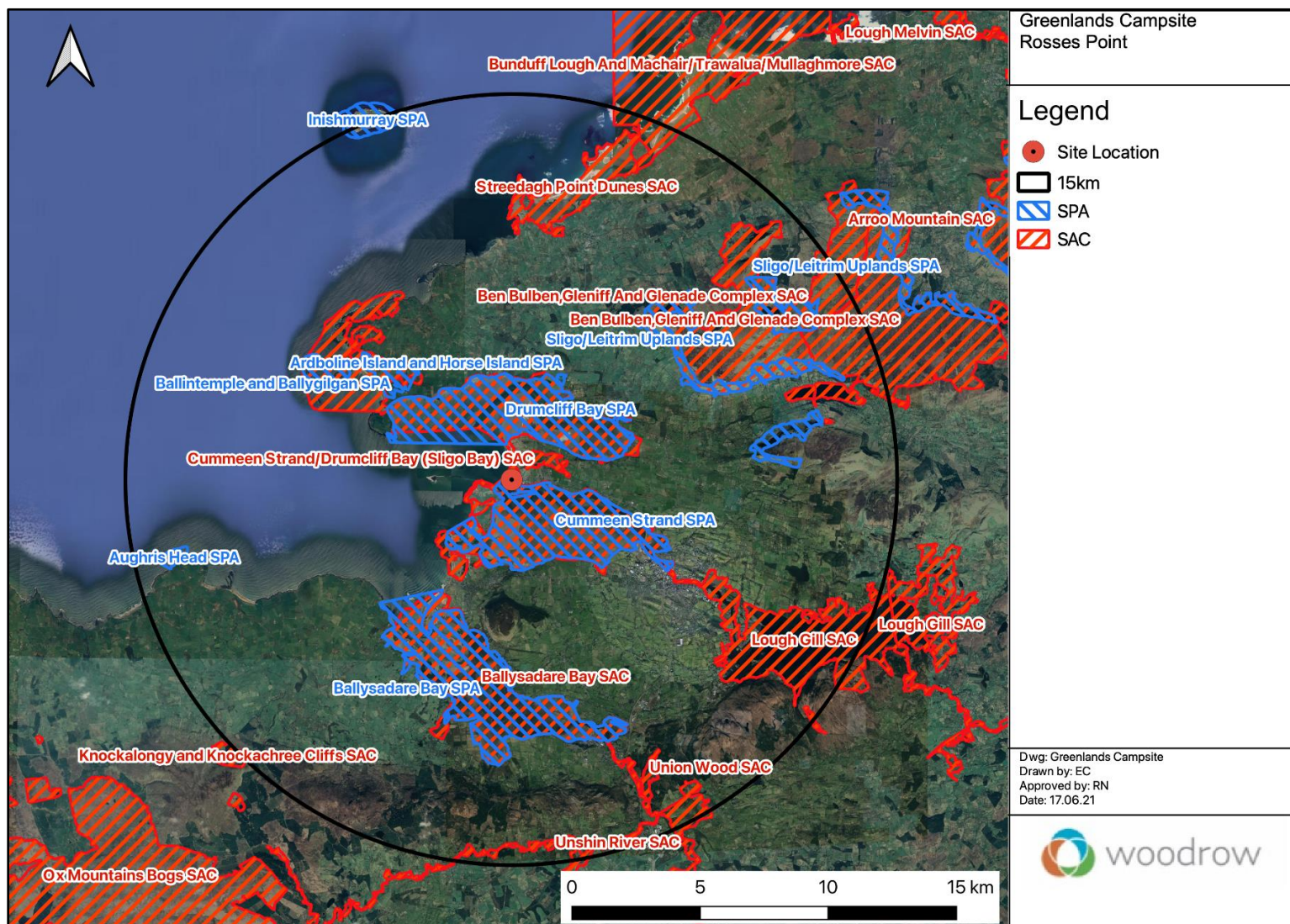


Figure 2: Location of the Proposed Development in relation to the wider area and the Natura 2000 sites being assessed



Figure 3: The Proposed Site Layout (Source: Jennings O'Donovan & Partners Consulting Engineers, 2022)

1.3 Receiving environment

The Application Site occurs within an area of marram and false-oat dominated grassy sand dunes. It is currently fenced off to deter trampling, however there is evidence of worn tracks by visitors who have either stopped to picnic or explored on their way to the beach **Plate 1**. Adjacent to the Application Site lies the exiting Greenland's Campsite which is well-used and busy during the summer months, see **Plate 2 and Plate 3**. The Proposed Development is set to take place within this fenced-off area immediately adjacent to the current campsite.



Plate 1: Application Site – Fenced-off grassy sand dunes



Plate 2: Existing Greenland's Campsite adjacent to the Application Site



Plate 3: Current layout of the existing Greenland's Campsite at Rosses Point

1.4 General layout and details of the Proposed Development

The existing Greenland's Campsite at Rosses Point (**Plate 3**) consists of a combination of approximately ~141 No. hardstands and tent pitches (c. 0.03km²). The Application Site is an area of c. 0.004km² grassy dune habitat that lies immediately adjacent to the western boundary of the current campsite location.

The existing campsite currently runs at capacity throughout the summer months bringing tourism and business to the local town and wider area. The Proposed Development will provide a much-needed extension to the existing campsite to accommodate existing visitor numbers, with the aim of providing an extra 17 no. concrete hardstand pitches and 1 no. new waste disposal point.

The works include the re-grading/levelling of the existing ground and the placing of 17 no. concrete hardstand pitches measuring 3m X 9m with a 6m gap between each pitch (**Figures 4 and 5**). The layout of the Proposed Development will involve a grass access road for vehicles and pedestrians to enter and leave the site as well as a boundary wall (**Figure 6**).

In terms of groundwater quality of the Application Site, the Rosses Point area is considered to have 'Good' Ground Waterbody Status, according to the Water Framework Directive (WFD) for the period of 2013 – 2018. The Application Site lies within an area mapped as having 'High' to 'Extreme' Groundwater vulnerability¹, meaning that it is at a high risk of groundwater contamination in the event of a pollution incident occurring (EPA maps, 2020). As such, this has been taken into consideration in the mitigation of this NIS (See Section 7). The Application Site also lies outside estimated coastal flood risk areas². The bedrock aquifer is referred to as 'Locally Important Aquifer – Karstified'³ with viséan limestone & calcareous shale⁴.

¹ Groundwater Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. Groundwater vulnerability maps are based on the type and thicknesses of subsoils (sands, gravels, glacial tills (or boulder clays), peat, lake and alluvial silts and clays), and the presence of karst features. Groundwater is most at risk where the subsoils are absent or thin and, in areas of karstic limestone, where surface streams sink underground at swallow holes. All land area is assigned one of the following groundwater vulnerability categories: Rock near surface or karst (X) Extreme (E) High (H) Moderate (M) Low (L). Indicates the likelihood of groundwater contamination. Aids land-use management. Helps in the choice of preventative measures and enables developments, which have a significant potential to contaminate, to be located in areas of lower vulnerability. Helps to ensure that a groundwater protection scheme is not unnecessarily restrictive on human economic activity. (EPA Maps, 2021).

² Floodinfo.ie available at: <http://www.floodinfo.ie/map/floodmaps/?X=7068153.421823602&Y=-883204.1485378639&Z=15#> (Accessed June 2021).

³ "Locally Important Aquifers: Locally important aquifers are capable of supplying locally important abstractions (e.g. smaller public water supplies, group schemes), or good yields (100-400 m³/d). In the bedrock aquifers, groundwater predominantly flows through fractures, fissures, joints or conduits. Locally important sand/gravel aquifers are typically >1 km², and groundwater flows between the sand and gravel grains. This group is subdivided into the following types: Lm Locally Important Bedrock Aquifer, Generally Moderately Productive Ll Locally Important Bedrock Aquifer, Moderately Productive only in Local Zones Lk Locally Important Karstified Bedrock Aquifer Lg Locally Important Sand/Gravel Aquifer" (EPA Maps June 2021 available at: <https://gis.epa.ie/EPAMaps/> Accessed June 2021).

⁴ Geohive data available at: <http://map.geohive.ie/>. (Accessed June 2021).

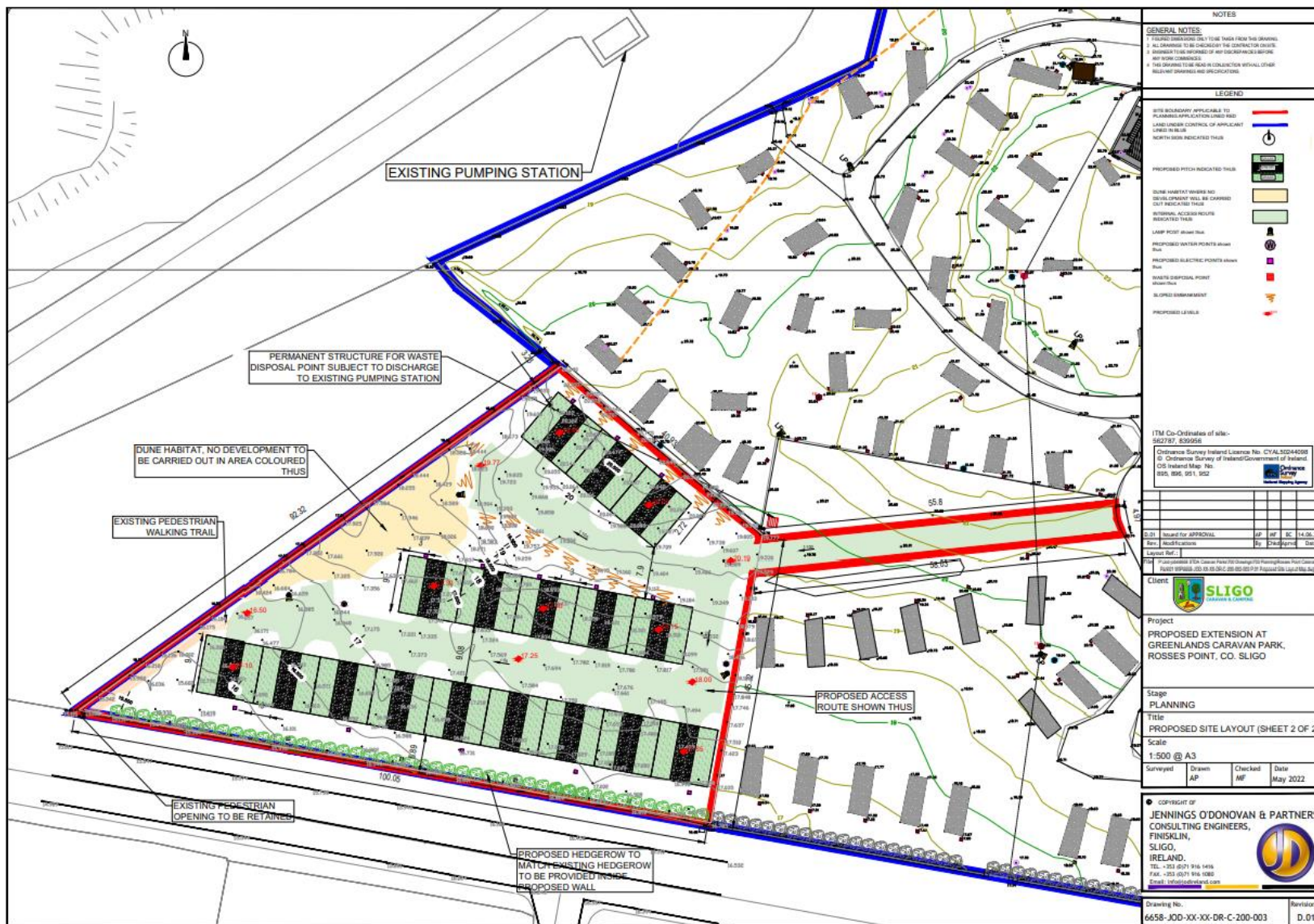


Figure 4: The Proposed Site Layout (Source: Jennings O'Donovan & Partners Consulting Engineers, 2022)

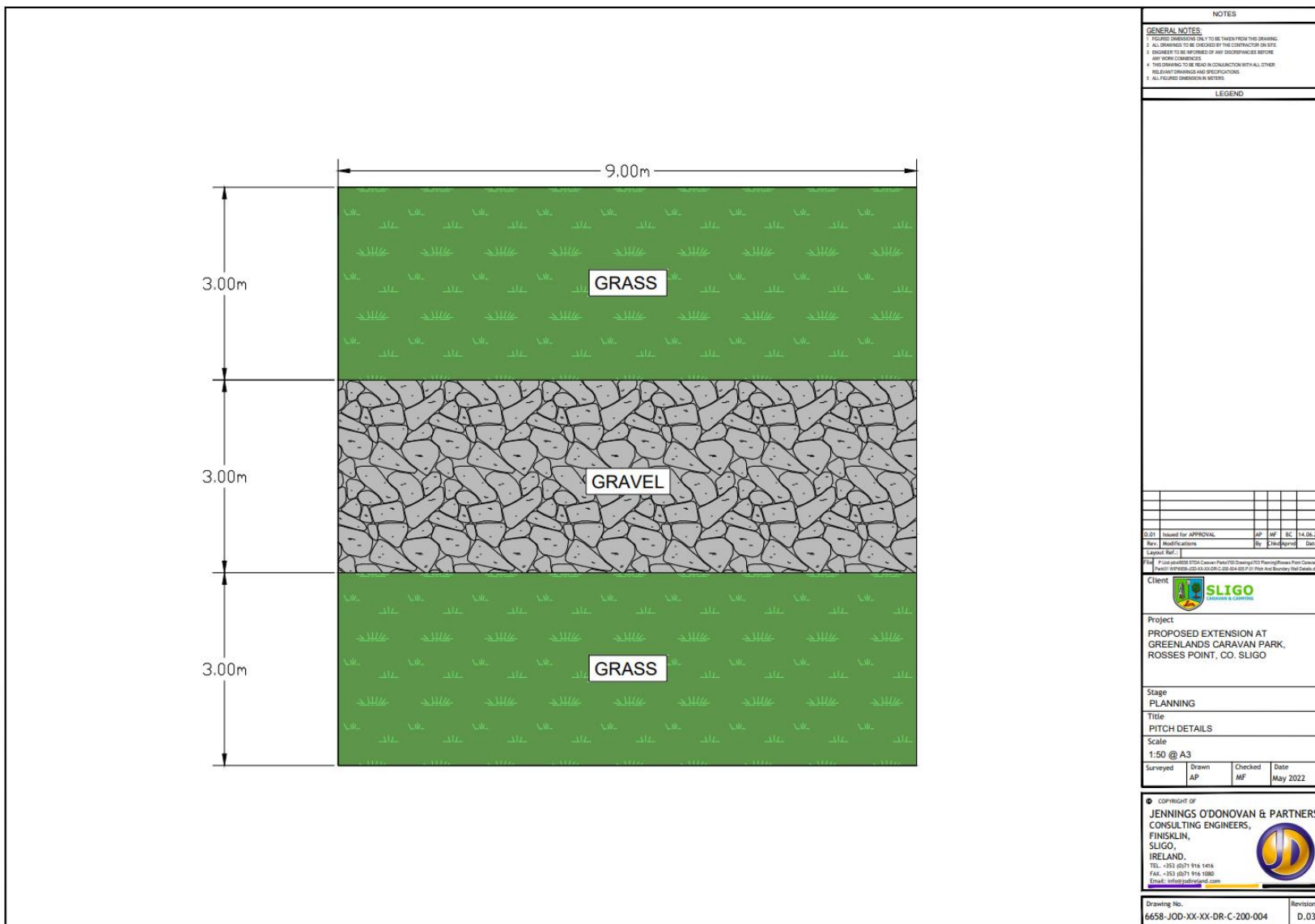


Figure 5: Pitch details (Source: Jennings O'Donovan & Partners Consulting Engineers, 2022)

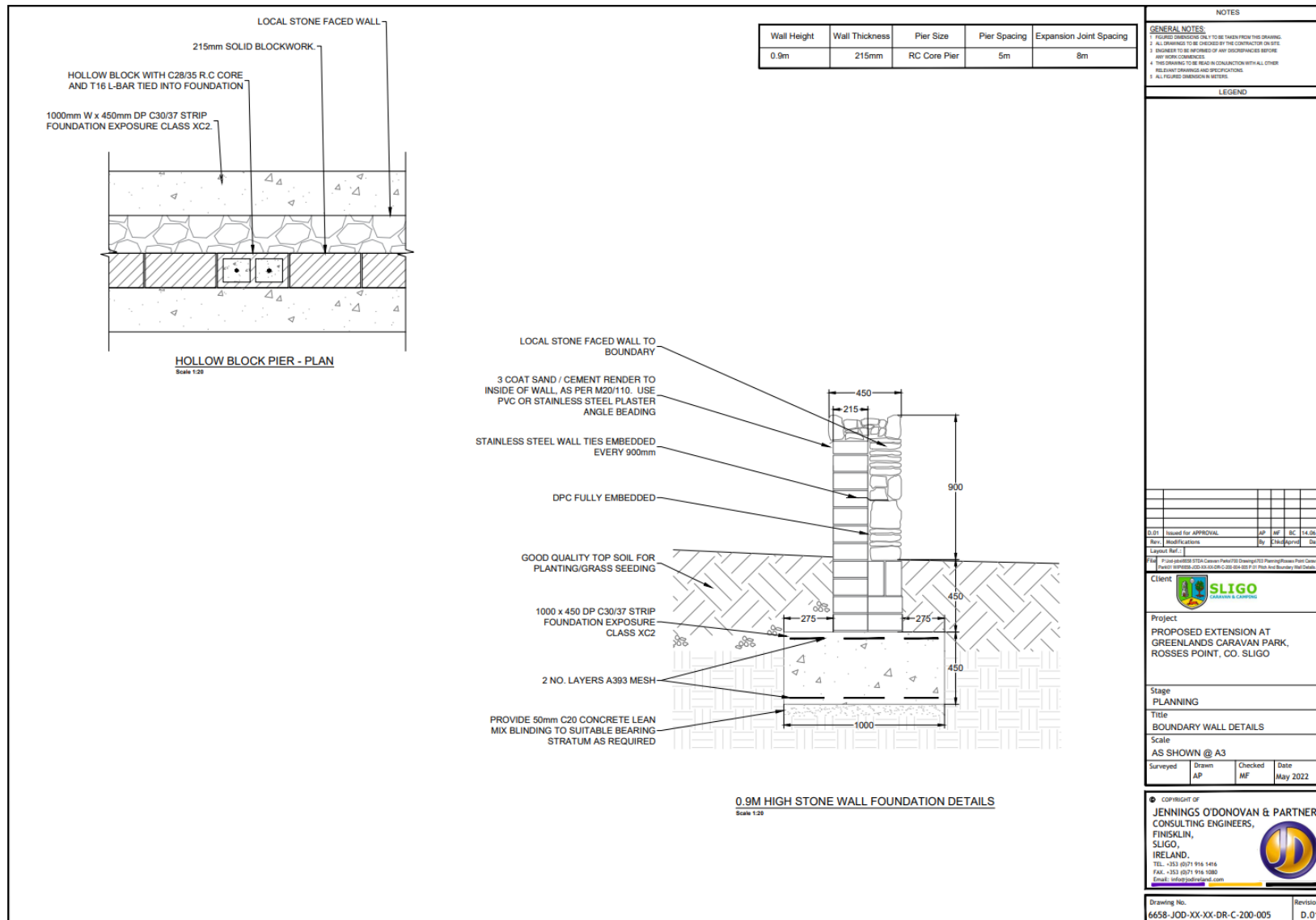


Figure 6: Boundary wall details (Source: Jennings O'Donovan & Partners Consulting Engineers, 2022)

2. Legislation

2.1 Requirement for a Screening of the Proposed Development

The Habitats Directive was transposed into Irish law by the European Communities (Natural Habitats) Regulations 1997 and European Communities (Birds and Natural Habitats) Regulations 2011 (the Habitats Regulations), and in a planning context, through Part XAB of the Planning and Development Acts 200-2018 (as amended).

Regulation 42(1) of the 2011 Regulations requires that:

“A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site”.

Section 177U of Part XAB of the Planning and Development Act requires that:

“A screening for Appropriate Assessment of a draft Land use plan or application for consent for Proposed Development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or Proposed Development, individually or in combination with another plan or project is likely to have a significant effect on the European Site”.

A Screening report to inform an AA was completed for the project (provided in **Appendix I** of this NIS). Having gathered further information in relation to the potential for effects on European Sites as a result of this Proposed Development, applying the Precautionary Principle, the AA Screening could not rule out the potential for a likely significant effect on Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA, based on:

- The construction period of the Proposed Development has some low potential to result in disturbance impacts on QI bird species of Cummeen Strand SPA during construction if undertaken during the overwintering period for QI species - through noise, increase in human activity and visual impacts in the general vicinity of the Site – however, given the lack of supporting habitat for QI species on the Site, this is considered to be a low risk.
- There is considered to be no potential that the Proposed Development would result in a loss or displacement of QI bird species of Cummeen Strand SPA foraging or roosting nearby the proposed works given the lack of optimal habitat of the Application Site for any of these QI species.
- The Proposed Development has some low potential to result in water quality impacts including pollution and siltation/sedimentation run-off during construction potentially affecting the aquatic QI habitats and species of Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC and Wetland habitats within the SPA.
- The Proposed Development also lies outside of the SAC and as a general best practice measure, not associated with the SAC, mitigation has been recommended so as to avoid the better areas of dune habitat within the Application Site.

Consequently, this NIS has been produced, which provides information to inform an AA by Sligo County Council.

2.2 Requirement for a Natura Impact Statement

Under Regulation 42(6) of the European Communities (Birds and Natural habitats) Regulations 2011 and part 177U (part XAB) of the Planning and Development Act 2000, an Appropriate Assessment is required in order to determine the potential for impact on the integrity of a European Site.

This NIS provides an assessment of the Proposed Development, taking into consideration any potential impacts upon the features of conservation interest which are QIs for the European Sites, and provides mitigation proposals which aim to avoid adverse effects upon the integrity of any European Sites. This allows for an audit trail through Article 6 of the EU Habitats Directive to facilitate an AA by a Competent Authority.

2.2.1 Structure / Layout of the report

This NIS provides the information necessary for the Competent Authority, in this instance Sligo County Council, to undertake an AA of the proposal. The report sections, paragraphs and tables relate in sequence to the process of assessing the potential impact of the project in the context of sequential requirements of Article 6 of the EU Habitats Directive.

2.2.2 Main sources of consultation and information

The following information sources were consulted:

- Department of Environment, Heritage and Local Government (DoEHLG, 2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities;
- European Community Habitats Directive (92/43/EEC) – The Habitats Directive;
- European Communities (Natural Habitats) Regulations 1997;
- European Commission Environment DG (2001). 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;
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC;
- National Parks and Wildlife Services online MapViewer⁵;
- National Parks and Wildlife Service data (GIS datafiles⁶);
- Sligo County Council Planning Portal⁷; and,
- EPA online Map Viewer⁸.

⁵ NPWS Map Viewer <http://webgis.npws.ie/npwsviewer/> (Accessed June 2021)

⁶ NPWS Maps and Data <https://www.npws.ie/maps-and-data> (Accessed June 2021)

⁷ Sligo County Council Planning Application Map
[Online Planning Tools \(sligococo.ie\)](https://sligococo.ie) (Accessed June 2021)

⁸ EPA Map Viewer <https://gis.epa.ie/EPAMaps/> (Accessed June 2021)

2.2.3 Bird Surveys

A late winter site visit was undertaken on 20 03 2021 to the camp site including the proposed extension area (Application Site).

This visit assessed existing habitat availability and quality within the camp site and the Application Site for wintering waterbirds, with particular attention given to suitability for QI species of the Cummen Strand SPA, including brent geese, oystercatcher and redshank. These species are known to regularly utilise terrestrial habitats for foraging, including the types of dune/amenity grassland which exists within the footprint of the existing camp site.

A breeding season site visit was undertaken on 13 06 2021 to assess the potential for the Application Site to support breeding birds.

Woodrow Bird Survey Results are provided in **Appendix II**.

2.2.4 I-Webs Data Request

While the Proposed Development is considered to have a minimal impact due to it occurring adjacent to the existing campsite and in an area frequently used for amenity purposes, the I-Webs data was not considered sufficient on its own to inform the NIS due to the Proposed Development occurring so close to the boundary of the SPA. Subsequently, a late winter bird survey and breeding season site visit to the campsite including extension areas was carried out on the 20 03 2021 and 13 06 2021 respectively by an experienced ornithologist.

In addition, the results of Irish Wetland Bird Survey (I-Webs) by Birdwatch Ireland volunteers for this area (within relevant subsites of Sligo Harbour) in 2017/2018 are provided in **Appendix III** of this report. These were reviewed to inform this NIS.

3. SURVEY RESULTS

Survey results are provided in full within Appendix II to V within this NIS report.

These bird and habitat survey results clearly illustrate that the Application Site **does not** support any QI habitat or species that might be directly connected with or intrinsically related to the nearby European Sites.

The results reports also provide sufficient information to inform recommendations for mitigation to inform the design of the Proposed Development to ensure that this has no significant adverse impact upon ecology or biodiversity in general.

4. IMPACT ASSESSMENT

The Screening for AA Report, provided in **Appendix I**, concluded that the Proposed Development had some unknown potential to result in significant effects on Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA. An assessment of the potential impact on the integrity of these sites, with respect to structure and function of QIs is given in this section and is informed by the survey results provided in Appendix II to V of this NIS report.

4.1 European Sites identified within the Screening Assessment

Table 1 below details the European Sites for which the Proposed Development has the potential to result in significant effects. It includes the QIs potentially affected as well as potential impact type. QIs highlighted in **Bold** are considered to be of particular importance, due to their potential for adverse impacts if the proposal was left unmitigated.

Table 1: Potential adverse effects matrix for European Sites within the Zone of Influence of the Proposed Development

Protected European Site	Distance from Site	Qualifying Interest ⁹ (QIs)	Impact Type
Special Areas of Conservation (SACs)			
Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC Site Code: 000627	The Proposed Development is located adjacent the boundary of the SAC (c. 26m)	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] • Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220] • <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] • <i>Petromyzon marinus</i> (Sea Lamprey) [1095] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099]	<i>During Construction:</i> • Water quality impacts from sedimentation run-off effecting marine species and habitats during construction. • Noise pollution will be temporary and not at a significant scale based on the nature of the works. <i>During Operation:</i> • No adverse impacts noted. The proposal will not cause a significant increase to the numbers of visitors already accessing the Application Site. However, the proposal will result in a more controlled manner in which people visit the Application Site.

⁹ The Site-Specific Conservation Objectives (NPWS, 2011) of each QI is to maintain the favourable conservation condition of each QI in each Site, which is defined by a list of attributes and targets found in the Conservation Objectives Documents referenced.

		• <i>Phoca vitulina</i> (Harbour Seal) [1365]	
Ballysadare Bay SAC Site Code: 000622	c.5km to the south	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Humid dune slacks [2190] • <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] • <i>Phoca vitulina</i> (Harbour Seal) [1365]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.
Union Wood SAC Site Code: 000638	c.12km to the southeast	• Old sessile oak woods with Ilex and <i>Blechnum</i> in the British Isles [91A0]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.

Ben Bulbin, Gleniff and Glenade Complex SAC Site Code: 000623	c.7.8km to the northeast	• Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] • European dry heaths [4030] • Alpine and Boreal heaths [4060] • <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] • Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and sub-mountain areas, in Continental Europe) [6230] • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] • Transition mires and quaking bogs [7140] • Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220] • Alkaline fens [7230] • Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110] • Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietia rotundifolia</i>) [8120] • Calcareous rocky slopes with chasmophytic vegetation [8210] • <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013] • <i>Lutra lutra</i> (Otter) [1355]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.
---	---------------------------------	---	--

Lough Gill SAC Site Code: 001976	c. 7.5km to the southeast	• Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation [3150] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] • <i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092] • <i>Petromyzon marinus</i> (Sea Lamprey) [1095] • <i>Lampetra planeri</i> (Brook Lamprey) [1096] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099] • <i>Salmo salar</i> (Salmon) [1106] • <i>Lutra lutra</i> (Otter) [1355]	Given the size, nature and downstream location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.
Streedagh Point Dunes SAC Site Code: 001680	c.9.6km to north	• Mudflats and sandflats not covered by seawater at low tide [1140] • Perennial vegetation of stony banks [1220] • Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) [1330] • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.

Unshin River SAC Site Code: 001898	c.11km to south	• <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] • Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) [6410] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnus incana</i>, <i>Salix alba</i>) [91E0] • <i>Salmo salar</i> (Salmon) [1106] • <i>Lutra lutra</i> (Otter) [1355]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.
Special Protection Areas (SPAs)			
Cummeen Strand SPA Site Code: 004035	The Proposed Development is located adjacent the boundary of the SAC to the south (<1m)	• Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Redshank (<i>Tringa totanus</i>) [A162] • Wetland and Waterbirds [A999]	<i>During Construction:</i> • Water quality impacts from sedimentation run-off potentially affecting waterbird species and habitats. • Noise disturbance from groundworks. <i>During Operation</i>

			The operation of an extended campsite within this existing busy visitor spot is not expected to pose any additional significant impacts on this European Site (e.g. through disturbance or surface water runoff for example). Instead, it is likely that existing movement of people at the Application Site will be undertaken in a more controlled manner within the Application Site itself.
Drumcliff Bay SPA Site Code: 004013	c.1.4km to the north (c.5km via waterbody connectivity)	- Sanderling (<i>Calidris alba</i>) [A144] - Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] - Wetland and Waterbirds [A999]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.
Ballysadare Bay SPA Site Code: 004129	c.5km to the south	- Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] - Grey Plover (<i>Pluvialis squatarola</i>) [A141] - Dunlin (<i>Calidris alpina</i>) [A149] - Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] - Redshank (<i>Tringa totanus</i>) [A162] - Wetland and Waterbirds [A999]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.
Ballintemple and Ballygilgan SPA Site Code: 004234	c.5.4km to the north	Barnacle Goose (<i>Branta leucopsis</i>) [A045]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.
Ardboline Island and Horse Island SPA Site Code: 004135	c. 7.5km to the north-west	- Cormorant (<i>Phalacrocorax carbo</i>) [A017] - Barnacle Goose (<i>Branta leucopsis</i>) [A045]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.

Sligo/Leitrim Uplands SPA Site Code: 004187	c. 8km to the northeast	- Peregrine (<i>Falco peregrinus</i>) [A103] - Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.
Inishmurray SPA Site Code: 004068	c. 14.5km to the northwest	- Shag (<i>Phalacrocorax aristotelis</i>) [A018] - Barnacle Goose (<i>Branta leucopsis</i>) [A045] - Herring Gull (<i>Larus argentatus</i>) [A184] - Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Given the size, nature and location the proposal – there is considered to be no potential for impacts upon this particular European Site and / or its Qualifying Interest habitats / species.

4.1.1 Description of Natura 2000 sites within the Zone of Influence

As shown in **Table 1** and illustrated in **2** above, the Proposed Development is located in close proximity to Cummeen Strand SPA and Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC. There is potential for disturbance of the Qualifying Interests (QIs) species of Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA during the construction phase due to the proximity of the Proposed Development. See **Table 1** for QI species / habitats which are considered to have the potential to be adversely impacted by the Proposed Development.

Description of Cummeen Strand SPA

Cummeen Strand is a large shallow bay stretching from Sligo Town westwards to Coney Island. It is one of three estuarine bays within Sligo Bay and is situated between Drumcliff Bay to the north and Ballysadare Bay to the south. The Garavogue River flows into the bay and forms a permanent channel.

At low tide, extensive sand and mud flats are exposed. These support a diverse macro-invertebrate fauna which provides the main food supply for the wintering waterfowl. Invertebrate species such as Lugworm (*Arenicola marina*), Ragworm (*Hediste diversicolor*), Cockles (*Cerastoderma edule*), Sand Mason (*Lanice conchilega*), Baltic Tellin (*Macoma balthica*), Spire Shell (*Hydrobia ulvae*) and Mussels (*Mytilus edulis*) are frequent. Of particular note is the presence of eelgrass (*Zostera noltii* and *Z. angustifolia*) beds, which provide a valuable food stock for herbivorous wildfowl. The estuarine and intertidal flat habitats are of conservation significance and are listed on Annex I of the E.U. Habitats Directive. Areas of salt marsh fringe the bay in places and provide roosting sites for birds during the high tide periods. Sand dunes occur at Killaspug Point and Coney Island, with a shingle spit at Standalone Point near Sligo Town.

The site is a SPA under the E.U. Birds Directive, of special conservation interest for the following species: light-bellied Brent goose, oystercatcher 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.

QIs of Cummeen Strand SPA being assessed further include:

- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Redshank (*Tringa totanus*) [A162]
- Wetland and Waterbirds [A999]

Site-specific conservation objectives and favourable conservation status

A site-specific conservation objective aims to define favourable conservation conditions for a particular habitat or species at that Site (NPWS, 2013). According to Articles 1(e) and 1(i) of the Habitats Directive (EC, 1992) and as cited in NPWS (2013), *favourable conservation status of a habitat is achieved when:*

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

According to NPWS (2013), *favourable conservation status of a species is achieved when:*

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

The conservation objectives for the QIs of this site are:

“To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA” and “To maintain the favourable conservation condition of wetland habitat in Cummeen Strand SPA as a resource for the regularly occurring migratory waterbirds that utilise it “.

Threats and Pressures on Cummeen Strand SPA

Table 2: Threats, pressures and activities impacting on Cummeen Strand SPA.

Code	Threats & Pressures	Rank	+/-	Inside/Outside
A08	Agriculture ; Fertilisation	M	-	O
D01.02	Transportation and service corridors ; roads, motorways all paved roads	M	-	O
D01.02	Transportation and service corridors ; roads, motorways all paved roads	M	+	O
D03.02	Transportation and service corridors ; shipping lanes includes canals	H	-	I
D03.02	Transportation and service corridors ; shipping lanes includes canals	H	+	I
E01	Urbanisation, residential and commercial development ; urbanised areas, human habituation	M	-	O
E02	Urbanisation, residential and commercial development ; industrial or commercial areas	H	-	I
E02	Urbanisation, residential and commercial development ; industrial or commercial areas	H	-	O
F01	Biological resource use other than agriculture & forestry ; marine and freshwater aquaculture	H	-	I
F02.03	Biological resource use other than agriculture & forestry ; Leisure fishing other than bait-fishing	L	-	I
F02.03	Biological resource use other than agriculture & forestry ; Leisure fishing other than bait-fishing	L	+	I
H	Pollution	M	-	I
J02.01.02	Natural system modification ; reclamation of land from sea, estuary or marsh	H	-	I

Rank: H = high, M = medium, L = low; I= inside, O = outside, B = both; +/- = Positive/Negative Impact

Source: <http://cdr.eionet.europa.eu/help/natura2000>

4.1.2 Description of Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC

This large coastal site extends from Cullamore in the north-west to Killaspug in the south-west, and from Sligo town in the south-east to Drumcliff village in the northeast. It encompasses two large, shallow bays, Drumcliff Bay and Sligo Harbour, and both Ardboline and Horse Island. Sand dunes and sand hills at Rosses Point, Killaspug, Yellow Strand and Coney Island are included, as are grasslands at Ballintemple and Ballygilgan (Lissadell), along with a variety of other habitats such as woodland, saltmarsh, sandy beaches, boulder beaches, shingle, fen, freshwater marshes, rocky sea cliffs and lakes. The site is largely underlain by Carboniferous limestone, but acidic rocks are also found on the Rosses Point peninsula. At Serpent Rock in the north-western section of the site the most complete section of the northwestern Carboniferous strata is exposed. Here are found an excellent series of fossilised corals which, in some strata, stand out from the rock matrix.

QIs of Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC being assessed further:

- **Estuaries [1130]**
- **Mudflats and sandflats not covered by seawater at low tide [1140]**
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- *Juniperus communis* formations on heaths or calcareous grasslands [5130]
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]
- Petrifying springs with tufa formation (*Cratoneurion*) [7220]
- ***Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014]**
- ***Petromyzon marinus* (Sea Lamprey) [1095]**
- ***Lampetra fluviatilis* (River Lamprey) [1099]**
- ***Phoca vitulina* (Harbour Seal) [1365]**

Site-specific conservation objectives and favourable conservation status

Site-specific Conservation Objectives have been developed for Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC which aim to define favourable conservation conditions for each particular habitat and species QI at that site (NPWS, 2016a). Conservation Objectives include the general objective 'To maintain the favourable conservation condition of any habitat or species in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by a detailed list of attributes and targets' listed in Table 3 (NPWS 2013).

Table 3: Conservation Objectives for each of the QIs being assessed

To maintain the favourable conservation condition of Estuaries in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Habitat area was estimated as 1258ha using OSi data and the defined Transitional Water Body area under the Water Framework Directive
Community extent	Hectares	Maintain the extent of the <i>Zostera</i> -dominated community and the <i>Mytilidae</i> -dominated community complex, subject to natural processes.	Based on intertidal surveys undertaken in 2007 and 2010 (ASU, 2007, 2012) and subtidal survey in 2010 (Aquafact, 2011).
Community structure: <i>Zostera</i> density	Shoots/m ²	Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes	Estimated during intertidal surveys undertaken in 2007 and 2010 (ASU, 2007, 2012).
Community structure: <i>Mytilus edulis</i> density	Individuals/m ²	Conserve the high quality of the <i>Mytilidae</i> -dominated community complex, subject to natural processes	Estimated during intertidal surveys undertaken in 2007 and 2010 (ASU, 2007, 2012) and subtidal survey in 2010 (Aquafact, 2011).
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal fine sand with <i>Peringia ulvae</i> and <i>Pygospio elegans</i> community complex; Estuarine mixed sediment to sandy mud with <i>Hediste diversicolor</i> and oligochaetes community complex; Fine sand with	Based on intertidal and subtidal surveys undertaken in 2007 and 2010 (ASU, 2007, 2012; Aquafact, 2011) and an intertidal walkover undertaken in 2013

		<i>Angulus</i> spp. and <i>Nephtys</i> spp. community complex; Sand to mixed sediment with amphipods community; Intertidal reef community.	
To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:			
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes	Habitat area was estimated using OSi data as 2288ha
Community extent	Hectares	Maintain the extent of the <i>Zostera</i> -dominated community and the <i>Mytilidae</i> -dominated community complex, subject to natural processes.	Based on intertidal surveys undertaken in 2007 and 2010 (ASU, 2007, 2012).
Community structure: <i>Zostera</i> density	Shoots/m ²	Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes	Estimated during intertidal surveys undertaken in 2007 and 2010 (ASU, 2007, 2012).
Community structure: <i>Mytilus edulis</i> density	Individuals/m ²	Conserve the high quality of the <i>Mytilidae</i> -dominated community complex, subject to natural processes	Estimated during intertidal surveys undertaken in 2007 and 2010 (ASU, 2007, 2012)
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal fine sand with <i>Peringia ulvae</i> and <i>Pygospio elegans</i> community complex; Estuarine mixed sediment to sandy mud with <i>Hediste diversicolor</i> and oligochaetes community complex; Fine sand with crustaceans and <i>Scololepis</i> (<i>Scololepis</i>) <i>squamata</i> community complex; Fine sand with <i>Angulus</i> spp. and <i>Nephtys</i> spp. community complex.	Based on intertidal surveys undertaken in 2007 and 2010 (ASU, 2007, 2012).

To maintain the favourable conservation condition of Embryonic shifting dunes in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:

Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. For subsites mapped: Coney Island - 0.67ha, Rosses Point - 32.27ha, Strandhill - 0.18ha, Yellow Strand - 0.83ha.	Based on data from the Coastal Monitoring Project (CMP) (Ryle <i>et al.</i> , 2009). Habitat is very difficult to measure in view of its dynamic nature. It was recorded at four sub-sites, giving an estimated total area of 33.95ha. NB further un-surveyed areas maybe present within this SAC. S
Habitat distribution	Occurrence	No decline, subject to natural processes	Based on data from Ryle <i>et al.</i> (2009). Additional dune habitats noted to occur at Lissadell Strand and on Maguin's Island.
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle <i>et al.</i> (2009). Dunes are naturally dynamic systems that require continuous supply and circulation of sand. Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. There are coastal protection works at both Strandhill and Rosses Point
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle <i>et al.</i> (2009). At Rosses Point, saltmarsh habitats occur in association with sand dune habitats.
Vegetation composition: plant health of foredune grasses	Percentage cover	More than 95% of sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e., green plant parts above ground and flowering heads present)	Based on data from Ryle <i>et al.</i> (2009).
Vegetation composition: typical species and subcommunities	Percentage cover	Maintain the presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>)	Based on data from Ryle <i>et al.</i> (2009).

Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover	Based on data from Ryle <i>et al.</i> (2009). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Seabuckthorn (<i>Hippophae rhamnoides</i>) should be absent or effectively controlled. This species has not been recorded from this SAC.
To restore the favourable conservation condition of Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:			
Habitat area	Hectares	Area increasing, subject to natural processes including erosion and succession. For sub-sites mapped: Coney Island - 0.46ha, Rosses Point - 0.17ha, Strandhill - 0.10ha, Yellow Strand - 0.47ha.	Based on data from the Coastal Monitoring Project (CMP) (Ryle <i>et al.</i> , 2009). Habitat is very difficult to measure in view of its dynamic nature. It was recorded at four sub-sites, giving an estimated total area of 1.20ha. NB further un-surveyed areas maybe present within this SAC.
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	Based on data from Ryle <i>et al.</i> (2009). Additional dune habitats noted to occur at Lissadell Strand and on Maguin's Island. S
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle <i>et al.</i> (2009). Dunes are naturally dynamic systems that require continuous supply and circulation of sand. Marram grass (<i>Ammophila arenaria</i>) reproduces vegetatively and requires constant accretion of fresh sand to maintain active growth encouraging further accretion. There are hard coastal protection works at both Strandhill and Rosses Point
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Gaynor (2008) and Ryle <i>et al.</i> (2009). At Rosses Point, saltmarsh habitats occur in association with sand dune habitats.

Vegetation composition: plant health of dune grasses	Percentage cover	95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e., green plant parts above ground and flowering heads present)	Based on data from Ryle <i>et al.</i> (2009).
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram grass (<i>Ammophila arenaria</i>) and/or lymegrass (<i>Leymus arenarius</i>)	Based on data from Ryle <i>et al.</i> (2009).
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle <i>et al.</i> (2009). Negative indicators include non-native species; species indicative of changes in nutrient status and species not considered characteristic of the habitat. Seabuckthorn (<i>Hippophae rhamnoides</i>) should be absent or effectively controlled. This species has not been recorded from this SAC.
To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:			
Habitat area	Hectares	Area increasing, subject to natural processes including erosion and succession. For sub-sites mapped: Coney Island - 15.06ha; Rosses Point - 21.89ha; Strandhill - 40.14ha; Yellow Strand - 19.16ha.	Based on data from Coastal Monitoring Project (CMP) (Ryle <i>et al.</i> , 2009). Habitat was recorded at four sub-sites, giving an estimated total area of 96.26ha. NB further un-surveyed areas maybe present within this SAC.
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	Based on data from Ryle <i>et al.</i> (2009). Additional dune habitats noted to occur at Lissadell Strand and on Maguin's Island.

Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle <i>et al.</i> (2009). Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. There are coastal protection works at both Strandhill and Rosses Point
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Gaynor (2008) and Ryle <i>et al.</i> (2009). At Rosses Point, saltmarsh habitats occur in association with sand dune habitats.
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	Based on data from Gaynor (2008) and Ryle <i>et al.</i> (2009). At both Yellow Strand and Coney Island, overgrazing and rabbit burrowing have contributed to creating large areas of bare sand.
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward	Based on data from Gaynor (2008) and Ryle <i>et al.</i> (2009). Vegetation is quite rank in places at Strandhill and Rosses Point due to under grazing, while at Coney Island and Yellow Strand, overgrazing is an issue.
Vegetation composition: typical species and subcommunities	Percentage cover at a representative sample of monitoring stops	Maintain range of subcommunities with typical species listed in Ryle <i>et al.</i> (2009)	Based on data from Gaynor (2008) and Ryle <i>et al.</i> (2009).
Vegetation composition: negative indicator species (including <i>Hippophae rhamnoides</i>)	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle <i>et al.</i> (2009). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Seabuckthorn (<i>Hippophae rhamnoides</i>) should be absent or effectively controlled. This species has not been recorded from this SAC. The main negative indicators recorded are creeping thistle (<i>Cirsium arvense</i>), spear thistle (<i>C. vulgare</i>), ragwort (<i>Senecio jacobaea</i>) and perennial rye

			grass (<i>Lolium perenne</i>) (Ryle <i>et al.</i> , 2009).
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	Based on data from Ryle <i>et al.</i> (2009). At Strandhill, pine trees planted at low density occur within the fixed dune habitat. Isolated individual sycamore (<i>Acer pseudoplatanus</i>) trees are present in the northern part of the fixed dunes at Rosses Point.
To restore the favourable conservation condition of <i>Juniperus communis</i> formations on heaths or calcareous grasslands in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:			
Formation areas	Hectares	Area stable or increasing, subject to natural processes	Four areas of juniper vegetation were identified within the SAC (three at Rosses Point and one at Knocklane- SO01, SO04, SO08, SO16) by a national juniper survey (Cooper <i>et al.</i> , 2012), although not all are classified as formations (see below). NB Further unsurveyed areas maybe present within the SAC
Habitat distribution	Occurrence	No decline	Map shows sites identified in Cooper <i>et al.</i> (2012)- SO01, SO04, SO08, SO16. NB Further unsurveyed areas maybe present within the SAC
Juniper population size	Number	At least 50 plants per population	To classify as a juniper formation, at least 50 plants should be present (Cooper <i>et al.</i> , 2012). Further work is required to confirm which sites, identified by Cooper <i>et al.</i> (2012) at Rosses Point, should be classified as formations. These three sites probably form a single breeding population (J. Cross, pers. comm.). The Knocklane population (SO04) is not currently classified as a formation (Cooper <i>et al.</i> , 2012)

Formation structure: cover and height	Hectares	Appropriate community diversity and extent	See Cooper <i>et al.</i> (2012) for further details
Formation structure: cone-bearing plants	Percentage	At least 10% of plants bearing cones	Target based on Cooper <i>et al.</i> (2012). 55% of the SO01 population was bearing cones at time of survey (Cooper <i>et al.</i> , 2012)
Formation structure: seedling recruitment	Percentage	At least 10% of juniper plants within the formation are seedlings	Target based on Cooper <i>et al.</i> (2012). 21% of the SO01 population were seedlings according to Cooper <i>et al.</i> (2012)
Formation structure: amount of each plant dead	Mean percentage	Mean percentage of each juniper plant dead not more than 10%	Target based on Cooper <i>et al.</i> (2012)
Vegetation composition: typical species	Occurrence	A variety of typical native species with a minimum of 10 species present (excluding negative indicator species)	According to Cooper <i>et al.</i> (2012), juniper stands within the SAC fall into either vegetation group 4 (<i>Calluna vulgaris</i> - <i>Erica cinerea</i> group) or 5 (<i>Galium verum</i> - <i>Pilosella officinarum</i> group). See Cooper <i>et al.</i> (2012) for typical species
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	Non-native cotoneaster (<i>Cotoneaster integrifolius</i>) was recorded at Rosses Point by Cooper <i>et al.</i> (2012)
To maintain the favourable conservation condition of Petrifying springs with tufa formation (<i>Cratoneurion</i>) in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:			
Habitat distribution	Square meters	Area stable or increasing, subject to natural processes	The area of this habitat at Ballincar is recorded as 150m ² along c.200m of cliff (internal NPWS files). NB further areas of the habitat may occur within this SAC
Habitat distribution	Occurrence	No decline	This habitat occurs along a seepage line in low (generally less than 10m in height) clay sea cliffs near Ballincar (internal NPWS files). Lyons and Kelly (2013) recognise three main

			subtypes of spring. This site falls into the coastal springs subtype (the other two being woodland springs and inland non-wooded springs) NB further areas of the habitat may occur within this SAC
Hydrological regime: height of water table; water flow	Metres; metres per second	Maintain appropriate hydrological regimes	The hydrological regime is currently unknown at this site. Petrifying springs rely on permanent irrigation, usually from upwelling groundwater sources or seepage sources. This site appears to be fed from water seeping through clay sea cliffs (internal NPWS files)
Water quality	Water chemistry measures	Maintain oligotrophic and calcareous conditions	Water chemistry is currently unknown for this site. Characteristically, petrifying spring water has high values for pH, alkalinity and dissolved calcium and is oligotrophic (Lyons and Kelly, 2013)
Vegetation composition: typical species	Occurrence	Maintain typical species	The bryophytes <i>Palustriella commutata</i> (<i>Cratoneuron commutatum</i>) and <i>Eucladium verticillatum</i> are diagnostic of this habitat (EC, 2007). Both are found at the location described above (internal NPWS files). Other bryophyte species listed here are <i>Didymodon tophaceus</i> and <i>Trichostomium crispulum</i> (internal NPWS files)
To maintain the favourable conservation condition of Narrow-mouthed Whorl Snail in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:			
Distribution: occupied sites	Number	No decline. There is one known location for this species in this SAC (which overlaps two 1km squares).	From Moorkens and Killeen (2011) (site code Va CAM21)
Presence on transect	Occurrence	Adult or sub-adult snails are present in four of the grassland zones on the transect where optimal or sub-optimal habitat occurs (minimum 5 samples)	Transect established as part of condition assessment monitoring at this site (Moorkens and Killeen, 2011). See habitat extent target

			below for definition of optimal and sub-optimal habitat
Presence	Occurrence	Adult or sub-adult snails are present in at least 6 other places at the site with a wide geographical spread (minimum of 8 sites or 75% of sites sampled)	From Moorkens and Killeen (2011)
Transect habitat quality	Metres	At least 75m of habitat along the transect is classed as optimal and 150m of habitat along the transect is classed as suboptimal or optimal	From Moorkens and Killeen (2011). See habitat extent target below for definition of optimal and sub-optimal habitat
Transect optimal wetness	Metres	Soils, at time of sampling, are damp (optimal wetness) and covered with a layer of humid thatch for more than 130m along the transect	From Moorkens and Killeen (2011)
Habitat extent	Hectares	12-15ha of the site optimal and a further 11-14ha suboptimal. Optimal habitat is defined as fixed dune, species-rich grassland dominated by red fescue (<i>Festuca rubra</i>), with sparse marram grass (<i>Ammophila arenaria</i>), lady's bedstraw (<i>Galium verum</i>), eyebright (<i>Euphrasia</i> sp.), mouseear-hawkweed (<i>Pilosella officinarum</i>) and other low growing herbs. Vegetation height 10-30cm. Habitat growing on damp, friable soil covered with a layer of humid, open structured thatch. Sub-optimal habitat is defined as for optimal but either vegetation height is less than 10cm or between 30 and 50cm; or the vegetation contains mounds of moss or willow (<i>Salix</i> spp.) scrub; or the soil is dry and sandy; or the thatch is wetter with a denser structure	From Moorkens and Killeen (2011)

To restore the favourable conservation condition of Sea Lamprey in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:

Distribution: extent of anadromy	Percentage of estuary accessible	No barriers for migratory life stages of lamprey moving from freshwater to marine habitats and vice versa	This SAC only covers marine/estuarine habitat and it is not anticipated that it contains suitable spawning or nursery habitat. Migrating adult lamprey pass through the site en route to/from the Garavogue River, which flows out of Lough Gill. Lough Gill SAC (site code: 1976), which is adjacent to this SAC, encompasses the freshwater elements of sea lamprey habitat. Potential barriers for migrating lamprey include anthropogenic physical barriers and chemical barriers e.g., oxygen depletion or discharge of noxious pollutants
----------------------------------	----------------------------------	---	---

To maintain the favourable conservation condition of River Lamprey in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:

Distribution: extent of anadromy	Percentage of estuary accessible	No barriers for migratory life stages of lamprey moving from freshwater to marine habitats and vice versa	This SAC only covers marine/estuarine habitat and it is not anticipated that it contains suitable spawning or nursery habitat. Migrating adult lamprey pass through the site en route to/from the Garavogue River, which flows out of Lough Gill. Lough Gill SAC (site code: 1976), which is adjacent to this SAC, encompasses the freshwater elements of river lamprey habitat. Potential barriers for migrating lamprey include anthropogenic physical barriers and chemical barriers e.g., oxygen depletion or discharge of noxious pollutants
----------------------------------	----------------------------------	---	---

To maintain the favourable conservation condition of Harbour Seal in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, which is defined by the following list of attributes and targets:

Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use	See marine supporting document on the NPWS website for further details.
----------------------------	-------------------------------	---	---

Breeding behaviour	Breeding sites	Conserve the breeding sites in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, review of data summarised by Summers <i>et al.</i> (1980), Warner (1983), Harrington (1990), Lyons (2004), and unpublished NPWS records
Moulting behaviour	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations, review of data from Lyons (2004), Cronin <i>et al.</i> (2004), and unpublished NPWS records.
Resting behaviour	Resting haul-out behaviour	Conserve the resting haul-out sites in a natural condition	Attribute and target based on background knowledge of Irish populations, review of data from Lyons (2004) and unpublished NPWS records.
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour seal population at the site	See marine supporting document for further details

Threats and Pressures on Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC

Table 4: Threats, pressures and activities impacting on Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC.

Code	Threats & Pressures	Rank	+/-	Inside/Outside
A02.01	Agriculture ; agricultural intensification	M	-	I
D03	Transportation and service corridors ; shipping lanes includes canals	M	-	I
D03.01	Transportation and service corridors ; port areas	M	-	I
E01.03	Urbanisation, residential and commercial development ; dispersed habitation	M	-	I
E03.03	Urbanisation, residential and commercial development ; disposal of inert materials	L	-	I
F01.01	Biological resource use other than agriculture & forestry ; intensive fish farming, intensification	H	-	I
G01.02	Human intrusions and disturbances ; walking, horse-riding and non-motorised vehicles	M	-	I
G01.03.02	Human intrusions and disturbances ; off-road motorized driving	M	-	I
G02.01	Human intrusions and disturbances ; golf course	M	-	I
G02.08	Human intrusions and disturbances ; camping and caravans	L	-	I
G02.09	Human intrusions and disturbances ; wildlife watching	M	+	I
G05.01	Human intrusions and disturbances ; trampling, overuse	L	-	I
I01	Invasive, other problematic species and genes ; invasive non-native species	M	-	I
J01.01	Natural system modifications ; burning down	L	-	I
J02.11.01	Natural system modifications ; dumping, depositing and dredged deposits	L	-	I
J02.12.01	Natural system modifications ; sea defense or coast protection works, tidal barrages	L	-	I

Rank: H = high, M = medium, L = low; I = inside, O = outside, B = both; +/- = Positive/Negative Impact

Source: <http://cdr.eionet.europa.eu/help/natura2000>

5. ASSESSMENT OF POTENTIAL EFFECTS ON NATURA 2000 SITES

To inform the impact assessment process, site visits were undertaken on 20 03 2021, 13 04 2021, 19 05 2021 and 13 06 2021 in order to identify any potential for Annex habitats or species within the Cummeen Strand SPA and Cummeen Strand/Drumcliff Bay SAC in the vicinity of the Application Site. The surveys also provided an opportunity to investigate the presence of any hydrological connections in further detail to ascertain the potential impacts of the Proposed Development, for instance, impacts resulting in potential effects on water quality of the European Sites.

No significant ornithological constraints have been identified during these surveys at this location. There is no QI wetland habitat located within the Application Site and therefore, there will be no loss of this QI habitat. All QI species of the SPA, and the QI species and habitats of the SAC that are sensitive to water quality impacts are assessed further within this NIS for any potential adverse effect (as a result of water quality impacts). All QI species of the SPA and SAC sensitive to disturbance impacts are also assessed within this NIS for any potential adverse effect.

5.1 Assessment of effects on Cummeen Strand SPA

5.1.1 Potential Disturbance Impacts to Waterbirds

Construction

Disturbance impacts (including noise and visual effects during construction) have the potential to adversely affect QI bird species of the SPA during the overwintering season. Construction impacts can result in different disturbance effects depending on the noise levels, types of construction activity and the species involved. According to Cayford, (1993), disturbance varies in its magnitude, frequency, predictability, spatial distribution and duration. Moreover, species (and individuals within species groups) vary greatly in their susceptibility to disturbance and this susceptibility is likely to vary with age, season, weather and the degree of previous exposure (habituation). Cutts *et al.*, (2009), describes disturbance as discrete events which disrupt ecosystems, communities or population structure or alter resource levels, i.e. food and space, but may also influence the survival of individual birds and reduce the function of a site either for roosting or feeding. The degree of disturbance to avifauna on a site depends on a number of variables including the type of disturbance stimuli, avifaunal community present, avifaunal function/activity, extent and topography of site (spatial), time of year (temporal), level of third-party disturbance, weather conditions and degree of previous exposure (Cutts *et al.*, 2009).

Research shows that birds respond to human presence in a similar way to how they would respond to a predator (by walking or flying away from the assumed threat) (Blumstein *et al.*, 2003). Avoidance behaviours (i.e., taking flight) incur energetic costs to birds. According to Stillman and Goss-Custard (2002), the response of foraging animals to human disturbance can be considered as a trade-off between the increased perceived predation risk of tolerating disturbance and the increased starvation risk of not feeding and avoiding disturbance. According to Blumstein (2003), the distances at which birds will initiate flight (flight initiation distance or “FID”) in response to disturbance is species-specific, with some species reacting more strongly than others. According to Blumstein (2003), sanderling show 100% disturbance response to humans when they are 30 m or closer, while larger birds have greater alert distances. **Figure 7** taken from Cutts *et al.* (2009) shows distances that can be used as guidelines which should be used in conjunction with a suitable monitoring programme if being used to implement mitigation measures during construction activities. In general, foraging birds are negatively affected by the presence of humans. The severity of these effects is dependent on the number of people present, type of activity, spatial variables, temporal variables and inter-specific distances.

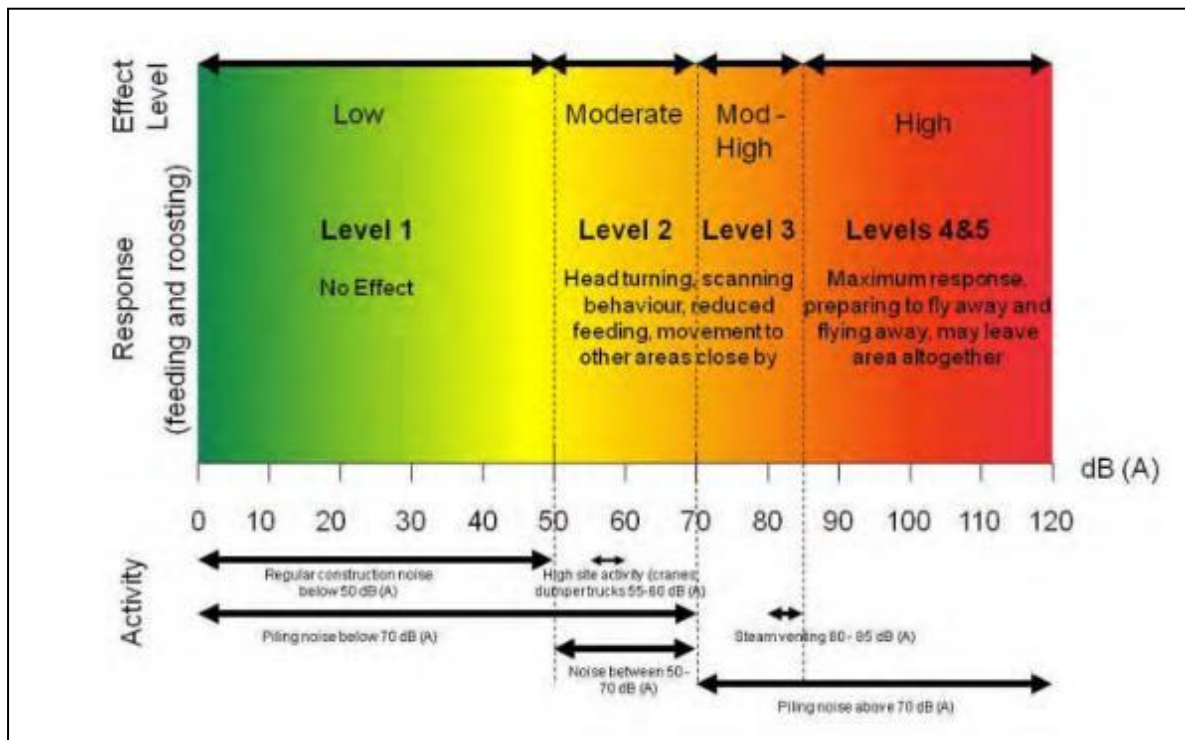


Figure 7: Disturbance responses and activities (Source: Cutts *et al.*, 2009).

The estimated potential disturbance activities during construction for the Proposed Development are provided below:

Types: Human movement (c. 4 operatives).

Movement of machinery (excavators, rollers, dumpers, lorries etc.).

Noise of construction (occasionally very loud > 100 dB).

Scale: Small scale (< 0.5 ha)

Frequency: Frequent (daily/working week) over a constrained period (i.e. during approximately a 3-week period). It is estimated that loud, disturbing works will be undertaken over max approx. 12 days and for max 8 hours per day.

Seasonality: Conduct any construction work (excavation / ground works) in appropriate weather conditions (dry weather spells are optimal) ideally in March to September (aiming to avoid winter season when wintering bird numbers are high). **Clear site vegetation (if required) outside of the bird breeding season (which is March to August inclusive).**

There was no suitable habitat for the QI bird species of SPA noted within the footprint of the works. However, some suitable foraging habitat is located nearby along the shoreline of the bay and Brent Geese occasionally feed off green algae growing on the slipway at this site. The grassy sand-dune habitat at the Application Site has the potential to provide an area of suitable foraging habitat for passing QI bird species of the SPA, however due to the busy nature of the adjacent campsite and the proximity of the Application Site to the road, carpark and beach it is not considered to be a specifically attractive area to these QI species. Subsequently, there is the potential for occasional temporary disturbance to occur to a small number of birds which might forage within the footprint of the site. This is particularly the case during the over wintering bird season (October to March inclusive), but any potential impacts are likely to be short-term and temporary during construction.

The proposal has the potential to result in some of the disturbance activities detailed above during construction. Given that the habitat within the footprint of the works is considered to be suboptimal for foraging and/or roosting waterbirds, the potential for adverse effects through disturbance on the QI species during construction would be negligible. However, taking a precautionary approach – mitigation has been advised to remove the potential for any impacts upon over-wintering birds (QI species of the SPA) which could be present during October to March.

Unmitigated, there is potential for the Proposed Development to result in an impact on the local water quality during construction. Without the correct mitigation measures the quality of the water could be temporarily impacted from surface run-off and sedimentation from any groundworks, particularly if carried out during poor weather conditions. There is low potential for this to affect any foraging habitat for QI birds at this particular location. This is discussed further below in Section 5.1.2.

The primary potential impact on waterbirds during the construction stage is disturbance associated with noise. Several studies have been carried out to assess the effects of noise on waterbirds and to determine the threshold noise level for bird disturbance (for example Cutts, N. & Allen, J., 1999; Cutts *et al.*, 2009¹⁰; Wright *et al.*, 2010¹¹).

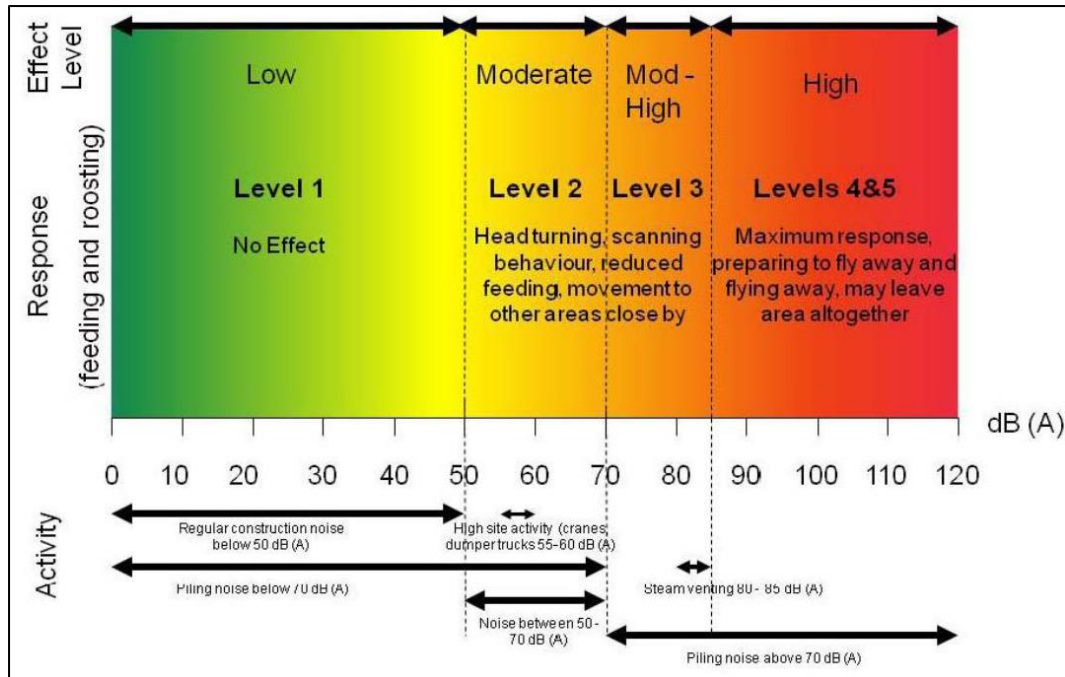
Wright *et al.*, 2010 conclude that *“Intentional disturbance at very low dB(A) levels is unlikely to elicit a behavioural response, while at above 65.5dB(A) a behavioural response of some kind becomes more likely to occur than no response. At above 72.2dB(A) flight with abandonment of the site becomes the most likely outcome ...Deleterious effects of chronic noise exposure of the disturbance have been suggested to begin at levels as low as 55-60dB(A)”*.

This is supported by Cutts *et al.*, (2009), who stated that *“Ambient (construction) noise levels should be restricted to below 70 dB(A), birds will habituate to regular noise below this level. Where possible sudden irregular noise above 50dB(A) should be avoided as this causes maximum disturbance to birds”*. **Graph 1** provides a general illustration of levels of bird response associated with increasing noise levels.

¹⁰ Cutts, N.; Phelps, A. and Burdon, D. (2009), Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber INCA. Institute of Estuarine and Coastal Studies, University of Hull

¹¹ Wright, M.D.; Goodman, P.; and Cameron, T.C. (2010), Exploring behavioural responses of shorebirds to impulsive noise. Journal: Wildfowl (2010) 60:pp 150 -167. Wildfowl and Wetlands Trust.

Graph 1 - Waterbird response to construction disturbance (Cutts *et al.*, 2009)



A previous study conducted by Cutts & Allen in 1999¹² for the Institute of Estuarine and Coastal Studies (IECS) considered the potential disturbance of flood defence in waterbirds, and notably determined that noise levels equal to or above 70dB have the capacity to elicit a behavioural response in birds. This study highlighted different disturbance levels for various activities observed during construction works including effects of noise at different levels as well as movements above the skyline (See **List 1** below). Different activities are given in order of how severely they affected avian fauna in the area via flight responses and / or behavioural changes.

¹² Cutts, N. & Allen, J. (1999) Avifaunal Disturbance Assessment: Flood Defence Work, Saltend. A Report to Environment Agency Prepared by Institutes of Estuarine and Coastal Studies - University of Hull

List 1 - Severity of construction disturbance on avian fauna (Cutts, N. & Allen, J., 1999)

Personnel and plant on mudflat:	High
Third Party on mudflat:	High
Personnel and plant on seaward toe and face:	High to Moderate
Intermittent plant and personnel on crest:	High to Moderate
Third Party on bank:	High to Moderate
Irregular piling noise (above 70 dB):	High to Moderate
Long term plant and personnel on crest:	Moderate
Regular piling noise (below 70dB):	Moderate
Irregular noise (50-70 dB):	Moderate
Regular noise (50-70dB):	Moderate to Low
Occasional movement of the crane jib and load above sight-line:	Moderate to Low
Noise below 50 dB:	Low
Long-term plant only on crest:	Low
Activity behind flood bank (inland):	Low

The Proposed Development includes aspects that fall within Irregular Noise (50-70dB) for a moderate level disturbance during construction; and during the operational phase fall within Noise Below 50 dB for a low-level disturbance in the long-term. However, the Application Site is immediately adjacent to an existing campsite and is a popular tourist spot so is therefore more regularly used outside of the winter bird season – as such the potential for significant adverse impacts on QI species during operation is considered to be negligible.

Further work on this issue led to a toolkit being developed by Cutts, N., Hemingway, K. & Spencer, J. (2013)¹³ which included the incorporation of known waterbird responses to disturbance and understanding of the potential for noise decay over distance, thereby deriving distance disturbance thresholds that could be applied to different construction operations. Such an approach allows both for an improved understanding of the potential for impacts, and a more reasoned approach to robust mitigation.

Graph 2 below shows the noise decay table from the study that can be used to calculate the likely disturbance effect for a noise level and distance receptor from source, allowing an understanding of the distance from different construction operations required in order to achieve a noise level lower than 70 dB, and therefore less likely to illicit a disturbance reaction.

¹³ Cutts, N., Hemingway, K. & Spencer, J. (2013). Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects. Produced by the Institute of Estuarine & Coastal Studies (IECS) -University of Hull (V 3.2). Available at: https://www.tide-toolbox.eu/tidetools/waterbird_disturbance_mitigation_toolkit/

Graph 2 – Overview of utilisation and the standard distance decay rates for noise (Cutts, N., Hemingway, K. & Spencer, J., 2013).

Note: Movement from red to green (to below 70dB indicates move to acceptable noise levels at receptor).

Metres from Source	dB(A)										
0.67	120	110	100	95	90	85	80	75	70	65	60
1.33	114	104	94	89	84	79	74	69	64	59	54
2.67	108	98	88	83	78	73	68	63	58	53	48
5.33	102	92	82	77	72	67	62	57	52	47	42
10.67	96	86	76	71	66	61	56	51	46	41	36
20.67	90	80	70	65	60	55	50	45	40	35	30
42.67	84	74	64	59	54	49	44	39	34	29	24
85.33	78	68	58	53	48	43	38	33	28	23	
170.67	72	62	52	47	42	37	32	27	22		
341.33	66	56	46	41	36	31	26	21			
682.66	60	50	40	35	30	25	20				
1365.32	54	44	34	29	24						

Works most likely to result in disturbance of waterbirds (albeit unlikely in this instance given the lack of suitable foraging habitat for QI species associated with this Proposed Development) are the installation only, which is expected to be short-term and minimal dB disturbance. Typical noise levels from construction can be predicted; for example, a 22 tonne tracked excavator (for use in trenching and piling), would be expected to produce a sound level of 78 dB (A-weighted Sound Pressure Level LAeq dB)¹⁴, mounting supports for directional drill (hydraulic hammer) produce a sound level of 87 dB (A-weighted Sound Pressure Level LAeq dB) and a directional drill generator produces a sound level of 77 dB (A-weighted Sound Pressure Level LAeq dB). A rock hammer can produce a sound level of 114 dB.

Taking account of the information above, it is reasonable to assume that some of the activities within the foreshore areas of the Proposed Development could be noise levels below 70 dB, which would impact waterbirds within 40m from the source. Again, this disturbance is only short-term during construction and is not anticipated to have long-term impacts on the waterbirds in the area, particularly given the low use within the immediate vicinity of where the works are proposed. **Subsequently, appropriate mitigation measures need to be put in place as a best practice and precautionary measure, to ensure there is no possibility of adverse effects on QI species or habitats of the SPA through disturbance impacts during construction, and/or adverse impacts upon local water quality.**

¹⁴ DEFRA (2005) Update of Noise Database for Prediction of Noise on Construction and Open Sites. HMSO. Available at: http://randd.defra.gov.uk/Document.aspx?Document=NO01043_5581_FRP.pdf

Operation

Disturbance during operation should remain limited to the immediate location of the campsite, which lies outside of the SPA and will aim to service existing visitor numbers to the area. However, the scale of this disturbance is predicted to be negligible and similar to existing levels.

Due to the small-scale nature and type of disturbance effect of the proposal, there will be no adverse effect on the QI bird species of Cummeen Strand during the operation of the project and therefore, no mitigation measures are required in this respect.

5.1.2 Potential Water Quality Impacts to Birds

Construction

Waterbirds of the SPA

During construction of the Proposed Development, in the unlikely event that surface water pollution from the Application Site was allowed to reach the coastline, there would be some potential for water quality impacts to Cummeen Stand SPA. These might include non-toxic contamination (sedimentation/siltation e.g. from groundworks/excavation and temporary drainage) and toxic contamination (pollution, chemicals and hydrocarbons e.g. from equipment, machinery and vehicles). These impacts are considered highly unlikely due to the habitats immediately adjacent to the Site providing a physical barrier, but there is a low possibility that this may result in the indirect loss (degradation) of supporting foraging habitat for water dependent QI bird species of the SPA. An increase in suspended solid concentrations has the potential to affect aquatic invertebrates through increased turbidity (inhibiting respiration e.g., through gills) and increased siltation affecting composition of riverbed substrate. As a result, this could indirectly affect waterbirds, for example oystercatchers, redshank and light-bellied brent goose, feeding within this SPA. Suspended solids often hold nutrients such as phosphorus or hydrocarbons that can also result in eutrophication and reduced oxygen levels, another potential impact that is discussed further in this section.

In the absence of mitigation, protected habitats and species, could be degraded during the construction phase of such a project through pollution and/or disruption (SEPA, 2015). This effect would result from various impacts on surface water quality from the Proposed Development. The SPA QI 'Wetlands and waterbirds' includes various bird groups such as *Gaviidae* (divers), *Podicipedidae* (grebes), *Anatidae* (swans, geese and ducks), *Rallidae* (Water Rail, Moorhen & Coot), *Haematopodidae* (oystercatchers), *Charadriidae* (plovers and lapwings), *Scolopacidae* (sandpipers and allies) and *Laridae* (gulls and terns) plus *Phalacrocoracidae* (Cormorants), *Ardeidae* (Heron) and *Alcedinidae* (Kingfisher) which feed on various resources such as invertebrates, aquatic vegetation and fish. Significant adverse water quality impacts have the potential to affect foraging areas of all waterbird species using the SPA. This effect could result from various impacts on surface water quality from the Proposed Development during construction, for example in times of heavy rain and during the winter months, when sediments or hydrocarbons have the potential to enter local surface water drains and consequently the adjacent European Sites.

The birds species of the relevant sites, which are being assessed in this NIS, in terms of potential for water quality impacts include the over-wintering populations of waterbirds which rely on the wetland habitats that this European Site supports. All of these species are sensitive to changes in water quality. As described above, although the footprint of the works lies outside of the SPA boundary (and the latter species were not

recorded near the working area), given the proximity of the Proposed Development overland flow during periods of heavy rainfall could occur due to the close proximity of the site to the SPA where these species occur.

Diets of waterbird species include fish, aquatic invertebrates including cockle mussels, shrimps, crabs, mud snails and worms. Aquatic vegetation is also eaten for example by species such as whooper swan and to a lesser extent, greylag goose (Cramp *et al.*, 1977) – however, the latter two species are unlikely to occur in the zone of influence of this Proposed Development.

The aforementioned ecological features all have the potential to be affected by adverse water quality impacts if the Proposed Development goes unmitigated, particularly during construction. This could occur via sedimentation/siltation and/or hydrocarbon pollution. Due to the numbers of waterbirds which regularly use Cummeen Strand SPA to feed and roost and the proximity of the Proposed Development to the bay, in the absence of mitigation, there is considered to be some (albeit low) potential for an adverse effect on the waterbird species mentioned above.

In the absence of mitigation, this proposal has the potential to contravene the objective “*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*”. Section 7 provides pollution prevention mitigation measures which will be implemented to prevent any adverse effects on waterbird species as a result of water quality impacts which might occur during construction.

Operation

Waterbirds of the SPA

Given the scale and nature of the Proposed Development, it is considered that there is no potential for any significant pollution to occur from the development and/or from the run-off of the Proposed Development during operation. Therefore, it is believed that there is no threat posed from surface water entering Cummeen strand SPA from the Site during the operational phase of the Proposed Development.

There will be no impacts on water quality during the operational phase of the development and as such, there is no potential of breaching the conservation objective target as a result of this in particular.

5.2 Assessment of impacts and effects on Cummeen Strand/ Drumcliff (Sligo Bay) SAC

During construction of the Proposed Development, potential water quality impacts to Cummeen Strand/ Drumcliff (Sligo Bay) SAC include non-toxic contamination (sedimentation/siltation) and toxic contamination (pollution, chemicals, hydrocarbons). During operation, there is considered to be no potential for water quality impacts as a result of the Proposed Development.

5.2.1 Water Quality Impacts to Aquatic Habitats and Species

Construction

Protected habitats and species, can be indirectly lost during the construction phase and operational phase of projects through pollution and/or disruption (SEPA, 2015). During construction of the Proposed Development, potential water quality impacts to Cummeen Strand/ Drumcliff (Sligo Bay) SAC include non-toxic contamination (sedimentation/siltation) and toxic contamination (pollution, chemicals and hydrocarbons). The potential for mixing in the bay is considered to be high and dilution would likely result in no impact upon the foraging habitat for QI species such as lamprey and/or harbour seal – however, as a precaution this has been taken into consideration to ensure that any doubt is removed by providing appropriate mitigation. The potential for an indirect effect on any listed water-dependent QI habitats such as estuaries, mudflats and dunes etc. of this SAC is also considered to be highly unlikely due to the location, scale and nature of the Application Site. However, one of the threats identified for this SAC site is “*diffuse pollution to surface waters due to household sewage and wastewaters*” and “*siltation rate changes*” and as a precaution, this has been taken into consideration with the proposed drainage for the development.

In the absence of mitigation, the Proposed Development has some low potential to affect the ability to achieve various water quality targets of Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC, quoted in **Table 4** from the Conservation Objective document (NPWS, 2013) – mainly as a result of the potential for in-combination impacts alongside other proposals which might be detrimental to local water quality. **Table 4** lists water quality impacts during construction as being relevant to the attributes and targets of estuaries, narrow mouthed snail, sea and river lamprey and harbour seal through potential. As a result, in the absence of mitigation, the Proposed Development also has some low potential to contravene the Conservation Objectives for all the QIs discussed above as a result of the potential for in-combination effects alongside other developments in the area, while still noting that there is limited potential for impacts on water quality during construction as a result of this proposal. The harbour seal is a water dependant species with its main food source being fish. The potential for water quality impacts during construction could have an effect on

the food source of the harbour seal through sedimentation (albeit this is considered to be unlikely in this instance), the lack of prey due to such impacts can be a contributing factor in the decline of such a species.

Impacts on water quality in the absences of mitigation measures could potentially impact estuarine and coastal habitats, and in turn the species which are supported by these habitats. However, largescale mixing within the Bay and the size and nature of the work mean that this impact would be highly localised (<500m) and would not have any significant adverse effect on habitats or species upstream of this location.

Due to the potential impacts on water quality (albeit low risk) from the proposed works, in the absence of mitigation, the Proposed Development has the potential to cause adverse impacts on QI species and habitats within this SAC.

Section 7 provides the mitigation measures which will be implemented to prevent any adverse effects through water quality impacts on these QI species and habitats during construction.

The survey results have established that there will be no direct loss of SAC habitat or species (or connected supporting habitats) as a result of the Proposed Development.

5.3 Conclusion of Assessment of Effects

5.3.1 Context and procedure

A Screening for Appropriate Assessment (**Appendix I**) was conducted to ascertain (in view of best scientific knowledge and with consideration the Conservation Objectives of European Sites within the zone of influence, while applying the 'Precautionary Principle') if the project, either individually or in combination with other plans or projects, is likely to have significant effects on a European Site. Following that assessment, it was considered that, in the absence of appropriate mitigation, there was potential for significant effects (albeit low) on the Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA, as a result of disturbance and water quality impacts. As a result, an Appropriate Assessment is required to be conducted by the Competent Authority to establish (in view of best scientific knowledge, taking consideration of the Conservation Objectives for the affected European Sites, and applying the 'Precautionary Principle') if there is likely to be any adverse effects upon the integrity of any European Site as a result of the Proposed Development. This Natura Impact Statement is provided to facilitate such a decision.

5.3.2 Scientific knowledge

Information gathered by way of research, data gathering, and field survey was referred to for this proposal under the permission of the Client. It is considered that the scientific knowledge within this Natura Impact Statement (NIS) is robust and sufficient for the purposes of this NIS.

5.3.3 Conclusions

The Proposed Development is located immediately adjacent to the Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC and SPA, however no direct loss of any QI habitat or species will be encountered due to the location and the small-scale nature of the Proposed Development.

It is considered that the Proposed Development **will not** result in a barrier to movement of birds between roosting and foraging areas, and will not result in a change in the nature of these European Sites. During construction there is some low potential for disturbance and water quality impacts as a result of the proposal. These impacts are not considered likely to occur during operation of the Proposed Development. Considering issues such as the size, position and nature of the proposal it is deemed that the risk of the proposal resulting in the reduction in the level of usage of this area by SPA waterbird species is insignificant.

It is therefore concluded that, with the full implementation of the appropriate mitigation as outlined in Section 7, the proposal will not, beyond reasonable scientific doubt, adversely affect the integrity of any European Site (Natura 2000 Site) either directly or indirectly.

6. ASSESSMENT OF POTENTIAL IN-COMBINATION EFFECTS ON NATURA 2000 SITES

Proposals with the potential to result in In-combination effects on European Sites are outlined below.

6.1 Additive/Incremental Impacts

Additive incremental impacts consider multiple activities/projects (each with potentially insignificant effects) but which added together can give rise to a significant effect due to their proximity in time and space (CIEEM, 2018). In the case of the Proposed Development, other activities/projects are considered in relation to potential water quality impacts on the QIs of Cummeen Strand SPA and Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC.

The potential water quality impacts (albeit low risk) identified in section 5.1 and 5.2 were: non-toxic contamination (sedimentation/siltation); and toxic contamination (pollution, chemicals, hydrocarbons) during construction; and hydrocarbon and chemical pollution during operation.

The first step in ascertaining the potential for in-combination effects in this regard is to identify other planning applications in the vicinity. Following a search on the Sligo County Council Planning Application Map¹⁵, there were a limited number of planning applications within the wider area which have the potential to act in-combination with the current Proposed Development to result in significant cumulative effects on the QIs identified within the Zone of Influence of the Proposed Development. **Table 5** shows the development applications, or consented developments, in the surrounding area.

¹⁵ Sligo County Council Planning Application Map Available at: <http://lp4.sligococo.ie/LP4/default.aspx?topicname=Planning&featureid=0> (As accessed June 2021)

Table 5: Recent proposals or consented developments (since 2012) in the surrounding area of the Site (some of these developments are already in existence/operation – others are currently being considered, or have been approved (with conditions) / declined).

Planning Ref. No.	Location	Proposed Development
06323	Rosses Upper. Adjacent to Site	Modifications to the Sligo Yacht Club clubhouse to include, changes in roof profile, including providing perched roof over eastern part of building where flat roof was previously proposed, provision of enclosed external kitchen yard, modifications to window arrangement on elevations. Status: Permission granted on 09/06/2006 with 1 condition.
0853	Rosses Upper. Approximately 150m from the Site.	Erection of an extension to rear of existing dwelling house with access from existing lunge, plus minor alterations on site. Status: Permission granted on 25/03/2008 with 2 conditions
2050	Rosses Lower. Approximately 400m from the Site.	Development consisting of the conservation of Elsinore House, a Protected Structure (RPS 351), and associated Coach House as a phased development to include the following: (1) Phase 1 - The reconstruction, restoration and change of use of the coach-house to a single dwelling unit. Works to include raising of the roof level, construction of one-and-a-half storey rear extension, single storey side extension with roof terrace over and the inclusion of photovoltaic panels. Upgrade of the existing entrance and driveway. (2) Phase 2 - The reconstruction and restoration of the main house to provide a single family dwelling. Works to include restoration of roof and collapsed structural walls, reinstatement of trelliswork portico to front, modified replacement of two storey extension to rear with walkway to first floor balcony over side yard, reconstruction of former vinery at side gable and restoration of castellated follies. (3) Installation of pumping station to connect both dwellings to public sewer. (4) Construction of shed to enclose existing pump-house at north edge of site. (5) And all associated works which includes the provision of a pedestrian access point and the extensive planting of trees and shrubs. Status: Received 20/02/2020, On hold.

Given that there will be no permanent loss of QI habitat of conservation importance as a result of the construction of the hardstands and campsite extension, the potential for in-combination impacts of the above-listed developments in relation to the Proposed Development are considered to relate only to ongoing water quality impacts and the potential for disturbance to SPA birds.

Mitigation to avoid the potential for any significant impacts is advised in Section 7.

7. MITIGATION

This Section aims to mitigate for any potential effects (identified in Section 5) caused by the Proposed Development on Cummeen Strand SPA and Cummeen Strand / Drumcliff Bay SAC.

7.1 Mitigation of water quality impacts on Cummeen Strand SPA and Cummeen Strand/Drumcliff Bay SAC

7.1.1 Mitigation to prevent any potential for disturbance impacts upon birds using the SPA

The Site is in proximity to Cummeen Strand SPA. The proposed work has some low potential to cause disturbance during the construction phase to QI bird species using the vicinity for foraging and breeding during the overwintering period, albeit this is deemed to be a negligible risk as the Application Site does not support significant foraging or roosting habitat for QI birds of this SPA. In addition, due to the small scale of the works and short-term nature of any potential disturbance during the construction phase, this risk is deemed to be low. No works, personnel, vehicles, machinery, equipment, spoil etc. will encroach onto the shoreline or within the boundary of the SPA. All spoil heaps must be covered over and kept furthest away from the coastline or any surface water drains which connect to this habitat.

During the operational phase the Proposed Development is more regularly used outside of the overwintering bird season, and the immediate vicinity of the site is not heavily used by QI / SCI birds as it is an area frequently used by dog walkers and tourists and would be a natural deterrent to nesting birds. The operation of this proposal is not considered to pose any risk of significant adverse impact upon the SPA, with species more likely to habituate to any use, particularly as key roosting and foraging areas lies >500m from the Site (see **Appendix IV**).

7.1.2 Mitigation of Water Quality Impacts on Aquatic QI Species and Habitats during Construction

The construction stage of the Proposed Development has some low potential for adverse effects on the water quality of Cummeen Strand SPA and Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC. Standard best practice guidance on working near water and standard mitigation measures for controlling of pollution and sediments from construction sites include the following documents:

- IFI (2016) Guidelines on protection of fisheries during construction works in and adjacent to waters - Guidance for consultants and contractors;
- CIRIA (2006) Control of water pollution from linear construction projects. Site guide;
- SEPA (2010) Engineering in the water environment good practice guide sediment management;
- SEPA (2009) Engineering in the Water Environment Good Practice Guide: Temporary Construction Methods; and,
- SEPA (2017) Works and maintenance in or near water. GPP 5.

In order to ensure that water quality impacts from surface run off during construction do not affect the integrity of the Cummeen Strand SPA and/ or Cummeen Strand/ Drumcliff Bay (Sligo Bay) SAC, best practice mitigation measures are put in place before the construction phase begins. **The Appointed Contractor for the proposed works will ensure appropriate silt and hydrocarbon controls are in place during the works in accordance with the aforementioned guidance.**

Control of run-off and pollution during construction

There is potential that during the constructions works that the water quality impacts may include toxic contamination (chemical and hydrocarbon pollution) and non-toxic contamination (generation of silt and sediments). The following recommendations are advised:

- Works involving the accumulation of silt are to be conducted during dry periods wherever possible.
- Silt fencing/traps are to be erected around construction works in order to prevent silt sediment entering the SPA or SAC.
- Spoil is to be stored at least 10m away from drains or a sloping gradient to the bay, to avoid run-off of suspended solids from entering the drainage watercourse, and/or flowing directly into the SAC or SPA (particularly during inclement weather). High suspended solids within the run-off material will vary depending on the weather and topography conditions on site.
- If high levels of run-off are anticipated and if any such silted water is likely to enter the bay (if unmitigated) then the material is to be diverted away from shoreline and trapped onsite within a silt trap before being pumped out into a high vegetation area to allow for filtration to ground (>30m from the shoreline).
- Placing silt traps/fencing downstream of the works will prevent silt reaching the shorelines of the SAC and SPA. See: https://www.hy-tex.co.uk/docs/geotextiles/Terrastop/T_Terrastop_03.pdf for more information on installing silt fences.
- Waste concrete will be disposed of through a waste management sub-contractor as outlined in the waste documentation to be provided by the Appointed Contactor.

Mitigation of Water Quality Impacts on Aquatic QI Species and Habitats during Operation

During operation, there is no potential for significant adverse water quality impacts anticipated due to the size, nature and location of the Proposed Development.

7.1.3 General Mitigation of the Spread of Invasive Species during Construction & Operation

While no scheduled Alien Invasive Species (IAS) were recorded at the Application Site, the introduction and spread of IAS are commonly associated with construction activities where footwear or machinery has not been properly cleaned following works within a contaminated site. The methods for the mitigation of introduction and spread are the same for vehicles onsite both during construction and operational phases:

- Wash down all construction vehicles, equipment and machinery prior to mobilising to the works location.
- Remove any visible hitchhikers from any tracked plant and equipment.
- Be aware of the potential to spread invasive species to the Site and introduce public signage to reflect this and increase awareness at a campsite location with higher levels of traffic.

8. POTENTIAL EFFECTS AFTER MITIGATION

Table 6: Potential effects after mitigation on any QI's which are likely to be affected

Qualifying Interest	Impact Type	Potential for Adverse Effect before mitigation?	Mitigation measures	Potential for Adverse Effect after Mitigation
Cummeen Strand SPA				
Light-bellied Brent Goose	Water quality impacts affecting food source during construction.	Possible	Pollution prevention measures (see Section 7).	No
Oystercatcher	Disturbance during construction.	Possible	Minimise construction related disturbance and avoid pollution (see Section 7).	No
Redshank				
Wetland and Waterbirds	Water quality impacts during construction and operation.	Possible	Pollution prevention measures (see Section 7).	No
	Disturbance during construction.	Possible	Minimise construction related disturbance and avoid pollution (see Section 7).	No
Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC				
QI Habitats	Water quality impacts during construction.	Possible	Pollution prevention measures (see Section 7).	No
QI Species	Water quality impacts during construction.	Possible	Pollution prevention measures (see Section 7).	No
	Disturbance during construction.	Unlikely	No disturbance mitigation deemed necessary for these QI species of the SAC due to the small scale nature of the development and its location within an existing amenity location.	No
Both SAC and SPA				
QI Species and Habitats	Potential for the spread of IAS into European Sites which could impact habitat quality within affected areas.	Possible	IAS Mitigation options are outlined in Section 7.	No

9. CONCLUSIONS

A Screening for Appropriate Assessment was conducted to ascertain (in view of best scientific knowledge and with consideration the Conservation Objectives of European Sites within the zone of influence, while applying the 'Precautionary Principle') if the project, either individually or in combination with other plans or projects, is likely to have significant effects on a European Site (See **Appendix I**).

Following that assessment, it was considered that, in the absence of appropriate mitigation, there was potential for significant effects on the Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC and/or the Cummeen Strand SPA.

There was considered to be a low potential for impacts such as disturbance and adverse water quality impacts, as well as the potential for spread of IAS into the Application Site if machinery / personnel do not give due consideration to this during the construction phase. Subsequently, an Appropriate Assessment is required to be conducted by the Competent Authority to establish (in view of best scientific knowledge, taking consideration of the Conservation Objectives for the affected European Sites, and applying the 'Precautionary Principle') if there is likely to be any adverse effects upon the integrity of any European Sites as a result of the Proposed Development. This Natura Impact Statement provides information which can be used to inform this process.

Mitigation measures have been set out in Section 7 of this NIS. The incorporation of these measures in full will ensure that there will be no significant effects, either individually or in combination with other plans or projects affecting the conservation interests or conservation objectives of Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC or Cummeen Strand SPA, i.e. the integrity of the European Sites / Natura 2000 sites.

It is therefore objectively concluded that if the above proposed mitigation measures are implemented in full – the Proposed Development and its operation, will have no potential for any adverse effects upon the integrity of any European Sites (Natura 2000 Sites), either alone or in combination with any other plans or projects.

REFERENCES

- Birdwatch Ireland (2018) Irish Wetland Bird Survey: Results of Waterbird Monitoring in Ireland in 2015/16. Available at: <https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/> (Accessed June 2021)
- Blumstein D.T, Anthony L.L, Harcourt R, Ross G (2003) Testing a key assumption of wildlife buffer zones: is flight initiation distance a species-specific trait? *Biological Conservation* 110 (2003) 97–100.
- Cayford, J. T. 1993. Wader disturbance: a theoretical overview. *Wader Study Group Bulletin* 68' 3-5. <https://sora.unm.edu/sites/default/files/journals/iws/n005/p00003-p00005.pdf> (Accessed June 2021)
- Chartered Institute for Ecology and Environmental Management [CIEEM], 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Available online at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-Sept-2019.pdf> (Accessed June 2021)
- CIRIA (2001) Control of water pollution from construction sites. Guidance for consultants and contractors.
- Cramp, S. & Perrins, C.M. Eds. (1977). *Handbook of the birds of Europe, the Middle East and North Africa: The birds of Western Palearctic. Volume 1: Ostrich to Ducks*. Oxford University Press, Oxford.
- Cutts, N. Phelps, A, and Burdon, D. (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*. Report to Humber INCA. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010001/EN010001-005116-HPC-NNBPEA-XX-000-RET-000089%201.pdf> (Accessed June 2021)
- DoEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities.
- Environmental Protection Agency (2017) Water Quality in Ireland 2010-2015.
- EPA maps (2020) <https://gis.epa.ie/EPAMaps/>
- European Community Habitats Directive (92/43/EEC) – The Habitats Directive.
- European Communities (Natural Habitats) Regulations 1997.
- European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the Concepts of: Alternative solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission. January 2007. Available online at: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf (Accessed June 2021)
- European Commission Environment DG (2001) Assessment of plans and projects significantly affecting Natura 2000
- Floodinfo.ie available at: <http://www.floodinfo.ie/map/floodmaps/?X=7068153.421823602&Y=-883204.1485378639&Z=15#> . (Accessed June 2021)
- Geohive data available at: <http://map.geohive.ie/> (Accessed June 2021)
- Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 –2026". *Irish Birds* 9: 523—544 <https://birdwatchireland.ie/app/uploads/2021/04/BOCCI4-leaflet-2-1.pdf> (Accessed May 2021)
- NPWS (2013) Conservation Objectives: Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC 000627. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000627.pdf (Accessed June 2021)
- NPWS (2020) Conservation objectives for Lough Gill SAC [001976]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001976.pdf (Accessed June 2021)
- NPWS (2013) Conservation Objectives: Ballysadare Bay SAC 000622. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000622.pdf (Accessed June 2021)

- NPWS (2015) Conservation Objectives: Streedagh Point Dunes SAC 001680. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001680.pdf (Accessed June 2021)
- NPWS (2020) Conservation objectives for Unshin River SAC [001898]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001898.pdf (Accessed June 2021)
- NPWS (2021) Conservation Objectives: Union Wood SAC 000638. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000638.pdf (Accessed June 2021)
- NPWS (2020) Conservation objectives for Ben Bulbin, Gleniff and Glenade Complex SAC [000623]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000623.pdf (Accessed June 2021)
- NPWS (2014) Conservation Objectives: Cummeen Strand SPA 004035. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004035.pdf> (Accessed June 2021).
- NPWS (2013) Conservation Objectives: Drumcliff Bay SPA 004013. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004013.pdf (Accessed June 2021)
- NPWS (2013) Conservation Objectives: Ballysadare Bay SPA 004129. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004129.pdf (Accessed June 2021)
- NPWS (2020) Conservation objectives for Ballintemple and Ballygilgan SPA [004234]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004234.pdf (Accessed June 2021)
- NPWS (2020) Conservation objectives for Ardboline Island and Horse Island SPA [004135]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004135.pdf (Accessed June 2021)
- NPWS (2020) Conservation objectives for Sligo/Leitrim Uplands SPA [004187]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004187.pdf (Accessed June 2021)
- NPWS (2020) Conservation objectives for Inishmurray SPA [004068]. Generic Version 7.0. Department of Culture, Heritage and Gaeltacht. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004068.pdf (Accessed June 2021).
- NPWS online MapViewer; <http://webgis.npws.ie/npwsvviewer/> (Accessed June 2021)
- SEPA (2010) Engineering in the water environment good practice guide sediment management.
- SEPA (2009) Engineering in the Water Environment Good Practice Guide: Temporary Construction Methods First edition, March 2009. https://www.sepa.org.uk/media/150997/wat_sq_29.pdf (Accessed June 2021)
- Stillman, R.A., Poole, A.E., Goss-Custard, J.D., Caldow, R.W.G., Yates, M.G., Triplet, P., 2002. Predicting the strength of interference more quickly using behaviour-based models. *Journal of Animal Ecology* 71, 532–541.
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC.

APPENDIX I: Screening for Appropriate Assessment report

Background

The following section provides information on the European Sites in the vicinity of the Proposed Development which have the potential to exist within the zone of influence of the Proposed Development, as shown in **Figure 1** below. In many cases a standard 15 km distance from a proposal is used as a potential zone of influence within which Natura 2000 sites should be screened for potential impact. However, in reality, the potential impacts on sites are dependent on the nature of impacts arising, the sensitivity of receptors and the causal links and conduits, rather than distance. In many cases the potential zone of influence is considerably less than 15 km (for example noise and airborne pollution) while the potential zone of influence could be greater than 15 km, for example if there is a direct water connection. Natura 2000 sites with potential pathways for impacts are identified in order to establish the zone of influence of the Proposed Development. These can then be assessed based on factors such as proximity to the Proposed Development, the Qualifying Interests (QI's) of the Natura 2000 sites and their conservation status. A screening matrix, shown in **Table 1**, is provided which illustrates the potential impacts, and any significant effect of the Proposed Development on these Natura 2000 sites.

This screening matrix highlights two Natura 2000 sites which are within the zone of influence which are Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA, see Figure 1. Both of these 2 no. European Sites are located adjacent to the proposed Application Site and the QIs of the both Natura 2000 sites are sensitive to the potential impacts of the Proposed Development. For each site, the QIs are listed, the conservation objectives are referenced, the potential for the Proposed Development to affect them is considered and a conclusion on potential for the Proposed Development to have a significant effect on the QIs (and therefore the Natura 2000 site) is made.

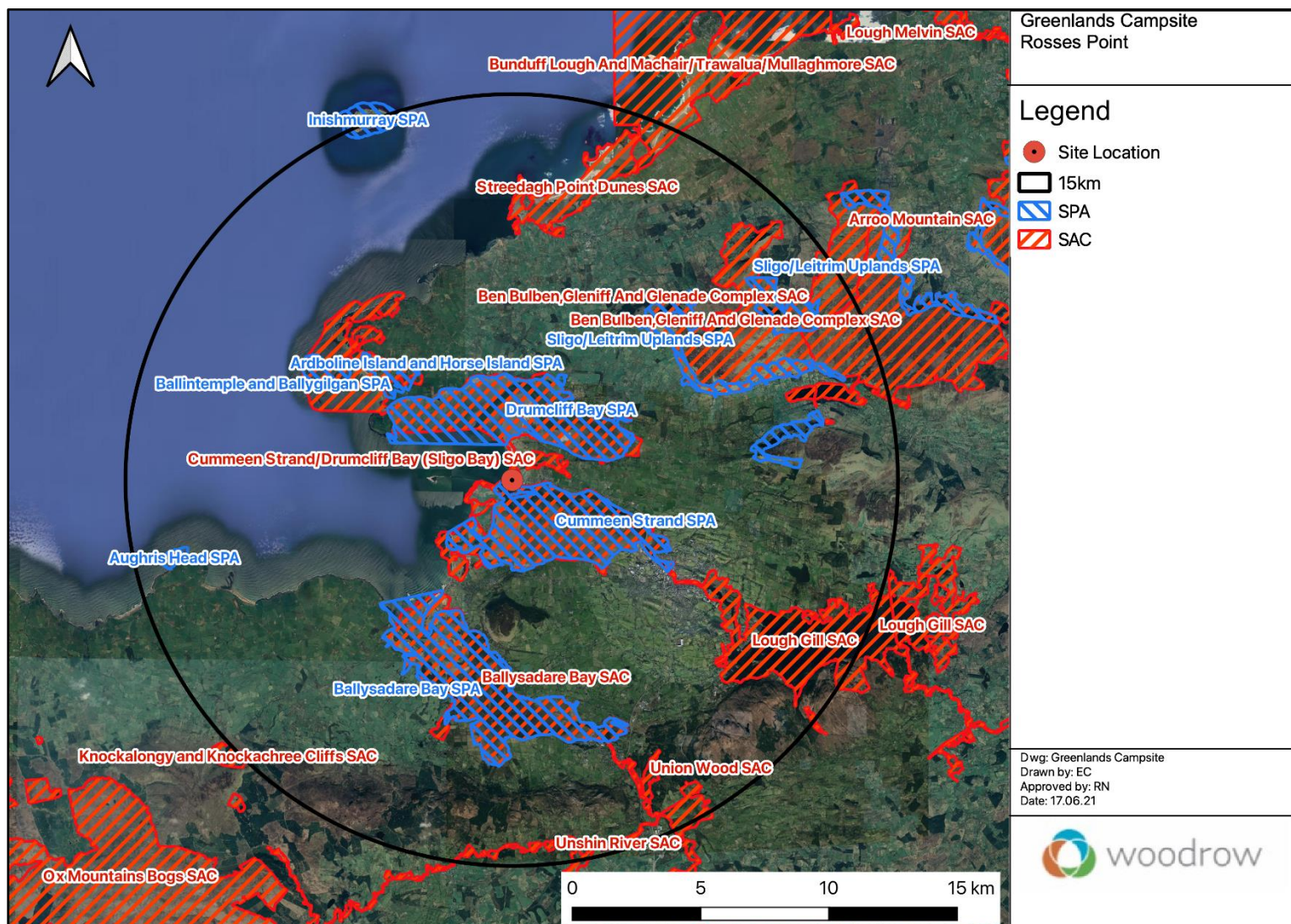


Figure1: Natura 2000 sites within 15km of the Proposed Development, Greenland's Campsite, Rosses Point, Co. Sligo

Table 1: Screening Matrix of all Natura 2000 Sites in the vicinity of the Proposed Development.

*Sites highlighted in grey, and QIs in **bold**, have the potential to be impacted by the Proposed Development.*

Natura 2000 Site Name and Code	Qualifying Interests (QI's) / Special Conservation Interests (SCI's)	Distance	Within the Zol?	Potential Impacts and Effects	Conservation Objectives
Special Areas of Conservation (SACs)					
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC Site Code: 000627	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] - Embryonic shifting dunes [2110] - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] - Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] - Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] - Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220]	Adjacent to the SAC.	Yes. The proposed Site is located next to the SAC and therefore in the Zol.	Possible Significant Effect. Impacts: Surface water quality impacts have the potential to affect water-dependent species and habitats of the SAC due to the proximity of the works to the SAC. Water quality impacts include the potential for pollution and sedimentation/siltation during the construction phase. Without mitigation, there is a potential for significant effect. Therefore, this needs to be assessed further when following the precautionary principle. Effects: These impacts have the potential for a significant effect on the QI habitats and species highlighted in bold which are sensitive to changes in water quality. Effects can include indirect loss of supporting habitat for water-dependent QI species and effects on water-dependent QI habitats due to potential for changes in water quality during construction.	NPWS, 2013 ¹⁶

¹⁶NPWS (2013) Conservation Objectives: Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000627.pdf

	• <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] • <i>Petromyzon marinus</i> (Sea Lamprey) [1095] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099] • <i>Phoca vitulina</i> (Harbour Seal) [1365]				
Ballysadare Bay SAC Site Code: 000622	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Humid dune slacks [2190] • <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] • <i>Phoca vitulina</i> (Harbour Seal) [1365]	c. 5.0km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and, due to the distance and localised nature of the works, the QI habitats will not be affected.	NPWS, 2016 ¹⁷
Union Wood SAC Site Code: 000638	• Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]	c. 12km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and, due to the distance and localised nature of the works, the QI habitats will not be affected.	NPWS, 2020 ¹⁸

¹⁷NPWS (2013) Conservation Objectives: Ballysadare Bay SAC https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000622.pdf

¹⁸NPWS (2020) Conservation Objectives: Union Wood SAC. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000638.pdf

Ben Bulbin, Gleniff and Glenade Complex SAC Site Code: 000623	• Water courses of plain to montane levels with the Ranunculus fluitantis and Callitriche-Batrachion vegetation [3260] • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] • European dry heaths [4030] • Alpine and Boreal heaths [4060] • Juniperus communis formations on heaths or calcareous grasslands [5130] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] • Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] • Transition mires and quaking bogs [7140]	c. 7.8km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and, due to the distance and localised nature of the works, the QI habitats will not be affected.	NPWS, 2020 ¹⁹
--	---	----------	----	---	--------------------------

¹⁹NPWS (2020) Conservation Objectives: Ben Bulbin, Gleniff and Glenade Complex SAC. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000623.pdf

	• Petrifying springs with tufa formation (Cratoneurion) [7220] • Alkaline fens [7230] • Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110] • Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii) [8120] • Calcareous rocky slopes with chasmophytic vegetation [8210] • <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013] • <i>Lutra lutra</i> (Otter) [1355]				
Lough Gill SAC Site Code: 001976	• Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] • Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] • Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion,	c. 7.5km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and, due to the distance and localised nature of the works, the QI habitats will not be affected.	NPWS, 2020 ²⁰

²⁰NPWS (2020) Conservation Objectives: Lough Gill SAC https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001976.pdf

	<i>Alnion incanae</i>, <i>Salicion albae</i> [91E0] <i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092] <i>Petromyzon marinus</i> (Sea Lamprey) [1095] <i>Lampetra planeri</i> (Brook Lamprey) [1096] <i>Lampetra fluviatilis</i> (River Lamprey) [1099] <i>Salmo salar</i> (Salmon) [1106] <i>Lutra lutra</i> (Otter) [1355]				
Streedagh Point Dunes SAC Site Code: 001680	- Mudflats and sandflats not covered by seawater at low tide [1140] - Perennial vegetation of stony banks [1220] - Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330] - Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] - Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014]	c. 9.6km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and, due to the distance and localised nature of the works, the QI habitats will not be affected.	NPWS, 2015 ²¹

²¹NPWS (2015) Conservation Objectives: Streedagh Point Dunes SAC. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001680.pdf

Unshin River SAC Site Code: 001898	- Water courses of plain to montane levels with the Ranunculus fluitans and Callitriche-Batrachion vegetation [3260] - Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] - Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] - Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] - Salmo salar (Salmon) [1106] - Lutra lutra (Otter) [1355]	c. 11km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and, due to the distance and localised nature of the works, the QI habitats will not be affected.	NPWS, 2020 ²²
Special Protection Areas (SPAs)					
Cummeen Strand SPA Site Code: 004035	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Redshank (<i>Tringa totanus</i>) [A162] Wetland and Waterbirds [A999]	Adjacent to SPA.	Yes	Possible Significant Effect. Impacts: Surface water quality impacts have the potential to affect water-dependent species and wetland habitat of the SPA due to the direct hydrological connection via the surface water drain. Water quality impacts include the potential for pollution and sedimentation/siltation from the construction phase. Without mitigation, there is potential for significant effect. Therefore, this needs to be assumed under the precautionary principle.	NPWS, 2013 ²³

²²NPWS (2020) Conservation Objectives: Unshin River SAC. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001898.pdf

²³ NPWS (2013) Conservation Objectives: Cummeen Strand SPA. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004035.pdf

				Effects: These impacts have the potential for a significant effect on the QIs highlighted in bold which are sensitive to changes in water quality.	
Drumcliff Bay SPA Site Code: 004013	- Sanderling (<i>Calidris alba</i>) [A144] - Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] - Wetland and Waterbirds [A999]	c. 1.4km	Yes	No Likely Significant Effect exists. The Site is not directly connected to this SAC and due to localised nature of the works, it is unlikely that there will be much disturbance of QI species in this area or displacement of QI species from neighbouring SPAs.	NPWS, 2013 ²⁴
Ballysadare Bay SPA Site Code: 004129	- Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] - Grey Plover (<i>Pluvialis squatarola</i>) [A141] - Dunlin (<i>Calidris alpina</i>) [A149] - Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] - Redshank (<i>Tringa totanus</i>) [A162] - Wetland and Waterbirds [A999]	c. 5km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and due to the distance and localised nature of the works, the QI habitats and species will not be affected.	NPWS, 2013 ²⁵

²⁴ NPWS (2013) Conservation Objectives: Drumcliff Bay SPA: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004013.pdf

²⁵ NPWS (2013) Conservation Objectives: Ballysadare Bay SPA. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004129.pdf

Ballintemple and Ballygilgan SPA Site Code: 004234	Barnacle Goose (<i>Branta leucopsis</i>) [A045]	c. 5.4km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and due to the distance and localised nature of the works, the QI habitats and species will not be affected.	NPWS, 2020 ²⁶
Ardboline Island and Horse Island SPA Site Code: 004135	- Cormorant (<i>Phalacrocorax carbo</i>) [A017] - Barnacle Goose (<i>Branta leucopsis</i>) [A045]	c. 7.5km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and due to the distance and localised nature of the works, the QI habitats and species will not be affected.	NPWS, 2020 ²⁷

²⁶NPWS (2020) Conservation Objectives: Ballintemple and Ballygilgan SPA https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004234.pdf

²⁷ NPWS (2020) Conservation Objectives: Ardboline Island and Horse Island SPA. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004135.pdf

Sligo/Leitrim Uplands SPA Site Code: 004187	- Peregrine (<i>Falco peregrinus</i>) [A103] - Chough (<i>Pyrhocorax pyrrhocorax</i>) [A346]	c. 8km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and due to the distance and localised nature of the works, the QI habitats and species will not be affected.	NPWS, 2020 ²⁸
Inishmurray SPA Site Code: 004068	- Shag (<i>Phalacrocorax aristotelis</i>) [A018] - Barnacle Goose (<i>Branta leucopsis</i>) [A045] - Herring Gull (<i>Larus argentatus</i>) [A184] - Arctic Tern (<i>Sterna paradisaea</i>) [A194]	c. 14.5km	No	No Likely Significant Effect exists. There is no source-pathway-receptor. The Site is not connected to this SAC and due to the distance and localised nature of the works, the QI habitats and species will not be affected.	NPWS, 2020 ²⁹

Explanation of terms used in Significance of Impact Matrix:

Likely Significant Effect - Where a plan or project is likely to undermine any of the site's conservation objectives; **Possible Significant Effect** - Where a plan or project has an indicated potential to undermine any of the site's conservation objectives, but where doubt exists about the risk of a significant effect in the current context. Nevertheless, where doubt exists about the risk of a significant effect, use of the Precautionary Principle requires this effect to be considered appropriately within the Article 6 assessment process.

²⁸ NPWS (2020) Conservation Objectives: Sligo/Leitrim Uplands SPA. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004187.pdf

²⁹ NPWS (2020) Conservation Objectives: Inishmurray SPA. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004068.pdf

Conclusions of Screening Assessment

The Proposed Development involves creation of a grass circulation access road surrounded by an extension of 17 no. new, additional 3m x 9m hardstand pitches with a 6m space between each pitch and 1 no. new waste disposal point adjacent to the current Greenland's campsite at Rosses Point Beach, Co. Sligo, as described in more detail in **Section 1.4** of the main report.

There is potential for disturbance impacts to affect all wintering or breeding QI bird species of Cummeen Strand SPA, such as light-bellied Brent goose, oystercatcher and redshank. These species were assessed for noise disturbance impacts due to the distance (c. 100 m) between the proposed works and the shoreline. Both wintering and breeding bird species were assessed for water quality impacts.

There is also potential for water quality impacts on sensitive QI species of Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA. Potential water quality impacts during construction include surface water pollution (hydrocarbon and chemical) and sedimentation/siltation, which may affect aquatic birds of the SPA and water dependent habitats and species of the SAC. Potential water quality impacts during operation include chemical run-off from the use of vehicles and other equipment.

Based on the above information, due to potential disturbance impacts, hydrological connection and given the proximity of the Proposed Development to these two European Sites, there is potential for significant effects on the following designated sites and QIs:

Cummeen Strand SPA (all QIs):

- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Redshank (*Tringa totanus*) [A162]
- Wetland and Waterbirds [A999]

Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (water dependent QIs):

- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Phoca vitulina* (Harbour Seal) [1365]

During construction, the Proposed Development has the potential to result in disturbance which is likely to impact upon the bird species utilising the terrestrial habitats and potentially the water adjacent to the Proposed Development. The Qualifying Interests being assessed for disturbance impacts during construction include:

- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Redshank (*Tringa totanus*) [A162]

It is considered that due to the limited number of camping spaces being proposed, and their existence within an already busy campsite which lies outside of European Sites, no significant indirect disturbance is likely during operation as a direct result of the Proposed Development. This is supported by the fact that the bird surveys found that QI species are unlikely to rely on the habitats within the Application Site.

The Proposed Development during construction has the potential to result in some indirect water quality impacts upon the wetlands and waterbirds of Cummeen Strand SPA. The species being assessed include:

- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Redshank (*Tringa totanus*) [A162]

The Proposed Development during construction has the potential to result in significant indirect water quality impacts upon the aquatic QI species and habitats of Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC which include:

- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Phoca vitulina* (Harbour Seal) [1365]

Following the screening process above, the screening matrix (**Table 1**) ruled out sites for further assessment based on distance, the lack of a source-pathway-receptor linkage and the QIs and their specific sensitivities. Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA are the Natura 2000 sites which have been highlighted as having the potential to be significantly affected by the Proposed Development. For an illustration of the location of the Proposed Development in relation to the Natura 2000 sites, see Figure 1. For a full description of the Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA see **Section 4.1.1** and **4.1.2** of the main report.

The screening assessment concluded that there is potential for Likely Significant Effect on the Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC and Cummeen Strand SPA and that a Natura Impact Statement is required. These Natura 2000 sites and QIs within the zone of influence, are assessed in Table 1 as part of the Natura Impact Statement (NIS).

APPENDIX II: Bird Survey Results

A **late winter site visit** was undertaken on 20 03 2021 to the camp site including extension areas.

This visit assessed existing habitat availability and quality within the camp site and extension areas for wintering waterbirds, with particular attention given to suitability for QI species of the Cummeen Strand SPA, including brent geese, oystercatcher and redshank. These species are known to regularly utilise terrestrial habitats for foraging, including the types of dune/amenity grasslands within the footprint of the existing camp site.

Habitat availability in the existing camp site was found to be a highly managed derivative of dune grassland, which in the wider Site is maintained in largely a short sward through regular mowing, with patches of rank uncut grassland. Small areas of this habitat were considered to offer some potentially suitable grazing habitat for brent geese. However, in the environs of Rosses Point, brent geese are largely restricted to the coast and shoreline. The relatively limited extent of suitable habitat within the camp site, in-combination with existing high levels of human activity means this area is highly unlikely to be regularly utilised by grazing geese. During the site visits small numbers of oystercatchers (4 birds) were recorded foraging on the short grassland of the camp site and the neighbouring golf course. Small numbers of redshank would be expected to utilise this habitat periodically. Usage of inland habitats for many wading species, such as oystercatchers, curlew and redshanks is likely to be linked to tidal states, with birds typically being 'pushed' away from the coast during high tide when they will often utilise terrestrial grassland habitats.

Based on current habitat condition the Application Site was assessed as being unsuitable for wintering waterbirds due to the occurrence of dense rank swards, which would prevent the birds from freely walking through the areas to forage, and which disallow good lines of vantage for such species.

A **breeding season site visit** was undertaken on 13 06 2021 to assess the potential for the extensions areas to support breeding birds.

The rank cover of grassland which dominates the Application Site provides suitable nesting for certain ground nesting species, including meadow pipit and skylark. A meadow pipit nest was recorded on the periphery of the south-western area and a skylark was recorded singing over the area. A second pair of skylark were recorded adjacent to the north extension area (*Note: This latter site has now been excluded from the proposal due to other project considerations*). A stonechat was nesting in bramble scrub at the entrance of the existing camp site. Flocks of starlings with fledged young were recorded foraging in the south-western area and evidence of song thrush foraging site (snail breaking stone) was recorded in the northern extension.

Overall, the extensive areas of matted ground cover in the south-western area were considered a negative feature. Over time grasslands left in rank condition become increasingly less suitable for nesting skylark, which tend to favour areas offering patches of cover within or adjacent to shorter, more open grassland; were as breeding meadow pipits can tolerate areas with denser ground cover.

Conclusions:

Although the existing habitat has potential suitability for ground nesting birds, the sward in the southern section (the Application Site) is notably rank and probably less suitable for skylark. In addition ongoing disturbance from walkers has a significant negative effect on suitability for ground nesting birds. Even if managed in optimal condition the areas assessed are relatively small and would not support more than one or two of meadow pipits and skylark.

The main constraints in terms of non-QI species i.e. ground nesting birds and local passerine species, is considered to be timing of construction works, **i.e. undertake works out of breeding season of March to August inclusive.**

In terms of beneficial actions, Woodrow recommend **less** mowing during the breeding season especially, on the periphery the new and existing Site to provide seasonal cover for ground nesting species. Retaining the occasional patch of scrub is also beneficial, e.g. the bramble scrub at the entrance gate which supported a pair of stonechat in 2021, and improving local hedgerows with native planting suitable for this coastal environment.

APPENDIX III: I-Webs Request Results (Source: Birdwatch Ireland)

Wintering Year	Species common name	Latin name	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
Subsite: Ballincar - 0C464 – (Beside Site)										
2017/18	Light-bellied Brent Goose	<i>Branta bernicla hrota</i>						51		51
2017/18	Shelduck	<i>Tadorna tadorna</i>						1		1
2017/18	Wigeon	<i>Anas penelope</i>						4		4
2017/18	Mallard	<i>Anas platyrhynchos</i>		76			2	4		82
2017/18	Cormorant	<i>Phalacrocorax carbo</i>					104			104
2017/18	Shag	<i>Phalacrocorax aristotelis</i>		3						3
2017/18	Grey Heron	<i>Ardea cinerea</i>		1						1
2017/18	Oystercatcher	<i>Haematopus ostralegus</i>					5	1		6
2017/18	Ringed Plover	<i>Charadrius hiaticula</i>						16		16
2017/18	Curlew	<i>Numenius arquata</i>		3			2	4		9
2017/18	Greenshank	<i>Tringa nebularia</i>		14				2		16
2017/18	Redshank	<i>Tringa totanus</i>		1				2		3
2017/18	Turnstone	<i>Arenaria interpres</i>		6			15			21
2017/18	Black-headed Gull	<i>Chroicocephalus ridibundus</i>						64		64
2017/18	Herring Gull	<i>Larus argentatus</i>		2			3	9		14
2017/18	Great Black-backed Gull	<i>Larus marinus</i>		2				1		1
Subsite: Cummeen Strand East and Gibraltar - 0C420										
2017/18	Mute Swan	<i>Cygnus olor</i>		133						133
2017/18	Light-bellied Brent Goose	<i>Branta bernicla hrota</i>					16	16		32
2017/18	Shelduck	<i>Tadorna tadorna</i>					77			77
2017/18	Wigeon	<i>Anas penelope</i>					42			42
2017/18	Teal	<i>Anas crecca</i>		41			30			71
2017/18	Mallard	<i>Anas platyrhynchos</i>					14			14
2017/18	Red-breasted Merganser	<i>Mergus serrator</i>					6			6
2017/18	Great Northern Diver	<i>Gavia immer</i>		2			1			3
2017/18	Great Crested Grebe	<i>Podiceps cristatus</i>					15			15
2017/18	Cormorant	<i>Phalacrocorax carbo</i>		14			1			16
2017/18	Little Egret	<i>Egretta garzetta</i>					3	1		4
2017/18	Grey Heron	<i>Ardea cinerea</i>		149			2			151
2017/18	Oystercatcher	<i>Haematopus ostralegus</i>					454	223		677

2017/18	Knot	<i>Calidris canutus</i>		10			111			121
2017/18	Dunlin	<i>Calidris alpina</i>					543			543
2017/18	Bar-tailed Godwit	<i>Limosa lapponica</i>		86			231			317
2017/18	Curlew	<i>Numenius arquata</i>					156	119		275
2017/18	Greenshank	<i>Tringa nebularia</i>					5	1		6
2017/18	Redshank	<i>Tringa totanus</i>					227	117		344
2017/18	Turnstone	<i>Arenaria interpres</i>		5			41	29		75
2017/18	Black-headed Gull	<i>Chroicocephalus ridibundus</i>		1			7	8		16
2017/18	Common Gull	<i>Larus canus</i>		43			3	18		64
2017/18	Herring Gull	<i>Larus argentatus</i>					40	37		77
2017/18	Glaucous Gull	<i>Larus hyperboreus</i>		2			1			3
2017/18	Great Black-backed Gull	<i>Larus marinus</i>		2			1			3
Subsite: Cummeen west from Coney Island Road - 0C478										
2017/18	Light-bellied Brent Goose	<i>Branta bernicla hrota</i>		50			1	10		61
2017/18	Shelduck	<i>Tadorna tadorna</i>					25	15		40
2017/18	Wigeon	<i>Anas penelope</i>		70						70
2017/18	Red-breasted Merganser	<i>Mergus serrator</i>						1		1
2017/18	Great Northern Diver	<i>Gavia immer</i>						1		1
2017/18	Grey Heron	<i>Ardea cinerea</i>					3			3
2017/18	Oystercatcher	<i>Haematopus ostralegus</i>		269			122	290		681
2017/18	Ringed Plover	<i>Charadrius hiaticula</i>		148						148
2017/18	Golden Plover	<i>Pluvialis apricaria</i>		25						25
2017/18	Sanderling	<i>Calidris alba</i>		120				77		197
2017/18	Dunlin	<i>Calidris alpina</i>		18						18
2017/18	Bar-tailed Godwit	<i>Limosa lapponica</i>		2						2
2017/18	Curlew	<i>Numenius arquata</i>		223			76	178		477
2017/18	Greenshank	<i>Tringa nebularia</i>					1	1		2
2017/18	Redshank	<i>Tringa totanus</i>					15	8		23
2017/18	Black-headed Gull	<i>Chroicocephalus ridibundus</i>		10			29	10		49
2017/18	Common Gull	<i>Larus canus</i>		20			120	24		164
2017/18	Herring Gull	<i>Larus argentatus</i>					22	1		23
2017/18	Great Black-backed Gull	<i>Larus marinus</i>		3			1			4
Subsite: Rosses Point Harbour - 0C485										
2017/18	Light-bellied Brent Goose	<i>Branta bernicla hrota</i>					6	31		37
2017/18	Red-breasted Merganser	<i>Mergus serrator</i>					3	2		5

2017/18	Red-throated Diver	<i>Gavia stellata</i>					2		2
2017/18	Great Northern Diver	<i>Gavia immer</i>				1	3		4
2017/18	Cormorant	<i>Phalacrocorax carbo</i>		4		10	4		18
2017/18	Shag	<i>Phalacrocorax aristotelis</i>		12		7	5		24
2017/18	Little Egret	<i>Egretta garzetta</i>		1		2	1		4
2017/18	Grey Heron	<i>Ardea cinerea</i>		1		2			3
2017/18	Oystercatcher	<i>Haematopus ostralegus</i>		10		12	15		37
2017/18	Curlew	<i>Numenius arquata</i>		4		34			38
2017/18	Greenshank	<i>Tringa nebularia</i>		7		1			8
2017/18	Redshank	<i>Tringa totanus</i>		34		10	5		49
2017/18	Turnstone	<i>Arenaria interpres</i>		1		1			2
2017/18	Black-headed Gull	<i>Chroicocephalus ridibundus</i>				1	1		2
2017/18	Lesser Black-backed Gull	<i>Larus fuscus</i>		1					1
2017/18	Herring Gull	<i>Larus argentatus</i>		1		17	28		46

I-Webs Subsite Details – Red Star is location of the Application Site

(Source of Information: Birdwatch Ireland <https://bwi.maps.arcgis.com/>)



APPENDIX V: Results of Botanical Survey Undertaken in May 2021

Introduction and Methods

The condition assessment and habitat survey for Annex 1 Fixed-Dune habitat undertaken to inform the Proposed Development at Greenland's Campsite at Rosses Point, Co. Sligo. The proposal includes for an extension of the existing camp site here. Initial Site visits were carried out by Woodrow Ecologists on 20 04 2021 and 13 04 2021 to inform a screening for Appropriate Assessment. Following initial surveys, a detailed botanical (habitat) survey was undertaken on the 19 05 2021, by Bridget Keehan (ACIEEM) and Emmeline Cosnett (QCIEEM) of Woodrow Sustainable Solutions Ltd to assess the condition of coastal dune habitats at this Site.

Bridget Keehan – Qualifications:

BSc (Hons) - Botany, University College of North Wales, Bangor, 1992.

Associate Member of the Chartered Institute of Ecology and Environmental management.

Emmeline Cosnett – Qualifications:

BSc (Hons) – Environmental Science, National University of Ireland, Galway, 2018.

MSc – Wildlife Biology and Conservation, Edinburgh Napier University, 2020-2023.

Qualifying Member of the Chartered Institute of Ecology and Environmental management.

Condition Assessment of sand dune habitat at the Site

An assessment of the habitat condition was undertaken of the sand dune grassland habitat located in the vicinity of the proposal Site (See Figure 1), on 19 05 2021. During this assessment, reference was made to the NPWS publications *Monitoring survey of Annex I sand dune habitats in Ireland: Irish Wildlife Manuals No. 75* (Delaney et al., 2013)³⁰, *Coastal Monitoring Project (CMP) 2004 – 2006* (Ryle, T., et al., 2009)³¹ and *The Common Standards Monitoring Guidance for Sand Dune Habitats* (JNCC, 2004)³².

The condition assessment followed this standard survey protocol for sand dunes set out by the JNCC (JNCC, 2004). This involved undertaking a 'structured walk' following a W-shaped route, encompassing twelve monitoring stops. At each stop, the percentage cover and/or presence of all species present was assessed as per standard guidance.

Limitations of the survey

³⁰Delaney, A., Devaney, F.M, Martin, J.M. and Barron, S.J. (2013) - *Monitoring survey of Annex I sand dune habitats in Ireland*. Irish Wildlife Manuals, No. 75. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland. Available at: <http://www.botanicalenvironmental.com/wp-content/uploads/2014/02/IWM-75-sand-dunes.pdf>

³¹ Ryle, T., Connolly, K., Murray, A. and Swann, M. (2009). *Coastal Monitoring Project 2004-2006*. Unpublished report to the National Parks and Wildlife Service. https://www.npws.ie/sites/default/files/publications/pdf/Ryle_et_al_2009_Coastal_Monitoring_Project.pdf
Further information also available at: <https://www.npws.ie/research-projects/coastal-research> and <https://www.npws.ie/sites/default/files/general/sand-dune-survey-summary.pdf>

³²JNCC (2004) – *Common Standards Monitoring Guidance for Sand Dune Habitats* , Available at: <https://data.incc.gov.uk/data/7607ac0b-f3d9-4660-9dda-0e538334ed86/CSM-SandDuneHabitats-2004.pdf>

The habitat condition assessment was undertaken just ahead of the optimal timeframe for such a survey, however, a majority of species were observed to be flowering at this Site, and it was therefore concluded that this factor will not significantly impact the results, and that this survey is robust and can inform the proposed mitigation for the design of this Application Site.

Results of the sand dunes Condition Assessment

Habitat Condition Assessment: Structured Walk

As described previously, a structured walk survey, following the methodology set out in JNCC (2004) and Ryle *et al.* (2009), was undertaken within the dune habitat in question. The structured walk, encompassing twelve monitoring stops, was undertaken on 19 05 2021, enabling an indicative assessment of the condition of the dune habitat to be made.

The route of the structured walk is illustrated in Figure 1. As described, the vegetation was assessed at each monitoring stop as per standard guidance. The frequency with which each species was recorded within the entire route was also noted via DAFOR³³ and DOMIN³⁴ scores.

The parameters recorded aligned with the condition assessment criteria. These are the criteria needed to determine a 'pass' or 'fail' for the site conservation assessment.

The following criteria **in bold** must be met in order to pass the condition assessment;

1. **Typical species** - At least 6 species that are considered typical of the habitat type must be present;
2. **Negative indicator species** - non-natives must be no more than rare and negative indicator species must be singly or together not exceeding 5% of area (DOMIN <3);
3. **Flowering and fruiting** - at least 20% of the species assessed must be flowering and fruiting;
4. **Bare ground** – must not exceed 10% of the area assessed at each stop; and,
5. **Sward height** - average sward height in monitoring stops no greater than 20cm and no less than 5cm.

As previously mentioned, the survey was conducted slightly earlier in the survey season, and it was therefore the 'flowering and fruiting' criterion was an unreliable parameter to include at that time of year. However, it is considered that this has not undermined the overall findings and/or conclusions of this assessment given that it was possible to record all of the other criterion to accurately complete this assessment.

Each monitoring stop needs to pass on all criteria outlined above to be considered a 'pass', and a majority of overall stops must be passed to consider the site as having a 'Favourable' conservation condition status.

For the purposes of this condition assessment, positive and negative indicator species for sand dune habitat were taken as those listed in in the NPWS publication *Monitoring Survey of Annex I sand dune habitats in Ireland: Irish Wildlife Manuals No 75* (Delaney *et al.*, 2013). These species are listed in Table 1.

³³ DAFOR Scores – represent species percentage cover : D = Dominant; A = Abundant; F = Frequent; O = Occasional; R = Rare

³⁴ DOMIN Scale – Scores represent percentage cover : 10 = 91-100%; 9 = 76-90%; 8 = 51-75%; 7 = 34-50%; 6 = 26-33%; 5 = 11-25%; 4 = 4-10%; 3 = <4% (many individuals); 2 = <4% (several individuals); 1 = <4% (few individuals)

The full results of the structured walk survey are presented in Table 2. It can be seen that three of the twelve monitoring stops that were assessed in line with the specified criteria, passed the condition assessment, suggesting '*Favourable*' conservation condition. The remaining eight stops failed as the sward height exceeded the 20cm maximum requirement as well as due to the high numbers (DOMIN 4-10%) of the negative indicator species false oat-grass *Arrhenatherum elatius* recorded at these stops. This would indicate a shift towards an ungrazed tussocky sward. There were 13 'positive indicator' species noted at the Site with varying levels of abundance.



Figure 1: The route of the structured walk.

Table 1 - Typical species and negative indicator species for Fixed Dune habitats, together with criteria used for condition assessment (as defined by Ryle *et al.*, 2009)

Typical species for Fixed Dunes	Negative Indicator Species for 'Fixed Dunes'
<i>Agrostis capillaris</i> (common bent grass)	<i>Senecio jacobaea</i> (ragwort)
<i>Aira praecox</i> (spike hair grass)	<i>Cirsium arvense</i> (creeping thistle)
<i>Anthyllis vulneraria</i> (common kidney vetch)	<i>Cirsium vulgare</i> (spear-thistle)
<i>Arrhenatherum elatius</i> (false oat grass)	<i>Urtica dioica</i> (common nettle)
<i>Bellis perennis</i> (daisy)	<i>Lolium perenne</i> (perennial rye-grass)
<i>Campanula rotundifolia</i> (harebell)	<i>Arrhenatherum elatius</i> (false oat grass)
<i>Carex arenaria</i> (sand sedge)	<i>Pteridium aquilinum</i> (bracken)
<i>Carex flacca</i> (blue sedge)	<i>Rubus fruticosus</i> (blackberry)
<i>Cerastium diffusum</i> (fourstamen chickweed)	
<i>Cerastium fontanum</i> (mouse-ear chickweed)	
<i>Crepis capillaris</i> (smooth hawksbeard)	
<i>Cladonia spp</i> (reindeer lichen)	
<i>Erodium cicutarium</i> (redstem stork's-bill)	
<i>Euphrasia officinalis agg</i> (eye-bright)	
<i>Festuca ovina</i> (sheep's fescue)	
<i>Festuca rubra</i> (red fescue)	
<i>Gallium verum</i> (lady's bedstraw)	
<i>Geranium molle</i> (dove's foot crane's bill)	
<i>Hypnum cupressiforme</i> (cypress-leaved plait-moss)	
<i>Hypochaeris radicata</i> (common cat's-ear)	
<i>Koeleria macrantha</i> (crested hair-grass)	
<i>Linum catharticum</i> (fairy flax)	
<i>Lotus corniculatus</i> (bird's foot trefoil)	
<i>Luzula campestris</i> (field wood-rush)	
<i>Odontites vernus</i> (red bartsia)	
<i>Ononis repens</i> (restharrow)	
<i>Peltigera spp</i> (dog lichen)	
<i>Pilosella officinarum</i> (mouse-ear hawkweed)	
<i>Plantago lanceolata</i> (ribwort plantain)	

<i>Poa pratensis</i> (smooth meadow grass)		
<i>Polygala vulgaris</i> (common milkwort)		
<i>Prunella vulgaris</i> (self-heal)		
<i>Rhinanthus minor</i> (yellow rattle)		
<i>Rhytidiadelphus squarrosus</i> (springy turf-moss)		
<i>Rhytidiadelphus triquestr</i> is (big shaggy moss)		
<i>Sedum acre</i> (stonecrop)		
<i>Taraxacum agg.</i> (dandelion spp.)		
<i>Thymus polytrichus</i> (wild thyme)		
<i>Tortula ruraliformis</i> (twisted moss)		
<i>Trifolium repens</i> (white clover)		
<i>Veronica chamaedrys</i> (germander speedwell)		
<i>Viola riviniana</i> (common dog-violet)		
<i>Viola tricolor</i> (wild pansy)		
Requirements to pass condition assessment (as defined in Ryle <i>et al.</i>, 2009)		
For Fixed dunes with herbaceous vegetation, 5 habitat attributes are used to assess habitat condition, with minimum target requirements to pass as follows:		
Criterion	Attribute	Target requirements
1	Typical species	6 species present
2	Negative indicator species	non-natives no more than rare. Negative indicator species singly or together not exceeding 5% of area
3	Flowering and fruiting	at least 20%
4	Bare ground	Not exceeding 10% of area
5	Sward height	average sward height in monitoring stops no greater than 20cm and no less than 5cm
NB – Criterion 3 was not taken into consideration during the present assessment as it was considered that, the survey was being undertaken at an early growth stage and this parameter would not be a reliable indicator of condition. Indicative assessment was therefore made on the basis of Criteria 1,2,4 and 5 only, and still forms a robust assessment for the purposes of this report.		

Table 2 – Monitoring data collected during the structured walk survey of Fixed Dune habitat, following the Common Standards Monitoring protocol set out in JNCC (2004) and Ryle *et al.*, 2009 (and based on JNCC³⁵)

	Monitoring stop:												Total stops where this species was recorded		Frequency of occurrence ³⁶
	Stop 1	Stop 2	Stop 3	Stop 4	Stop 5	Stop 6	Stop 7	Stop 8	Stop 9	Stop 10	Stop 11	Stop 12			
	IG 62838 39946	IG 62829 39939	IG 62822 39973	IG 62814	ITM:	IG62768 39946	IG62778 39954	ITM:	IG62797 39935	IG62790 39937	IG62776 39941	IG62764 39939			
Photo ref:	Plate 2	Plate 2	Plate 2	Plate 2	Plate 3	Plate 3	Plate 3	Plate 3	Plate 4	Plate 4	Plate 4	Plate 4	Number	%	D- Dominant A- Abundant F- Frequent O- Occasional R- Rare
Habitat	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune	Fixed Dune			
% Bare ground	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%			
Sward Height (cm)	25-30	25-30	25-40	10-20	15-20	20-30	20	10	40	50-55	40-50	30-40			
% Scrub	30%	25%	0%	0%	30-40%	0%	0%	0%	0%	0%	0%	0%			
Species:	Coverage						The DOMIN Score was used to represent percentage cover						Number	%	
<i>Rosa pimpinellifolia</i>	4												1	8%	R
<i>Salix repens</i>	5	5			6-7								3	25%	O
<i>Festuca rubra</i>	5	7	7	5	7	5	2		7	6	7	6	11	92%	D
<i>Ammophila arenaria</i>	4	4	4	4	4-5	4	3	2	5	5	7	5	12	100%	D
<i>Arrhenatherum elatius</i>	4	4	4	4	3	4	2		2	3	3	2	11	92%	D
<i>Anthoxanthum odoratum</i>	4	4	4-5	4	5	1	1		4	3	3	3	11	92%	D
<i>Holcus lanatus</i>				2									1	8%	R
<i>Poa pratensis</i>				3			2	6-7					3	25%	O
<i>Carex carophyllea</i>	5				4	5	6	6-7					5	42%	F
<i>Carex flacca</i>		2-3	2-3	3-4	4	2		3-4	2	2		2	9	75%	D
<i>Luzula campestris</i>		1-2		1	2								3	25%	O
<i>Rhynchospora triquetris</i>	3-4		2									3	3	25%	O
<i>Rhynchospora squarrosus</i>		3	6	7	5	4	4	2-3	5	5	3	3	11	92%	D
<i>Hylocomium splendens</i>	4	6				4	4		5		5	3	7	58%	A
<i>Pseudoscleropodium purum</i>												1	1	8%	R
<i>Dicranum sp.</i>								1					1	8%	R
<i>Plantago maritima</i>								1					1	8%	R
<i>Plantago lanceolata</i>		1	1	2	4	2	3	2-3	3	2	1	1	11	92%	D
<i>Bellis perennis</i>					2		1					2	3	25%	O
<i>Trifolium pratense</i>							3						1	8%	R
<i>Trifolium repens</i>			3	3	3								3	25%	O
<i>Ranunculus bulbosus</i>			2	2-3	3		2				1		5	42%	F

³⁵ JNCC (2004) – Common Standards Monitoring Guidance for Sand Dune Habitats, Available at: <https://data.jncc.gov.uk/data/7607ac0b-f3d9-4660-9dda-0e538334ed86/CSM-SandDuneHabitats-2004.pdf>

³⁶ Dominant: species in > 60% of stops, covers >50% of unit

Abundant: species in up to 60% of stops, covers <50% of unit

Frequent: in 41-60% of stops

Occasional: in 21-40% of stops

Rare: in 1-20% of stops

<i>Lotus corniculatus</i>				3			2	4				4	4	33%	F
<i>Taraxacum sp.</i>				1					1		2		3	25%	O
<i>Senecio jacobaea</i>		1					2					1	3	25%	O
<i>Gallium verum</i>		2	3	2-3	1-2		4		3	3	4	2	9	75%	D
<i>Leucanthemum vulgare</i>												2	1	8%	R
<i>Vicia sepium</i>			2			2							2	17%	O
<i>Saponaria officinalis</i>						4							1	8%	R
<i>Anthyllis vulneraria</i>						4	3	2				2	4	33%	F
<i>Daucus carota</i>			1	1-2	2	2	2	1-2				4	7	58%	A
<i>Achillea millefolium</i>						3						3	2	17%	O
<i>Viola riviniana</i>			1	2									2	17%	O
<i>Heracleum sphondylium</i>						3			3	2			3	25%	O
<i>Hypericum pulchrum</i>			1	1-2									2	17%	O
<i>Neottia sp.</i>						1	1						2	17%	O
<i>Thymus praecox</i>			2-3	5				2					3	25%	O
Number of Positive Indicator species	3	7	8	11	7	6	8	6	7	5	6	9	Positive indicator species shaded green		
Number of total Negative Indicators	1	2	1	1	1	1	2	0	1	1	1	1	Negative indicator species shaded pink		
Cover of negative indicators exceeding 5% of area? (Domin >3)	Y	Y	Y	Y		Y									
Condition Assessment based on the criteria listed in Table 21													NB - Condition Assessment criteria used relate to: 1: No. of Typical species 2: No. of negative indicator species 4: Bare Ground <10% 5: Sward Height 5-20cm		
Criterion 1	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass			
Criterion 2	Fail	Fail	Fail	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Pass	Pass			
Criterion 4	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass			
Criterion 5	Fail	Fail	Fail	Pass	Pass	Fail	Pass	Pass	Fail	Fail	Fail	Fail			
Overall assessment	Fail	Fail	Fail	Fail	Pass	Fail	Pass	Pass	Fail	Fail	Fail	Fail			

Plate 2 - Photographs taken at Structured Walk Monitoring Stops 1-4

Stop 1



Stop 2



Stop 3



Stop 4



Plate 3 - Photographs taken at Structured Walk Monitoring Stops 5-8

Stop 5



Stop 6



Stop 7



Stop 8



Plate 4 - Photographs taken at Structured Walk Monitoring Stops 9-11

Stop 9



Stop 10



Stop 11



Stop 12



Conclusions

Findings of Condition Assessment for Fixed Dune Habitat at Greenland's Campsite Rosses Point

The condition assessment for fixed dune habitat at the Proposed Development Site showed that as of 19 05 2021 only three of the twelve monitoring stops assessed in line with the specified criteria, were judged to be in '*Favourable*' condition. The remaining 9 stops failed due to a combination of sward height exceeding the 20cm threshold and the high numbers of the negative indicator species *Arrhenatherum elatius* recorded at these stops. A later brief look at the Site in June showed *Arrhenatherum elatius* appeared even more abundant and indicated that perhaps it was under-recorded during the initial assessment due to the surveys conducted so early in the field season.

Stops 7 and 8 were located to the middle and north-west of the Site which was an area of notably 'higher quality' Dune Habitat (as illustrated on the Structured Walk and Habitat Map Figure 1).

There were also three distinct areas of enriched, rank grassland habitat across the middle of the Site (indicated in Figure 1). These areas appeared to be very grassy, species-poor and degraded, potentially due to grass clippings being dumped at these particular locations. These areas were avoided for the condition assessment so as to not skew any results, but they should be considered for the overall condition of the Site itself.

It should be emphasised that the field assessment of some of the criteria used may be somewhat subjective, and passing or failing on individual criteria does not necessarily reflect a long-term change in conditions. For example, *Bare ground*, *Sward height* and *Scrub coverage* may be somewhat variable over a relatively short term, depending upon land usage and management in the time leading up to the assessment (e.g. trampling/cutting). Some natural variation in vegetation composition would be expected over time, depending upon variations in a wide range of climatic and biotic factors.

Summary of conclusions

Overall, the Fixed Dune habitat at the site was found to be in a poor condition. Though the area does support a wide variety of "typical" species and very few negative indicator species or agricultural weeds. However, a significant number of the monitoring locations (approximately 75%) failed the fixed dune habitat condition assessment because of maximum sward height requirements (some exceeding 50cm), as well as an abundance across the site of the negative indicator species *Arrhenatherum elatius*, as a rank, ungrazed sward tends to negatively impact on species diversity.

General recommendations for habitats at this Site

Preserve the mature rose and bramble scrub area to the East of the Application Site (see habitat map Figure 1 Appendix V). When straightening up the hardstands along that eastern edge, best to avoid the dune grassland if possible and stick to the rank grassland areas with any habitat removal works.

Similarly with regards to the main Application Site location, make use of the rank areas and try to avoid that north-western boundary where there is notably better-quality dune habitat.

If working on, or straightening the existing hardstands along the eastern part of the Application Site, there should be an overall aim to supplement (with native coastal species) and preserve the existing hedgerow along here as much as possible. This habitat adds a beneficial feature for biodiversity, as well as screening to the golf course at that side of the site and provides suitable habitat for nesting birds.

References

Delaney, A., Devaney, F.M, Martin, J.M. and Barron, S.J. (2013). *Monitoring survey of Annex I sand dune habitats in Ireland. Irish Wildlife Manuals, No. 75*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

JNCC, 2004. *Common Standards Monitoring Guidance for Sand Dune Habitats. Version August 2004*. Joint Nature Conservation Committee, Peterborough. ISSN 1743-8160 (online). Available at: <https://data.jncc.gov.uk/data/7607ac0b-f3d9-4660-9dda-0e538334ed86/CSM-SandDuneHabitats-2004.pdf>

Ryle, T., Murray, A., Connolly, C. and Swann, M. (2009). *Coastal Monitoring Project 2004-2006*. Unpublished Report to the National Parks and Wildlife Service, Dublin.