AVRIO

Stage 2 Habitats Regulations Assessment

Sea Defence Section 16E Greysteel, Co. Derry

Project Details

Project Reference:	AEMP-562 (A167-T34)
Date of Issue:	26th May 2026
Client:	Amey LTD
Site Address	Sea Defence Section 16E Greysteel, Co. Derry
Services Provided:	Preparation of an 'Article 6 (3) Habitat Regulation Assessment'

AVRIO Quality Information

Reviewed by:	[redacted] (Senior Ecological Consultant) AVRIO Environmental Management	Signed: [redacted]
Produced by:	[redacted] (Senior Ecological Consultant) AVRIO Environmental Management	Signed: [redacted]
Approved by:	[redacted] (Principal Ecologist) AVRIO Environmental Management	Signed: [redacted]

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Conclusions and recommendations contained within this report may be based on information provided by others. AVRIO assumes all relevant information provided by those parties from whom it was requested is accurate. Information obtained by AVRIO was not independently verified by AVRIO unless otherwise stated in this report.

The works described in this report were undertaken between August 2025 and September 2025. These works were based on the conditions encountered and the information available during this said period of time. AVRIO accepts no liability for any matters arising if any recommendations contained in this document are not carried out or are partially carried out without further advice being obtained from AVRIO. This report is based on site conditions witnessed by AVRIO or other parties as required in accordance with the Agreement under which AVRIO's services are performed. The scope of this report and the services are accordingly factually limited by these circumstances.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and, where appropriate, are subject to further investigations or information which may become available.

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Certain statements made in this report that are not historical facts may constitute estimates, projections, or other forward-looking statements. Even though these are based on reasonable assumptions as of the date of the report, such forward-looking statements, by their nature, involve risks and uncertainties that could cause actual results to differ materially from the results predicted. AVRIO explicitly does not guarantee or warrant any estimate or projections contained in this report.

Unless otherwise stated in this report, the assessments made assume that the sites and facilities will continue to be used for their current purpose without significant changes.

Where field investigations were carried out, these investigations have been restricted to a level of detail required to meet the stated objectives of the services. The results of any measurements taken may vary spatially or with time, and further confirmatory analyses should be made after any significant delay in issuing this report.

Contents

1. Introduction

1.1 Background

AVRIO Environmental Management Limited, hereafter "AVRIO", has been appointed Amey Ltd to undertake a Habitats Regulations Assessment for works at Sea Defence Section 16E Greysteel, Co. Derry (Irish Grid Reference: C 54725 22276).

1.2 Requirement for an Appropriate Assessment

The purpose of the assessment is to determine the appropriateness of the proposed project in the context of the conservation status of a European protected site or sites. In Northern Ireland, an Appropriate Assessment takes the form of a Habitats Regulations Assessment (HRA). A HRA refers to the several distinct stages of assessment which must be undertaken in accordance with The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended 2019)[1], [2] and The Conservation of Offshore Marine Habitats and Species Regulations 2017[3] to determine if a plan or project may affect the protected features of a habitats site before deciding whether to undertake, permit or authorise it. An appropriate assessment is required in order to assess the likely significant effects (LSE) of a plan or project either individually or in combination with other plans or projects on a protected habitats site (European/Ramsar sites).

1.3 The Aim of the Report

This HRA has been prepared in accordance with the European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (E.C., 2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (E.C., 2018) and it provides an assessment of the potential effects of the development at Sea Defence Section 16E Greysteel, Co. Derry.

A HRA should provide the information required in order to establish whether or not a proposed development is likely to have a significant impact on certain Natura 2000 sites in the context of their conservation objectives and specifically on the habitats and species for which the Natura 2000 conservation sites have been designated. Accordingly, a comprehensive assessment of the potential impacts of this application was carried out between June 2025 and September 2025 by AVRIO. This assessment allowed areas of potential ecological value and potential ecological constraints associated with this proposed development to be identified and it also enabled potential ecological impacts associated with the development to be assessed and mitigated for.

[1] UK Government (1995) The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995: Available at The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995
[2] Northern Ireland Assembly (2019) The Conservation (Natural Habitats, etc.) (Amendment) (Northern Ireland) (EU Exit) Regulations 2019: Available at The Conservation (Natural Habitats, etc.) (Amendment) (Northern Ireland) (EU Exit) Regulations 2019
[3] UK Government (2017) The Conservation of Offshore Marine Habitats and Species Regulations 2017: Available at The Conservation of Offshore Marine Habitats and Species Regulations 2017

1.4 Regulatory Context

1.4.1 Relevant Legislation

1.4.1.1 The Birds Directive

- The Birds Directive (Council Directive 2009/147/EC) recognises that certain species of birds should be subject to special conservation measures concerning their habitats [4]. The Directive requires that Member States take measures to classify the most suitable areas as Special Protection Areas (SPAs) for the conservation of bird species listed in Annex 1 of the Directive. SPAs are selected for bird species (listed in Annex I of the Birds Directive), that are regularly occurring populations of migratory bird species, and the SPA areas are of international importance for these migratory birds.

1.4.1.2 The EU Habitats Directive

- The EU Habitats Directive (92/43/EEC) requires that Member States designate and ensure that particular protection is given to sites (Special Areas of Conservation) which are made up of or support particular habitats and species listed in annexes to this Directive. [5] Articles 6(3) and 6(4) of this Directive also call for the undertaking of an Appropriate Assessment for plans and projects not directly connected with or necessary to the management of, but which are likely to have a significant effect on any European designated sites (i.e. SACs and SPAs).

1.4.1.3 The Water Framework Directive

- The Water Framework Directive (WFD) (2000/60/EC), which came into force in December 2000, establishes a framework for community action in the field of water policy. The WFD was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003) [6]. The WFD rationalises and updates existing legislation and provides for water management on the basis of River Basin Districts (RBDs). RBDs are essentially administrative areas for coordinated water management and are comprised of multiple river basins (or catchments), with cross-border basins (i.e. those covering the territory of more than one Member State) assigned to an international RBD. The aim of the WFD is to ensure that waters achieve at least good status by 2021 and that status does not deteriorate in any waters.

1.4.2 Habitats Regulations Assessment Process

Guidance on the Habitats Regulations Assessment process was produced by the European Commission in 2002. These guidance documents identify a staged approach to conducting a Habitats Regulations Assessment, as shown Diagram 1. Additional supplementation was also taken from guidance from “Guidelines for Ecological Report Writing”

[4] European Communities (Conservation of Wild Birds) Regulations, 1985, SI 291/1985 & amendments – http://www.irishstatutebook.ie;
[5] European Communities (Natural Habitats) Regulations, SI 94/1997, SI 233/1998 & SI 378/2005 – http://www.irishstatutebook.ie;
[6] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

(CIEEM, 2017)[7] and from the Office of the Planning Regulator (2021)[8]; where guidance in Northern Ireland was limited, this was supplemented with guidance from the Republic of Ireland and United Kingdom.

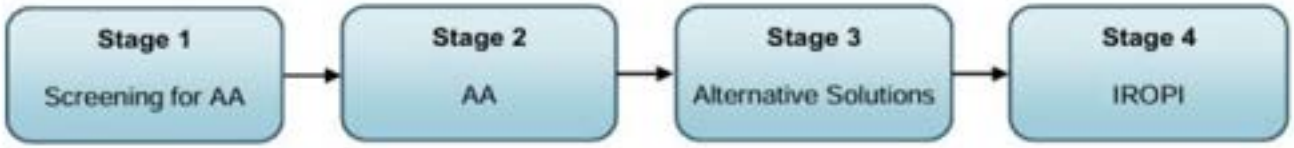


Diagram 1: The Appropriate Assessment Process (from: Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, DEHLG, 2009)

1.4.2.1 Stage 1 – Screening for Habitats Regulations Assessment

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

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

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

1.4.2.2 Stage 2 – Habitats Regulations Assessment

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

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

[7] CIEEM (2017) *Guidelines on Ecological Report Writing.* Chartered Institute of Ecology and Environmental Management, Winchester : Ecological-Report-Writing-Dec2017.pdf
[8] OPR (2021) *Appropriate Assessment Screening for Development Management* Office of the Planning Regulator : 9729-Office-of-the-Planning-Regulator-Appropriate-Assessment-Screening-booklet-15.pdf

1.4.2.3 Stage 3 – Alternative Assessment

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

1.4.2.4 Stage 4 – IROPI (Imperative Reasons for Overriding Public Interest)

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

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

The methodology follows a systematic, step-by-step process designed to evaluate whether development/maintenance works are likely to have significant effects on European Designations e.g., SACs, SPAs, in line with the provisions of the Habitats Directive. The screening process begins with a description of the proposed development and an assessment of the local site characteristics. This is followed by identifying potentially relevant Natura 2000 sites using the Source-Pathway-Receptor (S-P-R) model. The S-P-R model is used to assess whether there are any pathways through which the development could affect the conservation objectives of the identified sites. The next step involves evaluating the likely significant effects, both direct and indirect, of the proposed development on these sites, considering factors such as the size, nature, and scale of the project. If significant effects cannot be ruled out, a Stage II Habitats Regulations Assessment may be required.

1.4.3 Additional Sources used to Influence Habitats Regulations Assessment

In addition to the Legislative Context in section 1.3.1 and guidance outlined in section 1.3.2, guidance has been sought from the following documents for the production of this Habitats Regulations Assessment report:

1. Council of the European Commission (1992) Council Directive 92/43/EEC of 21st May 1992 on the conservation of natural habitats and of wild fauna and flora. Official Journal of the European Communities. Series L 20, pp. 7-49. [9]

[9] EC (2002) Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission;

2. EC (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. [10]
3. European Commission (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. [11]
4. European Commission (2006). Nature and Biodiversity Cases: Ruling of the European Court of Justice. [12]
5. EC (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. [13]
6. EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission. [14]
7. European Commission (2018). Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. [15]
8. Department of Environment, Heritage, and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. [16]
9. National Parks and Wildlife Service (2019). Article 17: The Status of EU Protected Habitats and Species in Ireland. [17]
10. European Communities (Natural Habitats) (Amendment) Regulations 2005 [18];
11. OPR Practice Note PN01: Appropriate Assessment Screening for Development Management, March 2021 [19];
12. Northern Ireland Executive, Guidance for Marine Protected Area Assessments in the NI inshore area, February 2024 [20];

1.5 Statement of Authority

Sam McCaul: The site survey was undertaken by Sam McCaul. Sam is an ecologist an AVRIO Environmental Management. Sam graduated from the national university of Ireland - Galway with an honorary bachelor's degree in environmental science. Sam has experience working as part of a team on environmental impact assessment reports and habitat

[10] EC (2002) Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission;
[11] EC (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC;
[12] EC (2006) Nature and Biodiversity Cases: Ruling of the European Court of Justice, Office for Official Publications of the European Communities, Luxembourg. European Commission;
[13] EC (2007a) 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. Office for Official Publications of the European Communities, Luxembourg. European Commission;
[14] EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. Office for Official Publications of the European Communities, Luxembourg. European Commission.
[15] EC (2018). Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg. European Commission.
[16] DoEHLG (2010). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Revision, February 2010. Department of the Environment, Heritage and Local Government
[17] NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report.
[18] EC (1997) 2006. The European Communities (Natural Habitats) (Amendment) Regulations 2005.
[19] OPR (2021). OPR Practice Note PN01: Appropriate Assessment Screening for Development Management
[20] NIE (2024). Guidance for Marine Protected Area Assessments in the NI inshore area

monitoring across Galway. Sam also has experience surveying and mapping turloughs while monitoring the drainage and flood patterns with relation to the hydrogeology on site. Sam has undertaken Bat Emergence surveys, PEAs, HRAs and Preliminary Roost Assessments (PRA).

Jack Hamill: The production of this report was undertaken by Jack Hamill. Jack is an ecologist at AVRIO Environmental Management. Jack graduated with a bachelor's degree of Science in Marine Science from the University of Ireland, Galway. Jack has experience overseeing environmental monitoring surveys in his previous roles both in Australia and Canada, he has been undertaking environmental surveys in Northern Ireland and the Republic of Ireland since 2023 including Invasive Species Surveys (ISS), Preliminary Roost Assessments (PRA), baseline ecological surveys and bat emergence/re-entry surveys on a variety of sites throughout Ireland. Jack has experience contributing to habitat assessments including JNCC Phase I Habitat Surveys and Fossitt Habitat Surveys as well as producing a range of ecological reports including Preliminary Ecological Appraisals, Invasive Species Management Plans, Habitat Regulation Assessments (HRA/AASR/NIS).

Callum Neill: The review of this report was undertaken by Callum Neill. Callum is an ecologist at AVRIO Environmental Management. Callum has a master's degree in marine biology from Queen's University Belfast. Callum has been undertaking environmental surveys in Northern Ireland and the Republic of Ireland since 2020 including Preliminary Ecological Appraisal (PEA), Preliminary Roost Assessments (PRA) and bat emergence/re-entry surveys on a variety of sites. Callum also has vast experience in leading intertidal surveys and at-sea/marine surveys, working for a variety of non-governmental organisations and academic institutions. Callum has experience contributing to habitat assessments including JNCC Phase I Habitat Surveys and Fossitt Habitat Surveys as well as producing a range of ecological reports including Preliminary Ecological Appraisals, Invasive Species Management Plans, Habitat Regulation Assessments (HRA/AASR/NIS).

Fergal Maguire: This report has been approved by Fergal Maguire. Fergal is the founder of AVRIO Environmental Management Limited and brings over 12 years of experience in environmental and ecological consultancy. He has expertise in compliance, ecology, and resource efficiency, having worked on a wide range of projects with clients from large organizations to smaller companies. He has experience contributing to Environmental Impact Assessments, Strategic Environmental Assessments, environmental licence applications (IEL, IPC, and Waste Licences), and worked with agencies such as the EPA, NIEA, SEPA, and UK Environment Agency. His experience includes managing IED-licensed facilities across Ireland, the UK, and Europe, as well as providing general consultancy in waste management, environmental compliance, and ecology. Fergal is highly skilled in producing Ecological Impact Assessments (EcIA), Habitat Regulation Assessments (HRA/AASR/NIS), Invasive Species Management Plans (ISMPs), and Construction Environmental Management Plans (CEMPs). He has served as an Ecological Clerk of Works (ECoW) for various construction projects, ensuring regulatory compliance and environmental protection. Fergal is a licensed ecologist in both the Republic of Ireland and Northern Ireland for a range of protected and priority species, including, but not limited to, bats, badger, otter, common lizard, smooth newt and priority bird species, underpinning his capability to deliver specialist ecological services across jurisdictions. Fergal has led large-scale survey projects for clients within Northern Ireland and the Republic of Ireland. His work involved conducting comprehensive ecological surveys, producing Appropriate

Assessment Screening Reports and Habitat Regulation Assessments, and managing applications for derogation licenses. He collaborated closely with the NPWS and NIEA to ensure regulatory compliance, further solidifying his role as a trusted environmental consultant.

2. Site Characteristics

2.1 Desk Study

Information pertaining to the proposed site and the surrounding environment was studied and assessed prior to the completion of this assessment. The following data sources were accessed in order to complete a thorough examination of potential impacts:

- Mammals, Amphibians and Reptiles website [21];
- Environmental Protection Agency Geographic Information System (EPAGIS) [22];
- National Biodiversity Data Centre (NBDC) [23];
- NIEA Natural Environment Map Viewer [24];
- Spatial NI [25];
- The Department of the Environment (DOE) Planning Service website [26];
- The Woodland Trust website [27];
- National Biodiversity Network (NBN) Atlas [28].

Results of the Desk Study are described in Section 2.2 below.

2.2 Site Overview

The application site is located to the north of the railway track, east of City of Derry Airport, and is located approximately 1.7km northwest of Greysteel village centre, 11.8km northeast of Derry City Centre and 13.1km west of Limavady Town Centre.

The site comprises a section of Sea Defences located along the railway track along the southern shores of Lough Foyle, surrounded by agricultural fields, with City of Derry Airport, commercial properties, scrub and shoreline habitat, hedgerows and treelines within the wider environs. Figure 2 illustrates the classification of habitats on-site in accordance with JNCC Phase I Habitat Classification codes.

[21] Mammals, Amphibians and Reptiles: http://www.habitas.org.uk/nimars/
[22] Environmental Protection Agency Geographic Information System: https://gis.epa.ie/EPAMaps/
[23] National Biodiversity Data Centre: www.biodiversityireland.ie
[24] NED Maps: https://gis.daera-ni.gov.uk/arcgis/apps/webappviewer/index.html?id=bb721449cb8949e7a4f90c722bd2d80b
[25] www.spatialni.gov.uk
[26] The Planning Service (2009): http://www.planningni.gov.uk/index/policy/dev_plans
[27] The Woodland Trust (2009): http://frontpage.woodland-trust.org.uk/woodsunderthreat/
[28] National Biodiversity Network (NBN) Atlas: Explore Your Area | NBN Atlas

The habitat within the immediate environs consists primarily of improved grassland and semi-improved grassland field margins. Dense scrub habitat is also present along the northern and southern railway embankments to the south of the site. To the north is the waters and shoreline habitat of Lough Foyle itself. To the east of the site are further agricultural fields, railway track and the shores of Lough Foyle. To the south lies railway track, further agricultural fields and commercial properties with individual residential dwellings. To the west City of Derry Airport and associated infrastructure.

There are 2-no. European designated site within 2km of the application site; Lough Foyle SPA and Lough Foyle Ramsar Site located within the boundaries of the application site, to the north. There is 1-no. Nationally designated site within 2km of the application site; Lough Foyle ASSI located within the boundaries of the application site, to the north. There is no local wildlife site within 1km of the application site. The site is adjacent to an area designated for Breeding Waders to the east of the site boundary.

The application site is hydrologically and hydrogeologically connected to 2-no. European designated sites within the Zone of Influence of the development. These are Lough Foyle SPA and Lough Foyle RAMSAR site.

Picture 1: Railway Track with Poor Semi-improved Grassland noted adjacent

Picture 2: Intertidal mud/sand (H1.1) and shingles/cobbles (H1.2) habitats noted to north of railway track on-site

Picture 5: Lough Foyle (G1) habitat noted offshore to north of site

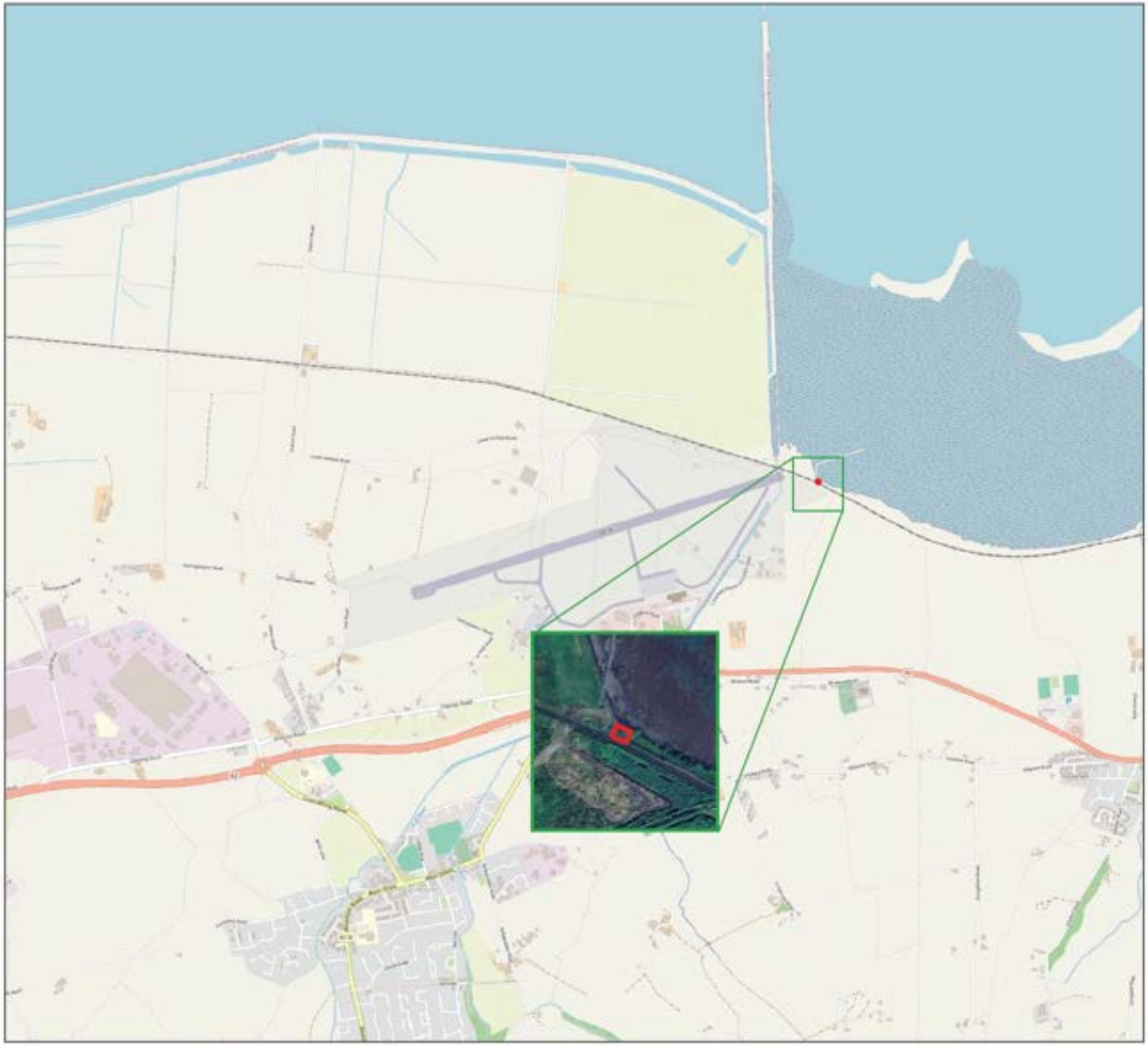
Picture 6: Ephemeral/Short Perennial Habitat (J1.3) adjacent to Bare Ground (J4) habitat with Buddleia present

Picture 3: Improved Grassland (B4) habitat noted to the west of the survey area

Picture 4: Intertidal mud/sand (H1.1) with Scattered Saltmarsh (H2.4) noted along water's edge, east of this.

Picture 7: Buildings/Structure (J3.6) – metal walkway on-site

Picture 8: Dense Scrub (A2.1) habitat south of railway track



Legend:

Site Works Area

Project Title:

AEMP-2000562
Section 16E, Greysteel, Co. Derry

Drawing Title:

Site Location Map

Drawn By:	Checked By:
JH	FM
Project No:	Drawing No:
2000562	Figure 1
Scale:	Date:
1/25000	18th September 2025

AVRIO

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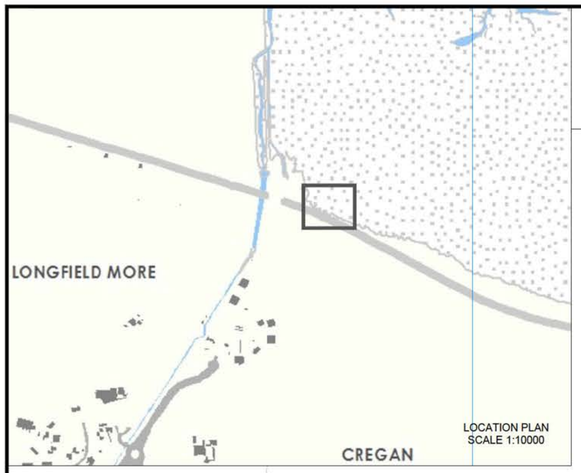
2.3 Characteristics of the Proposed Development

2.3.1 Description of the Project

The area of works being undertaken at Asset 16E currently consists of an approximately 13m length of eroded grassed embankment with no formalised form of defence. Scouring has taken place along the toe of the embankment due to wave action and high tidal water levels. There is currently a risk of ongoing erosion of the embankment due to wave action and extreme water levels unless this section is protected.

The proposed works at Asset 16E will comprise of a new rock armour revetment formed in a double interlocking primary rock armour layer (1-3t) with a geotextile beneath the rock armour. The area directly behind the new revetment will be filled with existing smaller sized rock to meet the existing embankment level. The revetment is to be installed between Chainages 1700-1713 (254726E, 422262N to 254713E, 422269N) and tie into the existing grass embankment at both ends.

Attached Below are Site Plans indicating the Site Works involved with this Sea Defence Section 16E



LOCATION PLAN
SCALE 1:10000

0 5 10 15 20 25 m
SCALE 1 : 250

UNKNOWN BURIED SERVICES LEADING TO AIRPORT LIGHTS

CAUTION WHILST WORKING IN CLOSE PROXIMITY TO CITY OF DERRY AIRPORT RUNWAY APPROACH LIGHTS. TRANSLINK TO ENSURE DISCUSSIONS ARE HELD WITH ASSET OWNER AHEAD OF ANY FUTURE WORKS.

POLLUTION TO THE SEA DURING WORKS

ENVIRONMENTALLY DESIGNATED AREA

RISK OF OUTFLANKING. CLIENT TO CONSIDER EXTENSION OF ROCK ARMOUR AT DETAILED DESIGN STAGE

AIRPORT LOCATED LANDWARD OF WORKS AREA

UNKNOWN SERVICES

PROXIMITY TO RAILWAY

Grass
MHWS
Stones & Gravel
Track
Sea Bed
Railway Tracks

A 1101

8m APPROX
SECTION A - 11m APPROX
8m APPROX

NEW ROCK ARMOUR TO TIE INTO EXISTING GRASS EMBANKMENT. TIE-IN TBC AT DETAILED DESIGN STAGE

NEW ROCK ARMOUR REVETMENT FORMED IN A DOUBLE INTERLOCKING ROCK LAYER (1-3t)

1.60mAOD VARIES
3.76mAOD VARIES

NEW ROCK ARMOUR TO TIE INTO EXISTING GRASS EMBANKMENT. TIE-IN TBC AT DETAILED DESIGN STAGE

INDICATIVE CESS AREA

RAILWAY TRACKS

2m APPROX

8.8m VARIES

NEW ROCK ARMOUR TO BE PLACED OVER EXISTING GRASSED EMBANKMENT AND LOCALISED AREA OF EROSION

Construction Risks	Public Risks	Environmental Risks
• Collapse of excavation/embankment during construction • Unknown services • Working adjacent to live railway line • Working in an exposed coastal and tidal environment • Movement of plant in and around sea • Placement of rock armour	• Unauthorised site access	• Working adjacent to and within statutory and non-statutory designated sites • Pollution hazards associated with working near sea • Risk of damage to flora and fauna

In addition to the hazards/risks normally associated with the types of work detailed on this drawing take note of the above.
It is assumed that all works detailed on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

General Notes

1. The co-ordinate system reference is IRENET95, based on Irish Transverse Mercator Projection. Levels are in metres above ordnance datum Belfast (mAOD) and refer to Northern Ireland 2015 geoid model.
2. Do not scale from this drawing. All dimensions must be checked/verified on site.
3. All levels must be checked in relation to the railway line with any discrepancies being passed back to the consultant. Levels and setting out should be checked by the site engineer to ensure the quoted levels are still relevant at the time of construction.
4. All works in watercourses will be carried out with care to minimise the risk of pollution adhering to guidance for pollution prevention.
5. All works planning to discharge to a watercourse or carry out works that will impact on the free flow of a watercourse will be subject to Consent to Undertake Works to a Watercourse under Schedule 6 Protection of Watercourses from the Drainage (Northern Ireland) Order 1973.

NOT FOR CONSTRUCTION

Services legend

No services identified through PAS128 Type D survey to interact with permanent works.
The Contractor shall locate all services prior to commencement of any works on site. Any unknown services identified in the cess shall be isolated and placed in ducts during construction.

Rev.:	Comments	Date	Drawn	Designed	Checked	Approved
Rev.:	Comments	Date	Drawn	Designed	Checked	Approved

Client Approval
A - Approved
B - Approved with Revisions
C - Do Not Use

Purpose of Issue	Status
For Review and Comments	S3

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Offices at Coleshill, Doncaster, Edinburgh, Exeter, Glasgow, Haywards Heath, Isle of Man, Leeds, Limerick, Newcastle upon Tyne, Newport, Peterborough, Saltaire, Skipton, Tadcaster, Thirsk, Wallingford and Warrington

Translink Sea Defences

Outline Design
Asset 16E - Greysteel Bridge to Longfield (City of Derry airport)
General Arrangement

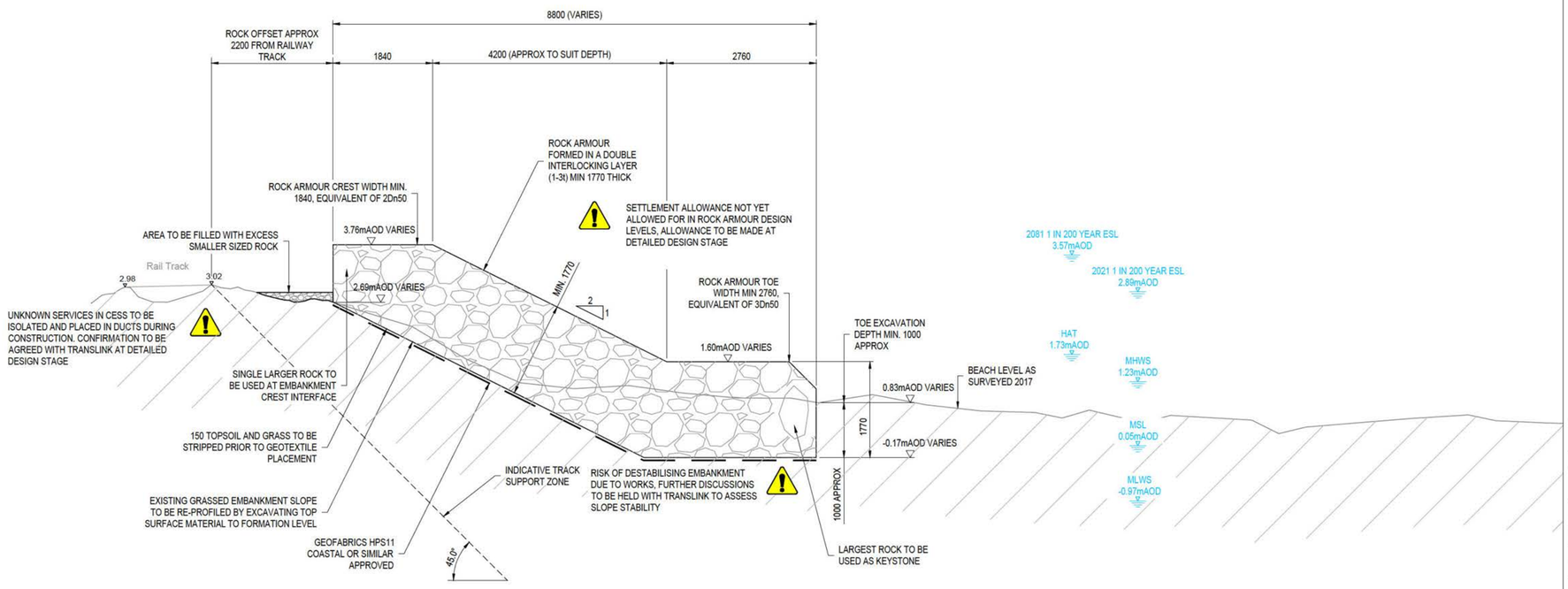
for

Translink

Scale:		
1:250 @ A1	Drawn:	[redacted] 15/10/21
	Designed:	21/10/21
	Checked:	21/10/21
	Approved:	17/11/21

Project Reference: 2020s0837 - Translink Sea Defences

Drawing Number:	Revision
TSD-JBAU-00-16E-DR-C-1001-General_Arrangement	P01



SECTION A-A (TYPICAL)

Construction Risks	Public Risks	Environmental Risks
• Collapse of excavation/embankment during construction • Unknown services • Working adjacent to live railway line • Working in an exposed coastal and tidal environment • Movement of plant in and around sea • Placement of rock armour	• Unauthorised site access	• Working adjacent to and within statutory and non-statutory designated sites • Pollution hazards associated with working near sea • Risk of damage to flora and fauna

In addition to the hazards/risks normally associated with the types of work detailed on this drawing take note of the above.
It is assumed that all works detailed on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

General Notes

1. The co-ordinate system reference is IRENET95, based on Irish Transverse Mercator Projection. Levels are in metres above ordnance datum Belfast (mAOD) and refer to Northern Ireland 2015 geoid model.
2. Do not scale from this drawing. All dimensions must be checked/verified on site.
3. All dimensions are in millimetres unless stated otherwise.
4. All levels must be checked in relation to the railway line with any discrepancies being passed back to the consultant. Levels and setting out should be checked by the site engineer to ensure the quoted levels are still relevant at the time of construction.
5. All works in watercourses will be carried out with care to minimise the risk of pollution adhering to guidance for pollution prevention.
6. All works planning to discharge to a watercourse or carry out works that will impact on the free flow of a watercourse will be subject to Consent to Undertake Works to a Watercourse under Schedule 6 Protection of Watercourses from the Drainage (Northern Ireland) Order 1973.

0 1 2 3 4 5 m
SCALE 1 : 50

NOT FOR CONSTRUCTION

Rev.:	Comments	Date	Drawn	Designed	Checked	Approved
Rev.:	Comments	Date	Drawn	Designed	Checked	Approved

Client Approval

- A - Approved
- B - Approved with Revisions
- C - Do Not Use

Purpose of Issue	Status
For review and comment	S3

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Translink Sea Defences

Outline Design
Asset 16E - Greysteel Bridge to Longfield (City of Derry airport)
Typical Cross Sections

for

Translink

Scale:		
1:50 @ A1	Drawn: [redacted]	22/06/21
	Designed: [redacted]	[redacted]
	Checked: [redacted]	21/10/21
	Approved: [redacted]	17/11/21

Project Reference: 2020s0837 - Translink Sea Defences

Drawing Number:	Revision
TSD-JBAU-00-16E-DR-C-1101-Typical_Cross_Section	P01

2.3.2 Description of the Baseline Ecological Environment

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological baseline conditions are those existing in the absence of proposed activities [29].

An Ecological Baseline survey was conducted by Sam McCaul BSc (Hons) on the 12th of August 2025, and the habitats present were identified in accordance with the JNCC Phase 1 Habitats Guide [30]. Plant nomenclature for vascular plants follows 'New Flora of the British Isles, while mosses and liverworts nomenclature follow 'Mosses and Liverworts of Britain and Ireland - a field guide'.

The walkover survey was designed to detect the presence, or likely presence, of a range of protected species and habitats. The walkover survey comprehensively covered the entire study area of the subject development and surrounding habitats.

2.3.2.1 Habitats

Habitats located within the survey boundary include:

- Scrub – Dense/Continuous (A2.1)
- Poor Semi-Improved Grassland (B6)
- Railway Track, Cess, and Associated Infrastructure
- Standing Water (G1)
- Saltmarsh – Scattered Plants (H2.4)
- Bare Ground (J4)
- Improved Grassland (B4)
- Fence (J2.4)
- Building (J3.6)
- Cultivated/Disturbed Land – Ephemeral/Short perennial (J1.3)
- Intertidal – Mud/Sand (H1.2)
- Intertidal – Cobbles/Shingles (H1.2)

2.3.2.2 Assessment for Annex I Habitats & Priority Habitats/Species Habitats

Annex I Habitats

Two Annex I habitats were recorded on-site and within the extended survey area to the north of the site works via DAERA's Northern Ireland Marine Map Viewer. These include:

- **[1160] Large shallow inlets and bays**
- **[1140] Mudflats and sandflats not covered by seawater at all times**

[29] CIEEM, 2018, Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine;
[30] JNCC (2010): Handbook for Phase 1 Habitat Survey - A technique for Environmental Audit. Peterborough

The site is hydrologically connected to these designated features through its association with Lough Foyle Designated sites (SPA/ASSI/Ramsar). Mitigation measures to avoid potential impacts to these Annex I habitats are outlined in **Section 6.1**.

NI Priority Habitat & Species List

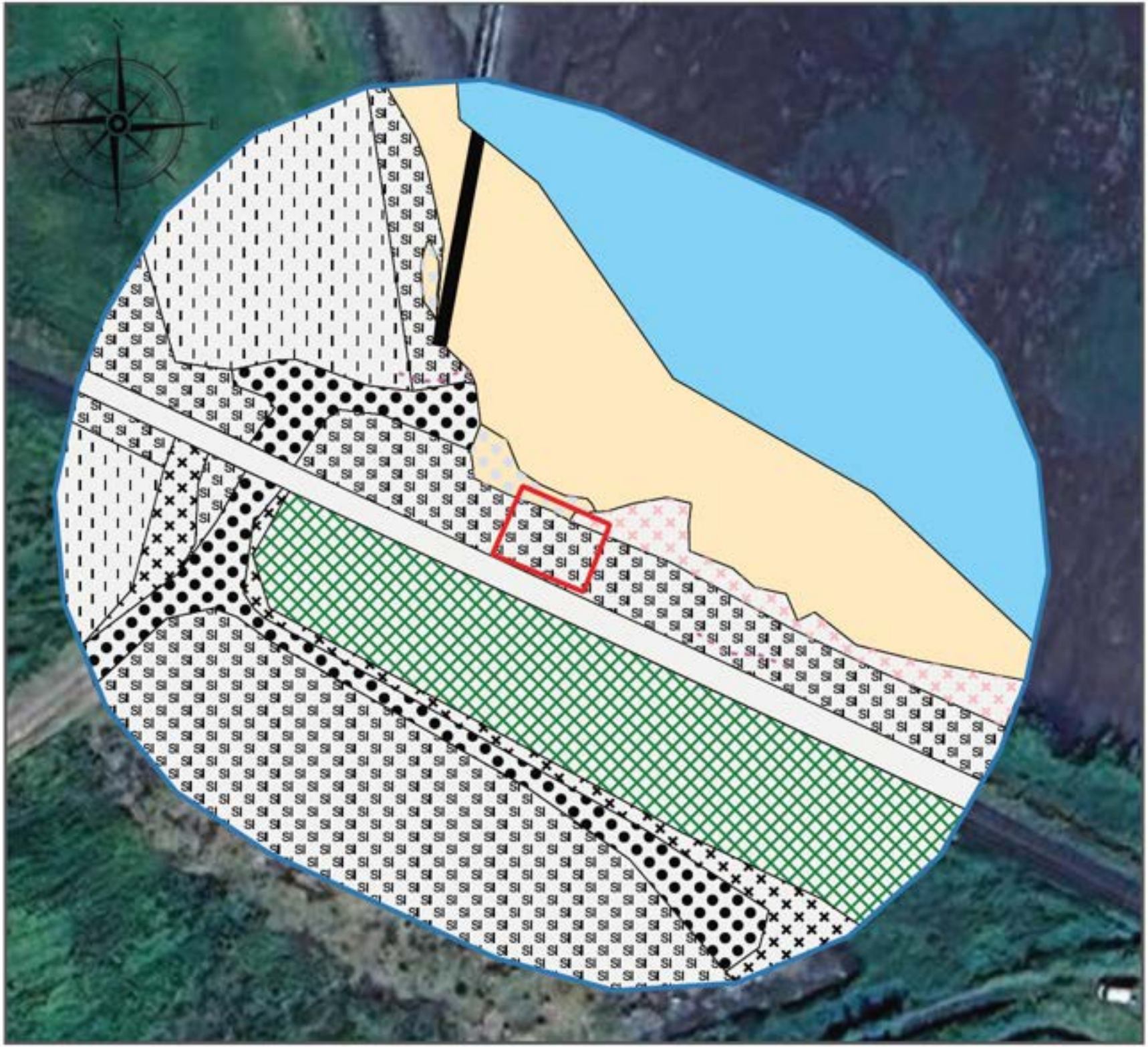
Following the site survey and an assessment of the NI Priority Habitat and Species List, Scattered Saltmarsh (H2.4) habitat was identified within the ecological survey area, recorded to Phase I JNCC standard and shown in Figure 2. This habitat is linked to Coastal Saltmarsh, which is recognised as a UKBAP and Northern Ireland Priority Habitat.

2.3.2.3 Invasive Species (Flora) Survey

Throughout the habitat survey, the site was searched for invasive weed species, focusing on those species listed under Schedule 9 of the Wildlife (Northern Ireland) Order 1985 [31].

During the site survey, no species listed under Schedule 9 of the Wildlife (Northern Ireland) Order 1985 or non-scheduled invasive species were identified on-site or within the 50m ecological survey area.

[31] The Wildlife (Northern Ireland) Order 1985: https://www.legislation.gov.uk/nisi/1985/171/contents



Legend:

- Site Works Area
- 50m Ecological survey buffer
- A2.1- Scrub- dense/continuous
- B4- Improved grassland
- B6- Poor semi-improved grassland
- G1- Standing Water
- H1.1- Intertidal- mud/sand
- H1.2- Intertidal- shingles/cobbles
- H2.4- Saltmarsh- scattered plants
- J1.3- Ephemeral/short perennial
- J3.6- Buildings
- J4- Bare ground
- J5- Other habitat

Project Title:
AEMP-2000562
Section 16E, Greysteel, Co. Derry

Drawing Title:
JNCC Phase 1 Habitats Map

Drawn By:	Checked By:
[redacted]	[redacted]
Project No: 2000562	Drawing No: Figure 2
Scale: 1/700	Date: 3rd September 2025

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2.3.2.4 Protected Species (Fauna) Survey

2.3.2.4.1 Bat Roost Assessment for Trees

A Ground Level Tree Assessment (GLTA) for Bats was undertaken of all trees on-site and within the 50m ecological buffer, surrounding the application site. No trees within the 50m ecological survey buffer were assessed as having potential for roosting Bats.

2.3.2.4.2 Bat Roost Assessment for Buildings

A Preliminary Roost Assessment (PRA) of Buildings and structures on-site and the extended survey area was undertaken by AVRIO during the Daytime Bat Walkover (DBW) survey.

1-no. Building/structure was identified on-site, this comprised a metal walkway structure extending out into Lough Foyle. The structure was in good condition and lacked any suitable cracks/crevices or sheltered spaces which Bats could utilise for roosting. This structure was assessed as negligible for Bat roosting potential.

2.3.2.4.3 Roost Assessment for Walls

A Preliminary Roost Assessment (PRA) of Buildings and structures on-site and the extended survey area was undertaken by AVRIO during the Daytime Bat Walkover (DBW) survey. No walls within the 50m ecological survey buffer were assessed as having potential for roosting Bats.

2.3.2.4.4 Bat Habitat Suitability

The site was deemed as being of low suitability for commuting and foraging Bats. The site itself lacked suitable areas of Broadleaved Scattered Trees, Broadleaved treelines and Broadleaved Woodland although the railway corridor itself with adjacent areas of scrub may form part of ecological corridors, leading to suitable habitats within the surrounding environs. Additionally, areas of Lough Foyle itself with overgrown vegetation along the shores within the site boundary and extended survey area were noted which may also offer areas of foraging for several species of Bat previously noted locally in the area. General mitigation measures and good practice guidelines recommended in the Preliminary Ecological Appraisal produced for this application site – 'AEMP-562 (A167-T6)' should be implemented for the safeguarding of habitats suitable for commuting and foraging bats during construction works. This includes measures for lighting management, vegetation retention, and control of noise and vibrations to minimize disturbance to local Bat populations.

2.3.2.4.5 Badger *(Meles meles)* Survey

No direct evidence of Badger was identified within the application site or 50m ecological survey buffer, several mammal trails were noted within the poor semi-improved grassland, north of the railway track, however without further evidence these cannot be directly attributed to Badger. Habitats within the application site and extended survey area were assessed as being low suitability for the species, primarily for commuting and foraging with connectivity noted to more suitable habitats within the wider environs. Additionally, Dense Scrub habitats, along with the grassland habitats offered suitable foraging resource of the species. General mitigation measures recommended in the

Preliminary Ecological Appraisal produced for this application site – 'AEMP-562 (A167-T6)' should be implemented for the safeguarding of habitats suitable for Badgers during construction works.

2.3.2.4.5 Breeding Bird Habitat Suitability Assessment

No evidence of Breeding Birds was identified within the 50m ecological survey area. Breeding Birds may utilise habitats on-site and within the 50m ecological survey buffer for nesting purposes. Should the removal of vegetation be required as part of site works, general recommendations and mitigation have been outlined below to negate any impact to breeding Birds as a result of site works. Additionally, given that the site is located between two sites designated for breeding waders, should works be required within the bird breeding season, a pre-construction check of the site and extended survey area for breeding birds, with particular attention paid to potential breeding wader sites, should be undertaken.

2.3.2.4.6 Otter *(Lutra lutra)* Survey

No direct evidence of Otter was identified during the survey e.g., spraints, footprints, paths/slides, holts, or urination 'green spots'. The waterbody to the north of the application site was assessed as suitable for commuting and foraging Otter, with Lough Foyle on-site of suitable size and depth for the species and offering optimal suitability for fisheries, an important foraging resource for Otter. The banks of this waterbody within the application site and extended survey area however, lacked suitable habitat for holt creation. As such, the application site was assessed as moderate suitability for commuting and foraging Otter. General mitigation measures recommended in the Preliminary Ecological Appraisal produced for this application site – 'AEMP-562 (A167-T6)' should be implemented for the safeguarding of habitats suitable for Otters during construction works.

2.3.2.4.7 Pine Marten *(Martes martes*) Habitat Suitability Assessment

The site works area and 50m ecological survey buffer were deemed poor suitability for Pine Marten; the habitats were sub-optimal for the species and would be unable to support breeding individuals of the species, and there was limited connectivity to suitable breeding habitat in the wider environs. Suitable foraging habitats within the ecological survey area for Pine Marten are present in the surrounding and wider environs. It is considered unlikely that Pine Marten would utilise the site works area or 50m ecological survey buffer.

2.3.2.4.8 Red Squirrel (*Sciurus vulgaris*) Habitat Suitability Assessment

The site works area and 50m ecological survey buffer were deemed poor suitability for Red Squirrel; the habitats were sub-optimal for the species and would be unable to support breeding individuals of the species, and there was limited connectivity to suitable habitat in the wider environs. It is considered unlikely that Red Squirrel would utilise the habitats within the site works area or 50m ecological survey buffer.

2.3.2.4.9 Smooth Newt *(Lissotriton vulgaris)* Habitat Suitability Assessment

No suitable watercourses or areas of standing water areas were noted on-site for breeding purposes. Scrub habitat can provide suitable terrestrial habitat for the species outside of breeding season, offering daytime refuge and humidity. However, Smooth Newt typically forage and shelter within 50m of suitable breeding habitat, rarely moving past

500m [32] [33]. Additionally, given the immediate and wider environs comprising built-up structures, it is unlikely that Smooth Newt would this scrub habitat on-site. Smooth Newt has been recorded within close proximity to the site and it is deemed unlikely that Smooth Newt would utilise the site for any purpose.

2.3.2.4.10 Butterfly Habitat Suitability Assessment

The site works area and 50m ecological survey buffer was deemed sub-optimal for Butterfly as it lacked biodiversity and suitable swards, as well as habitat characteristics that could provide habitat connectivity. Limited suitable habitat for commuting or foraging purposes for butterflies was noted within the site works area, although the scrub habitats and semi-improved grassland habitats within the wider survey area may offer some suitable habitat for Butterflies; suitability may be hindered by the overall lack of suitable habitat in the wider environs.

2.3.2.4.11 Common Lizard *(Zootoca vivipara)* Habitat Suitability Assessment

The site works area and 50m ecological survey buffer was deemed as being of moderate suitability for Common Lizard. Common Lizards are known to utilise railway embankments for basking. Railway embankment is widespread in the surrounding environs, and the temporary disturbance of a small section of this habitat will not impact the connectivity or quality of the habitat. Additionally, other suitable habitats such as Scrub exist outside the site works area and should remain unaffected by site works. Common Lizard has not been recorded within close proximity of the application site.

2.3.2.4.12 Fisheries Habitat Suitability Assessment

The site and 50m ecological buffer were deemed optimal for Fisheries. Lough Foyle to the north of the site was of suitable depth and connectivity to be utilised by Fisheries. As works may involve re-profiling or removal of sediment from the intertidal habitats on-site, it is recommended that consultation is undertaken with DAERA to determine if a Licence under Section 48 of the Fisheries Act (Northern Ireland) 1966: For permission to disturb or remove materials from the bed, bank, or shore of any watercourse or waterbody that may impact fisheries interests, is required..

Indirect effects may occur to suitable Fisheries habitat both on-site and downstream; recommendations have been provided within Preliminary Ecological Appraisal produced for this application site – 'AEMP-562 (A167-T6)'.

2.3.2.4.13 Marine Mammal Habitat Suitability Assessment

The waterbody on-site was assessed as optimal for usage by Marine Mammals; comprising Lough Foyle to the north of the site, deemed suitable for both Pinnipeds and Cetaceans. All works on-site should adhere to pollution prevention guidelines outlined above in Section 6.1 Additionally, to negate indirect impacts to marine mammals i.e.,

[32] Moor, H. et al. (2024): Conservation Biology. Building pondscapes for amphibian metapopulations

[33] Mulkeen, C.J. et al. (2017). Ecological Engineering. Habitat Suitability assessment of constructed wetlands for the smooth newt (*Lissotriton vulgaris*): A comparison with natural wetlands

through increased pollution to suitable habitat, site works should follow GPP5: Works and maintenance in or near water to be included within the Construction Environmental Management Plan (CEMP), to mitigate impacts from the construction phase.

Given the presence of suitable intertidal habitats within the site and the extended survey area, a pre-construction survey should be conducted to confirm the absence of marine mammals on-site and within the surrounding area prior to the commencement of works and ensure no disturbance to these species as a result of site works.

3. Establishment of a Source-Pathway-Receptor Model

3.1 Identification of the European Sites within the Likely Zone of Impact

The following methodology was used to establish which European Sites are within the Likely Zone of Impact of the proposed development:

- The most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the DAERA website [34] and the NIEA Map Viewer [35] when preparing this report. These datasets were utilised to identify European Sites that could feasibly be affected by the development works;
- The assessment was completed with reference to the Office of the Planning Regulator 2021 "OPR Practice Note – PN01: Appropriate Assessment Screening for Development Management", aiming to establish a "Source-Pathway-Receptor" model and if likely significant effects are anticipated via this pathway.
- The Zone of Influence was determined by identifying plausible pathway distances from the source, by considering the scope and scale of works. This is assessed on a site-by-site basis.
- In relation to Special Protection Areas, in the absence of any specific European or Irish guidance in relation to such sites, the Scottish Natural Heritage (SNH) Guidance, 'Assessing Connectivity with Special Protection Areas (SPA)' (2016) was consulted [36]. This document provides guidance in relation to the identification of connectivity between proposed developments and Special Protection Areas. The guidance considers the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species that are frequently encountered when considering plans and projects;
- The assessment considers any likely direct or indirect impacts of the proposed development, both alone and in combination with other plans and projects, on European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning were considered in this screening assessment;
- The site synopses and conservation objectives, as per the appropriate datasets, were consulted and reviewed when preparing this report.
- Each European Designations was assessed on an individual basis, as well as each Qualifying Interest. This report summarises assessments undertaken by AVRIO Environmental Management for this Habitat Regulation Assessment Screening Report.

Where potential pathways for Significant Effect are identified, the site is included within the Likely Zone of Impact, and further assessment is required.

[34] DAERA Protected Site Synopses and maps available on Protected areas search | DAERA (daera-ni.gov.uk)
[35] NIEA Map Viewer: NIEA Natural Environment Map Viewer
[36] Scottish Natural Heritage (SNH) (July 2013) Assessing Connectivity with Special Protection Areas (SPA);

3.2 SPR Model – Source

3.2.1 Scope of Works

The coastal defence works at Asset 16E and will comprise the installation of a new rock armour revetment. Works will involve site establishment including temporary compounds, access routes, staging areas, and material laydown zones, with access taken from the adjacent shoreline and existing embankment.

Key activities will include excavation and preparation of the eroded embankment toe, placement of a geotextile separation layer, and installation of a double interlocking primary rock armour layer (1–3t). The area directly behind the revetment will be backfilled with smaller sized rock to tie into the existing embankment profile. Plant and machinery will include tracked excavators, dumpers, and support vehicles operating from the foreshore and landward side of the defence.

The revetment will be installed between Chainages 1700–1713 (254726E, 422262N to 254713E, 422269N), tying into the existing grassed embankment at both ends. Upon completion, disturbed areas will be regraded and reinstated to provide a stable interface with surrounding land and to minimise erosion risk.

3.2.2 Potential Sources of Impact

3.2.2.1 Construction Phase

During the construction phase, site establishment, temporary access provision, and the use of heavy tracked plant will have the potential to cause ground disturbance, soil compaction, and mobilisation of sediments, with associated runoff into Lough Foyle. Establishment of temporary compounds, laydown areas, and access routes may result in localised habitat disturbance and temporary habitat loss. Storage and handling of fuels, lubricants, and construction materials also present a risk of accidental spillage and contamination of soils or adjacent waterbodies.

Key construction activities will include excavation of the eroded embankment toe, placement of a geotextile separation layer, installation of a double interlocking primary rock armour layer (1–3t), and backfilling with smaller rock material to reinstate the embankment profile. These works present potential sources of impact in the form of:

- Sediment release to the foreshore and intertidal habitats during excavation and placement activities.
- Localised changes to hydrodynamics during placement of the revetment structure.
- Noise and vibration arising from tracked machinery, rock placement, and vehicle movements, with the potential to disturb qualifying species of the Lough Foyle SPA/Ramsar.
- Dust generation and exhaust emissions from machinery and construction traffic.

Given the close proximity of the works to intertidal habitats, there is also potential for temporary disturbance to foraging and roosting from both noise and visual pathways to to QI bird species.

3.2.2.2 Operational Phase

Once constructed, the revetment will form a permanent upgrade to the existing coastal defence. No operational phase impacts are anticipated, as the development does not introduce any new structures beyond the rock armour and reinstated embankment. The works are not expected to alter the function, hydrology, or maintenance requirements of the existing defence, and no additional emissions, disturbance, or habitat loss are expected during the operational lifetime of the asset.

3.2.2.3 Decommissioning Phase

As the proposed sea defence works are considered permanent, no decommissioning stage is envisaged. Should future refurbishment, replacement, or demolition works be required, it is anticipated that potential sources of impact would be comparable to those identified for the construction phase, namely ground disturbance, sediment mobilisation, potential pollution risks, and temporary disturbance to sensitive habitats and species.

3.3 SPR Model – Pathway

3.3.1 Surface Water Pathway

The site is situated completely within the Roe Coastal Interbasin Waterbody Catchment (UKGBNI8NW019).

Within the red-line boundary of the site itself, are intertidal habitats of Lough Foyle and the site works area is located partially within Lough Foyle SPA and Lough Foyle Ramsar site. This creates a direct surface water connection to Lough Foyle SPA, and Lough Foyle RAMSAR Site.

6-no. further European Designations are located within the Lough Foyle Catchment, with 2-no. further sites located within the greater Lough Foyle Area (Lough Finn (ROI) and Lough Foyle SPA (ROI). These sites are located either a substantial distance from the development site and would succumb to dilution of pollutants via natural attenuation, or they are located upstream/at a higher elevation from any possible hydrological connection. As a result, they were screened out (for surface water pathways) from further assessment. These sites were:

- Lough Foyle SPA (ROI) – Located 6.5km west of the development site at its closest point
- River Faughan and Tributaries SAC – Located 6.25km from the development site at its closest point and upstream
- River Foyle and Tributaries SAC – Located 19.1km from the development site at its closest point and upstream
- River Roe and Tributaries SAC – Located 12.8km from the site at its closest point
- River Finn (ROI) – Located 19.1km from the development site at its closest point and upstream
- Binevenagh SAC – Located 15.8km from the development site at a higher elevation

- Magilligan SAC – Located 16.4km from the development at its closest point via open water marine pathways
- Glenshane Pass SAC – Located 23km from the development site at its closest point and upstream

Alternative European designations were also assessed, particularly those with Marine Mammal qualifying interests, such as pinnipeds or cetaceans; Grey Seals (*Halichoerus grypus*) [37] and several cetacean species [38] are known to forage or travel up to 100 km. However, the Source-Pathway-Receptor model was not applicable to these SACs due to the substantial distance from the development site to the designated sites. Consequently, potential effects on Marine Mammal QIs from these designations are limited to negligible reduction in quality of foraging grounds as a result of surface water pollutants and/or sediment degrading habitats or prey species. Given the extensive availability of suitable foraging habitats in the wider area, any impact on these QIs is deemed insignificant, and these European designations were not further considered.

Lough Foyle SPA and Lough Foyle RAMSAR Site will be considered for further assessment for Surface Water Pathways.

3.3.2 Groundwater Pathway

Geological Survey Ireland states that groundwater bodies are delineated based on the continuity of flow within ecosystems and the capacity for environmental impacts on surface ecosystems [39]. The site is entirely situated within the Claudy Groundwater Body (UKGBNI4NW003). The groundwater body comprises a limited potential productivity fracture flow aquifer – Bl (f), with flow pathways lengths of "tens to hundreds of metres" [40], and the groundwater vulnerability at the site to be within the 'Low' category [41]. Bedrock under the site is known as the 'Barony Glen Formation' and consists of Carboniferous Dinantian (early) Sandstones, Shales and Limestones. Groundwater movement and storage are influenced by the permeability of these sediments. As the development site is located within close proximity to the coast it is assumed that flow paths will lead towards open water. Within the Claudy Groundwater Body, there are 5 no. other European Designations, namely River Roe and Tributaries SAC, River Faughan and Tributaries SAC, River Foyle and Tributaries SAC, and Glenshane Pass SAC.

While groundwater flow pathways within this GWB are described as extending from "tens to hundreds of metres", site works are confined to a small section of shoreline and intertidal zone where all surface water discharges are assumed to flow directly into Lough Foyle. Given the proximity of the site to the open water, and the absence of any works likely to penetrate into subsurface groundwater systems, it is considered that there is no realistic potential for impacts to arise on these other European sites via groundwater connectivity. On this basis, these designations are screened out for groundwater pathways.

Groundwater pathways from the site will not be considered for further assessment

[37] NatureScot – Scotland's Natural Agency: Seals | NatureScot
[38] Irish Whale and Dolphin Group (IWDG): Irish Whale and Dolphin Group
[39] Water Framework Directive (WFD) – Approach to Delineation of Groundwater Bodies: Approach to Delineation of Groundwater Bodies
40 Claudy Groundwater body summary - water-report-characterisation-of-groundwater-bodies-within-Northern-Ireland-June-2012.pdf
[41] Geological Survey Ireland Map Viewer: https://dcenr.maps.arcgis.com/apps/MapSeries/index

3.3.3 Land & Air Pathways

3.3.3.1 Land Pathways

Distance Measurements (metres) from European Designations within close proximity to the development were calculated, utilising NIEA Map Viewer[42].

Lough Foyle SPA & Lough Foyle RAMSAR site are situated partially within to the site works area. Given this, there is a direct land pathway from the development site to the aforementioned European designated sites.

Lough Foyle SPA and Lough Foyle RAMSAR Site will be considered for further assessment for Land Pathways.

3.3.3.2 Air Pathways

3.3.3.2.1 Noise

BS 5228-1:2009+A1:2014 describes that noise impacts within 50m to 300m of a receptor are significant depending on the equipment and activities. Beyond this, noise attenuation due to distance, barriers, and terrain often reduces the impact. Noise levels decrease with distance due to geometric spreading and environmental factors. For a point source, the attenuation reduces by approximately 6db for every doubling of distance. For instance, at 10m from the source, the baseline noise could be 85dB for a specific machine; at 20m from the source, it would be 79dB, and at 40m from the source, it would be 73dB[43].

The baseline noise environment at the proposed development site is influenced by its immediate surroundings. The site lies adjacent to City of Derry Airport, where aircraft movements periodically elevate ambient noise levels, often ranging between 70–85 dB during take-off and landing events. In addition, the Belfast–Derry railway line runs close to the site, with passing trains typically generating peak sound levels of 75–80 dB at trackside. The shoreline location on Lough Foyle is otherwise relatively rural, with low road traffic volumes (limited to internal airport access routes), meaning that in the absence of trains or aircraft, background noise levels can drop to 50–55 dB in quieter periods.

The proposed works relate to the repair and refurbishment of sea defences at the shoreline. These activities are short-term and are designed to maintain existing flood protection infrastructure. Potential sources of noise during the works include.

Based on this, potential sources of noise from the proposed works may include:

- Use of Heavy Machinery e.g., Excavators (typically 85dB at 50ft distance), heavy-duty cranes, HGV movement
- Hand-held Power Tools (maximum of 120dB at source[44]) e.g., grit blasters, welding/cutting tools

[42] NIEA Map Viewer: NIEA Natural Environment Map Viewer
[43] BSI (British Standard Institution) (2014). BS 5228-1:2009+A1:2104 – Code of Practice for Noise and Vibrations Control on Construction and Open Sites
[44] IAC Acoustics: Comparative Examples of Noise Levels: Comparative Examples of Noise Levels - IAC Acoustics

- Transportation of Equipment and Personnel – Heavy Machinery as mentioned above, as well as increased traffic to a site
- Site establishment and dismantling of compounds, crane mats, and staging grounds, as well as handling, removal, and reinstatement of rails etc.

At the source, a sporadic use of a Power Tool for maintenance works will exert a sound level of 120dB; after review of the works, this is likely the source of greatest source of noise disturbance. Using the distance calculation outlined in BS 5228-1, a 120dB point noise from an excavator would require a distance of 512m to achieve ambient noise levels less than usual levels (approx. 55dB). In this case, to account for potential variations in tool usage for site works, the precautionary principle has been applied to add an additional buffer of 10%, therefore determining a Zone of Influence of approx. 565m.

Lough Foyle SPA and Lough Foyle RAMSAR site are within this Zone of Influence, situated partially within the site works area.

Lough Foyle SPA and Lough Foyle RAMSAR Site will be considered for further assessment for Noise Pathways.

3.3.3.2.2 Dust

Guidance on distances for the Zone of Influence was taken from guidelines from the Institute of Air Quality Management (IAQM)'s "Guidance on the Assessment of Dust from Demolition and Construction". This states that an Ecological Receptor via dust pollution is present if it is within 50m of the site boundary or 50m of routes used by construction vehicles on public highways, extending up to 500m from site entrance.

Lough Foyle SPA and Lough Foyle RAMSAR site are within this Zone of Influence, situated partially within the site works area.

Lough Foyle SPA and Lough Foyle Ramsar Site will be considered for further assessment for Dust Pathways.

3.3.4 Visual Pathway

Visual disturbance to ecological receptors occurs when human activities introduce movements, structures, or machinery that are visible to sensitive species. Such disturbances can lead to changes in behaviour, including altered foraging, roosting, or breeding activities, and may result in displacement from critical habitats.

The significance of visual disturbance is influenced by several factors:

- Proximity: The closer the disturbance source, the more likely it is to cause a response from receptors.
- Duration: Prolonged exposure to disturbances can lead to cumulative effects.
- Frequency: Repeated disturbances can prevent species from habituating, leading to sustained behavioural changes.
- Visibility: Open habitats, such as mudflats or saltmarshes, offer fewer refuge opportunities, making species more susceptible to visual disturbances.

Studies have shown that birds[45] [46] and marine mammals[47] can exhibit avoidance behaviours when exposed to visible human activities. For instance, species may flush (take flight) or move away from feeding areas when they detect human presence. The distance at which these responses occur can vary among species and is influenced by factors such as the type of activity, the size of the disturbance, and the species' previous exposure to human presence.

In coastal and intertidal zones, where many protected species forage and rest, the introduction of visible construction activities can lead to temporary or permanent habitat displacement. This is particularly concerning for species that are already under pressure from other environmental stressors.

Based on NatureScot guidance[48] on nonbreeding disturbance distances for waterfowl and other bird species, observed response distances vary by species and type of disturbance. For the species screened in within Lough Foyle SPA, reported maximum nonbreeding disturbance distances range between ~200 m and 650 m. In line with the precautionary principle, no single visual disturbance limit has been applied; instead, species-specific distances as outlined in Appendix B are used to inform the assessment.

3.4 SPR Model – Receptor

The site is connected to 2-no. European Designations via the aforementioned pathways. These are:

- [UK9020031] Lough Foyle SPA
- [7UK130] Lough Foyle RAMSAR Site

Table 3-1: Summary of Screened-in European Designations and S-P-R model establishment for Pathways

European Designated Site	Surface Water	Groundwater	Land	Air (Noise)	Air (Dust)	Visual
[UK9020031] Lough Foyle SPA						
[7UK130] Lough Foyle RAMSAR Site						
[004087] Lough Foyle SPA (ROI)						
[UK0030361] River Faughan and Tributaries SAC						

[45] Lafferty, K.D. (2001). *Disturbance to wintering waterbirds by human activity. Biological Conservation*, 101(2), 167–176.
[46] Burger, J. & Gochfeld, M. (1991). *Human disturbance and nesting seabirds. Bird Behavior*, 10, 37–49.
[47] NatureScot (2017). *A Guide to Best Practice for Watching Marine Wildlife*. Scottish Natural Heritage. Part 2
[48] NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species | NatureScot

European Designated Site	Surface Water	Groundwater	Land	Air (Noise)	Air (Dust)	Visual
[UK0030320] River Foyle and Tributaries SAC						
[UK0030360] River Roe and Tributaries SAC						
[UK0030089] Binevenagh SAC						
[002301] River Finn SAC (ROI)						
[UK0030110] Glenshane Pass SAC						
[UK0016613] Magilligan SAC						

KEY: RED = S-P-R model established for designated site; GREEN = Absence of S-P-R Model.

A source-pathway-receptor model has been established to these designations at site level. However, individual qualifying interests (QI) associated with these sites may or may not be viable receptors to impacts via the above pathways. S-P-R connections to individual qualifying interests are outlined in Table 3-2 below. Descriptions of S-P-R connections to QIs are provided where present for screened-in pathways as per the above table. Only pathways for which the QI is a viable receptor are assessed.

Note*- Where QIs have screened out for some/all of the potential pathways, this is for one or more of the following reasons:

Surface Water Pathway

- The QI is situated upstream of the proposed site works, and no hydrological pathway exists to connect runoff or discharges from the works to the QI.
- The QI is located within a different hydrological catchment or sub-catchment, and no direct surface water connectivity can be established.
- The distance between the QI and the site works is too great for pollutants or sedimentation to have an effect via surface water pathways.
- Existing natural or artificial barriers (e.g., wetlands, floodplains, or infrastructure) prevent surface water transport from the site works to the QI.
- The QI does not comprise hydrological features that are likely to be impacted by surface water flows (e.g., isolated waterbodies with no inflow/outflow connectivity to the works area).

Groundwater Pathway

- The QI is not subject to groundwater inputs or susceptible to impacts via groundwater e.g. habitats isolated from groundwater such as raised bogs.
- The QI is located in an area with a separate groundwater body or aquifer, with no hydrogeological connection to the groundwater body underlying the site works.
- The groundwater aquifer type and bedrock morphology between the site works and the QI prevents groundwater flow or infiltration pathways.

- The groundwater table beneath the site works is at a lower elevation than the QI, restricting groundwater flow towards the site.
- No activities associated with the site works, such as excavation or dewatering, are expected to alter groundwater levels or flow direction in a way that could affect the QI.

Note for Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests)

Lough Foyle SPA/RAMSAR Site supports a diverse range of marine and coastal bird species that rely on open waters, estuarine areas, and adjacent land for foraging, roosting, and breeding. The identified environmental pathways present potential risks to these species and their habitats.

Surface Water: Lough Foyle includes a mix of intertidal sandflats, mudflats, saltmarsh, and estuarine waters, which provide essential foraging and roosting habitats for a variety of bird species. These birds rely on benthic invertebrates, aquatic vegetation, and intertidal algae as primary food sources. Surface water runoff from site works could introduce pollutants, excess nutrients, or suspended sediments into these areas, potentially degrading water quality and impacting the availability of prey species. Given the hydrological connectivity between the site and the designated habitats within Lough Foyle SPA/RAMSAR Site, there is a source-pathway-receptor connection via surface water that cannot be ruled out.

Groundwater: The site is located within the Claudy Groundwater Body, comprising a low-productivity, shallow fracture-flow aquifer. Site works are confined to the intertidal zone and shoreline, and all surface water is expected to drain directly into Lough Foyle without infiltration to subsurface groundwater systems. No works will penetrate underlying groundwater-bearing strata, and the site's proximity to open water ensures that flow pathways to other European sites are effectively limited. On this basis, a source-pathway-receptor connection via groundwater is considered highly unlikely, and other European sites are screened out for groundwater pathways.

Land: Some species within the SPA/RAMSAR Site may use areas within the site works zone or adjacent land-based areas for roosting, nesting, or resting. Disturbance from site works, increased human activity, or land-based pollutants could influence habitat use and availability. A source-pathway-receptor connection via land cannot be ruled out and is considered under the precautionary principle.

Air (Dust): Airborne dust from site works may settle on nearby waterbodies and feeding areas, potentially altering habitat conditions or affecting prey species. While the direct impact of dust deposition is not considered significant, a source-pathway-receptor connection via air pathways is considered under the precautionary principle.

Air (Noise): Marine and coastal bird species within the SPA/RAMSAR Site are sensitive to noise disturbance, particularly during breeding, roosting, and foraging periods. Elevated noise levels from site works, including machinery, vehicle movement, and other operational activities, may disrupt normal behaviour patterns, potentially leading to displacement, reduced foraging efficiency, or abandonment of roosting/nesting sites. A source-pathway-receptor connection via airborne noise cannot be definitively ruled out and is considered under the precautionary principle.

Visual: Marine and coastal bird species within Lough Foyle SPA/RAMSAR Site may respond to visible human activity, including movement of personnel, machinery, or vehicles, and changes to the landscape caused by construction. Birds may flush, move away from feeding or roosting areas, or alter normal behaviour in response to visual cues. The distance and intensity of these responses are influenced by species sensitivity, habituation, and proximity to the disturbance. Given the presence of construction activity within the intertidal and foreshore areas, a source-pathway-receptor connection via visual disturbance cannot be ruled out and is screened in under the precautionary principle.

Conclusion: Potential negative effects on the qualifying bird species of Lough Foyle SPA and Lough Foyle RAMSAR Site exist via the identified surface water, groundwater, land, and air pathways as summarised in Table 3-2 below.

Table 3-2: Assessment of Qualifying Interests for Lough Foyle SPA and Lough Foyle RAMSAR Site

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-In Pathways	Source-Pathway-Receptor Achieved
[UK9020031] Lough Foyle SPA[49]				
[A037] Bewick's Swan Wintering Population	Bewick's Swan is a small, elegant swan species characterised by its white plumage and distinctive yellow and black markings on its bill. It migrates from Siberia to wetlands and estuaries in Ireland for the winter. Its diet mainly consists of aquatic plants, and it is often found grazing on the muddy shores of lakes and rivers.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	**Yes:** Surface Water, Land, Noise, Dust, Visual
[A038] Whooper Swan Wintering Population	The Whooper Swan is a large, white swan with a long neck and a striking yellow-and-black bill. It migrates	***Yes:*** QI is receptor to SW, Land,	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests)	**Yes:** Surface Water

[49] NIEA conservation objectives – Lough Foyle SPA - Lough Foyle SPA Conservation objectives 2015

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	from northern Europe and Asia to Ireland's wetlands for the winter. Known for its loud, trumpeting calls, it feeds on aquatic plants, roots, and small invertebrates in shallow lakes and marshes.	Air (Noise & Dust) and Visual Pathways	**Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Land Noise Dust Visual
[A140] Golden Plover Wintering Population	The Golden Plover (*Pluvialis apricaria*) is a medium-sized wader with golden-spotted plumage on its back, a white belly, and a distinctive black face and chest during the breeding season. It breeds on upland moorlands, bogs, and heaths, nesting in shallow scrapes on the ground. In winter, it moves to lowland pastures, estuaries, and coastal areas.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[A157] Bar-tailed Godwit Wintering Population	The Bar-tailed Godwit is a large wader with a long, slightly upturned bill and distinctive barred tail feathers. It breeds in the Arctic tundra and migrates to coastal estuaries and mudflats during winter. This species is renowned for its long migratory flights and	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	feeds primarily on invertebrates, such as worms and molluscs.			
[A046] Light-bellied Brent Goose Wintering Population	The Light-bellied Brent Goose is a small goose with dark plumage and a pale belly. It breeds in the Arctic and migrates to Ireland for the winter, where it feeds on eelgrass and other coastal plants in estuaries and mudflats.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[A005] Great Crested Grebe Wintering Population	The Great Crested Grebe is a larger waterbird, famous for its striking black crest and red eye. It nests on freshwater lakes and reservoirs, diving for fish and invertebrates as its main diet. During the breeding season, the Great Crested Grebe is known for its elaborate courtship displays, involving synchronized movements with its mate.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[A017] Cormorant Wintering population	A large, dark waterbird with a long neck and hooked bill, adapted for catching fish underwater. It nests in colonies on coastal cliffs, inland waters, or in trees, often forming	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	large communal roosts. Cormorants are resident in Ireland year-round.	Visual Pathways		Noise Dust Visual
[A043] Greylag Goose Wintering Population	The Greylag Goose wintering population consists of large, robust geese with grey-brown plumage, an orange bill, and pinkish legs. During winter, they inhabit wetlands, estuaries, flooded grasslands, and coastal fields, where they forage on grasses, roots, and agricultural crops. Greylag Geese are highly social, often forming large flocks for feeding and roosting.	*Yes:* QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[A048] Shelduck Wintering Population	The Shelduck is a medium-sized, striking waterfowl with a white body, dark-green head, chestnut breast band, and a bright red bill. It primarily feeds on small invertebrates, such as molluscs and crustaceans, which it sieves from mudflats and shallow coastal waters. Shelducks nest in burrows, rabbit holes, or dense vegetation near coastal areas, though inland	*Yes:* QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	nesting is becoming more common. In winter, they are found in large numbers on estuaries and tidal mudflats, with key sites in Ireland including Strangford Lough, Cork Harbour, and Dublin Bay.			
[A050] Wigeon Wintering Population	The Wigeon is a medium-sized duck with a distinctive whistling call and a slightly rounded bill. Males have a rich chestnut-coloured head, while females are more subdued in coloration. Wigeons migrate to wetlands and coastal estuaries, where they feed on aquatic plants, seeds, and roots. They are often seen in large flocks during the winter months.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[A052] Teal Wintering Population	The Teal is a small, colourful duck with a distinctive greenish-blue patch on its wings. It can be found in freshwater and brackish marshes, feeding on seeds, aquatic plants, and small invertebrates. Teal are often seen in pairs or small flocks and are known for their	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	quick, agile flight. Teal use marshes and wetlands.			
[A053] Mallard Wintering Population	The Mallard is one of the most common and widely recognized ducks, with the male featuring a bright green head and a yellow bill. Mallards inhabit a wide range of wetland environments, including lakes, rivers, and ponds, where they feed on a variety of plant material, seeds, and small invertebrates. They are highly adaptable and frequently found in urban areas.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[A063] Eider Wintering Population	The Eider are large sea ducks with distinctive wedge-shaped bills and a bulky body. Males are striking with black-and-white plumage and a green nape, while females are mottled brown for camouflage. During winter, they gather in coastal waters, sheltered bays, and estuaries, where they dive for molluscs, crustaceans, and other marine invertebrates. Eiders are	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	highly social and often form dense flocks while feeding and resting.			
[A069] Red-breasted Merganser Wintering Population	The Red-breasted Merganser is a large, slender diving duck with a distinctive red bill and a spiky, crested head. Found in coastal waters and freshwater lakes, it feeds primarily on small fish and aquatic invertebrates, diving underwater to catch prey. Mergansers are excellent swimmers and divers, often seen in small groups during winter.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[A130] Oystercatcher Wintering Population	The Oystercatcher (*Haematopus ostralegus*) is a black-and-white coastal bird with a bright orange-red bill and red legs. It nests on shingle beaches, salt marshes, coastal grasslands, and sometimes inland near freshwater. Its main food is shellfish like mussels and cockles, but it also eats worms, crabs, and other small invertebrates. Oystercatchers are loud and territorial during the breeding season.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
[A142] Lapwing Wintering Population	The Lapwing, also known as the Northern Lapwing, is easily recognisable by its iridescent green and purple plumage, rounded wings, and distinctive crest. It inhabits farmland, wetlands, and grasslands, where it feeds on insects, worms, and other invertebrates. Lapwings are well known for their acrobatic flight displays during the breeding season.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[A143] Knot Wintering Population	The Knot is a medium-sized wader with grey-brown plumage in winter, turning reddish-brown on the head, neck, and breast during the breeding season. It breeds in Arctic tundra and migrates to coastal mudflats, estuaries, and sandy beaches in winter. Knots feed on bivalves, crustaceans, and marine worms, foraging in large, dense flocks. Their impressive long-distance migrations and synchronised flight patterns are notable features of this species.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
[A149] Dunlin Wintering Population	The Dunlin is a small wader with a slightly down-curved bill and a distinctive black belly patch during the breeding season. It breeds in Arctic and sub-Arctic regions and migrates to coastal mudflats and estuaries during winter. The Dunlin's diet mainly consists of insects during the breeding season and marine invertebrates in winter.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	**Yes:** Surface Water Land Noise Dust Visual
[A160] Curlew Wintering Population	The Curlew is a large wader with a long, down-curved bill and a distinctive, mournful call. It has brown-and-white plumage with a strikingly long bill, used to probe for invertebrates in mudflats, estuaries, and wetlands. Curlews are often found in coastal regions but can also inhabit farmland and moorlands.	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	**Yes:** Surface Water Land Noise Dust Visual
[A162] Redshank Wintering Population	The Redshank is a medium-sized wader with long, bright red legs and a distinctive white belly. It inhabits coastal mudflats, saltmarshes, and wet meadows, where it feeds on small	***Yes:*** QI is receptor to SW, Land, Air (Noise & Dust) and	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	**Yes:** Surface Water Land Noise

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	invertebrates, including worms, crustaceans, and molluscs. The Redshank is often seen probing the mud with its sharp bill in search of food.	Visual Pathways		Dust Visual
Waterfowl Assemblage Wintering Population	The Waterfowl Assemblage wintering population includes a diverse group of waterbirds that rely on wetland habitats for feeding and roosting during the winter months. These species utilise estuaries, mudflats, and coastal lagoons, where they forage on aquatic vegetation, invertebrates, and small fish. The assemblage plays a key role in the ecological function of these habitats, contributing to nutrient cycling and biodiversity.	*Yes:* QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
Habitat Extent and Roosting Sites for Wintering Bird Populations	These Features are not a selection feature of the SPA but are a factor and are more easily treated as if they were a feature. The feature species are fully dependent on such habitats.	*Yes:* QI is receptor to SW, Land, Air (Noise & Dust) and Visual Pathways	**Surface Water:** The habitats of Lough Foyle are sensitive to changes in water quality. Surface water runoff from site activities could introduce pollutants, nutrients, or sediments, potentially degrading habitat condition and ecological integrity. Due to the hydrological connectivity between the site and Lough Foyle, a source-pathway-receptor link via surface water is achieved. **Land:** Temporary land-take will occur to facilitate compounds, haul roads, and access across adjacent farmland. This may result in localised habitat disturbance and temporary displacement of birds from marginal terrestrial areas. **Dust:** Dust generation from vehicle movements, grit blasting, and general construction activities may settle on adjacent habitats, with potential to cause temporary reduction in habitat quality. **Visual:** Birds may respond to visible human activity, including machinery, personnel, and alterations to shoreline habitats. Visual disturbance may result in flushing, displacement from feeding areas, or altered behaviour. Given the proximity of intertidal and saltmarsh habitats within the site and extended survey area, this pathway is screened in. **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual
[7UK130] Lough Foyle RAMSAR Site				
Criterion 1a, 1c – Wetland Complex including Intertidal Sand and Mudflats and other associated habitats, which plays	Lough Foyle hosts diverse intertidal and mudflat communities, including extensive beds of Common Mussel (*Mytilus edulis*), which support species such as Acorn Barnacle, Edible Periwinkle, and polychaete worms. Soft shores	*Yes:* QI is receptor to SW, Land, Air (Noise & Dust) and	**Surface Water:** Lough Foyle is part of an extensive wetland complex designated under Criterion 1a and 1c, comprising habitats listed in the previous column that play a key role in the wider river basin's ecological functioning. These habitats are sensitive to changes in water quality. Surface water runoff from site activities could introduce pollutants, nutrients, or sediments, potentially degrading habitat condition and ecological integrity. Mudflats and Sandflats, and other habitats within the complex (saltmarsh) were noted within the site works area and extender	Yes: Surface Water Land Noise

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
a role in functioning of major river basin	and mudflats sustain populations of Sand Gaper (*Mya arenaria*), Peppery Furrow Shell (*Scrobicularia plana*), and large colonies of Eelgrass (*Zostera* spp.), some of the largest in Northern Ireland. Saltmarsh areas display a clear transition of vegetation, from Common Saltmarsh-grass (*Puccinellia maritima*) to middle-marsh species like Red Fescue (*Festuca rubra*) and Mud Rush (*Juncus gerardii*). Brackish dykes further enhance the habitat diversity with aquatic and swamp vegetation.	Visual Pathways	survey area around Lough Foyle. Due to this, a source-pathway-receptor link via surface water is achieved. **Land:** Temporary land-take and the establishment of works within the foreshore may directly disturb important habitats identified such as mudflats, sandflats, and coastal saltmarsh areas. **Dust:** Dust generation from vehicle movements, grit blasting, and general construction activities may settle on adjacent habitats, with potential to cause temporary reduction in habitat quality, and hinder their suitability for use by species within the complex. **Visual:** Birds and other wildlife using mudflats, sandflats, and saltmarsh may be visually disturbed by the presence of machinery, personnel, and works along the shoreline, potentially altering foraging or roosting behaviour. **Potential negative effects on this QI exist via Surface Water, Land, and Air (Noise and Dust) and Visual Pathways.**	Dust Visual
Criterion 2a – Supports assemblage of rare, vulnerable or endangered species/sub-species such as Fisheries.	The Lough Foyle site qualifies under Criterion 2a for its significant assemblage of rare, vulnerable, or endangered species. Notable fish recorded in the estuary and its tributaries include Allis Shad (*Alosa alosa*), Twaite Shad (*Alosa fallax fallax*), Smelt (*Osmerus eperlanus*), and Sea Lamprey (*Petromyzon marinus*), all listed in the Irish Red Data Book. Additionally, the area supports important populations of	*Yes:* QI is receptor to SW,, Land, and Air Pathways	**Surface Water:** Surface Water within Lough Foyle forms a critical pathway supporting the ecological conditions required by rare, vulnerable, and endangered fish species, as recognised under Criterion 2a. Hydrological connectivity between the site and the estuarine waters means that any surface water runoff from site activities could introduce pollutants, nutrients, or sediments. This has the potential to degrade water quality, impacting key species such as Allis Shad, Twaite Shad, Smelt, Sea Lamprey, and migratory Atlantic Salmon, and additional species not defined. A source-pathway-receptor connection via surface water cannot be excluded. **Land:** Temporary site access and sea defence works to foreshore areas could disrupt the connectivity of habitats used by rare, vulnerable or endangered fish	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	Atlantic Salmon (*Salmo salar*), which migrate through the system to reach their spawning grounds.		species. These habitats provide feeding and shelter opportunities for juvenile and adult stages, supporting benthic invertebrates (e.g., polychaete worms, molluscs, crustaceans) and small fish that form key components of the diet for these species. Disturbance of substrate, sediment compaction, or temporary removal of habitat features could reduce prey availability and affect feeding efficiency, particularly in shallow intertidal areas. While impacts are likely to be localised and temporary, the pathway is screened in due to the ecological importance of these habitats for supporting fish populations. **Dust:** Deposition into waterbodies could temporarily affect water quality and suitability for fish, particularly in shallow intertidal zones where sedimentation may occur. **Visual:** Not considered viable pathway for fish, based on scale and location of site works. **Noise:** Not considered viable pathway for fish, based on scale and location of site works. **Potential negative effects on this QI exist via Surface Water, Land, Air (Dust) Pathways.**	
Criterion 3a, 3b, 3c – Supporting over 20,000 waterfowl (See Lough Foyle SPA for breakdown of species).	The Waterfowl Assemblage wintering population includes a diverse group of waterbirds that rely on wetland habitats for feeding and roosting during the winter months. These species utilise estuaries, mudflats, and coastal lagoons, where they forage on aquatic vegetation, invertebrates, and small fish. The assemblage	*Yes:* QI is receptor to SW, Land, and Air Pathways	See above note on Lough Foyle SPA and Criterion 3a, 3b, and 3c of Lough Foyle RAMSAR Site – Marine and Coastal Birds (Qualifying Interests) **Potential negative effects on this QI exist via Surface Water, Land, Air (Noise and Dust) and Visual Pathways.**	Yes: Surface Water Land Noise Dust Visual

Qualifying Interest	Description of Qualifying Interest	Viable Receptor to Screened-in Pathways	Description of Source-Pathway-Receptor Connection for Screened-in Pathways	Source-Pathway-Receptor Achieved
	plays a key role in the ecological function of these habitats, contributing to nutrient cycling and biodiversity.			

In summary, the following Qualifying Interests of the screened-in European Designations have demonstrated a Source-Pathway-Receptor model to the development site:

Lough Foyle SPA

- All Wintering Bird QI Species
- Waterfowl Assemblage Wintering Population
- Features: Habitat Extent, Roosting Sites

Lough Foyle RAMSAR Site

- Criterion 1a, 1c – Wetland Complex including Intertidal Sand and Mudflats and other associated habitats, which plays a role in functioning of major river basin
- Criterion 2a – Supports assemblage of rare, vulnerable or endangered species/sub-species such as Fisheries.
- Criterion 3a, 3b, 3c – Supporting over 20,000 waterfowl (See Lough Foyle SPA for breakdown of species).

Legend:

- Site Works Area
- Special Protection Area (SPA)
- Ramsar Site
- Roe Coastal Interbasin Sub-catchment
- Faughan Coastal Interbasin Sub -catchment

Project Title:
AEMP-2000562
Section 16E, Greysteel, Co. Derry

Drawing Title:
S-P-R Established: Surface Water Pathways

Drawn By:	Checked By:
[redacted]	[redacted]
Project No: 2000562	Drawing No: Figure 3-1
Scale: 1/25000	Date: 18th September 2025

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Legend:

- Site Works Area
- Special Protection Area (SPA)
- Ramsar Site

Project Title:
AEMP-2000562
Section 16E, Greysteel, Co. Derry

Drawing Title:
S-P-R Established: Land Pathways

Drawn By: [redacted]	Checked By: [redacted]
Project No: 2000562	Drawing No: Figure 3-2
Scale: 1/25000	Date: 18th September 2025

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Legend:

- Site Works Area
- Special Protection Area (SPA)
- Ramsar Site

Project Title:
AEMP-2000562
Section 16E, Greysteel, Co. Derry

Drawing Title:
S-P-R Established: Noise Pathways

Drawn By:	Checked By:
Project No: 2000562	Drawing No: Figure 3-3
Scale: 1/25000	Date: 18th September 2025

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Legend:

- Site Works Area
- Special Protection Area (SPA)
- Ramsar Site

Project Title:
AEMP-2000562
Section 16E, Greysteel, Co. Derry

Drawing Title:
S-P-R Established: Dust Pathways

Drawn By: [redacted]	Checked By: [redacted]
Project No: 2000562	Drawing No: Figure 3-4
Scale: 1/25000	Date: 18th September 2025

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Legend:

- Site Works Area
- Special Protection Area (SPA)
- Ramsar Site

Project Title:
AEMP-2000562
Section 16E, Greysteel, Co. Derry

Drawing Title:
S-P-R Established: Visual Pathways

Drawn By: [redacted]	Checked By: [redacted]
Project No: 2000562	Drawing No: Figure 3-5
Scale: 1/25000	Date: 18th September 2025

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4. Potential Impact on Conservation Objectives of Screened-in European Designations

4.1 Site Synopsis

Source-Pathway-Receptor Models were established for 2-no. European Designations, Lough Foyle SPA and Lough Foyle Ramsar Site via Surface Water, Land, Air (Noise and Dust) and Visual Pathways. This section provides the background information of the Natura 2000 sites screened to require assessment and the underlying reasoning behind this assessment, including the Conservation Objectives of the 2-no. European Designations that are at risk of impact as a result of the proposed works. Information has been reviewed from the Department of Agriculture, Environment and Rural Affairs (DAERA) website.

4.1.1 Lough Foyle SPA

Site Code: [UK9020031]

Identified Pathway to Designation: Surface Water, Land, Air (Noise and Dust) and Visual Pathways

Site Synopsis

Lough Foyle is situated on the north coast of Northern Ireland immediately downstream and extending to the north-east of the city of Londonderry. The site is comprised of a large shallow sea lough which includes the estuaries of the rivers Foyle, Faughan and Roe. The site contains extensive intertidal areas of mudflats and sandflats, saltmarsh and associated brackish ditches.

The Special Protection Area includes the whole of Lough Foyle Area of Special Scientific Interest (ASSI) and the intertidal area of Magilligan ASSI in Lough Foyle extending south of Magilligan Point. The boundary of the Special Protection Area is entirely coincident with that of the Lough Foyle Ramsar site, and it overlaps with Magilligan candidate Special Area of Conservation.

The site qualifies under Article 4.1 of EC Directive 79/409 on the Conservation of Wild Birds by regularly supporting, in winter, internationally important numbers of the following 3 species: Whooper Swan *Cygnus cygnus* (the five year peak mean for the period 1991/92 to 1995/96 was 890, which comprises 5.6% of the international population); Light-bellied Brent Goose *Branta bernicla hrota* (the five year peak mean f or the period 1991/92 to 1995/96 was 3730 which comprises 18.7% of the international population} and Bar-tailed Godwit *Limosa lapponica* (the five year peak mean for the period 1991/92 to 1995/96 was 1896 which comprises 1.9% of the international population}.

The site also qualifies under Article 4.2 of the Directive by supporting over 20,000 migratory waterfowl. Peak numbers averaged 36,599 birds in the five years between 1991/92 and 1995/96. This total includes the internationally important species listed above and the following waterfowl species which are nationally important in an all Ireland context: Red-throated Diver *Gavia stellata* (an average of27 birds, 2.7% of the all-Ireland wintering population), Great Crested Grebe *Podiceps cristatus* (220, 7.3%}, Mute Swan *Cygnus*

olor (97, 1.8%), Bewick's Swan *C. columbianus* (78, 3.1%), Greylag Geese *Anser anser* (67, 1.7%}, Shelduck *Tadorna tadorna* (287, 4.1%), Teal *Anas crecca* (751, 1.2%), Mallard *Anas platyrhynchos* (1694, 3.4%), Wigeon *Anas penelope* (8107, 6.5%}, Eider *Somateria mollissima* (50, 2.5%}, Red-breasted Merganser *Mergus serrator* (73, 3.7%}, Oystercatcher *Haematopus ostralegus* (2045, 4.1%), Golden Plover *Pluvialis apricaria* (4999, 2.5%}, Grey Plover P. *squatarola (43, I.I%),* Lapwing *Vanellus vane/lus (3084, 1.2%),* Knot *Calidris canutus* (412, I.I%), Dunlin *Calidris a/pina* (4847, 3.9%), Curlew *Numenius arquata (*2152, 2.5%), Redshank *Tringa totanus (*791, 3.2%) and *Greenshank T. nebularia* (30, 3.3%). In recent years a notable wintering population of the Annex 1 Slavonian Grebe Podiceps auritus has been observed in Lough Foy le (a peak of 103 birds was recorded in 1995/96 which comprises 2.1 % of the international population).

Conservation Objectives of Lough Foyle SPA (N.B.: Conservation Objectives in bold are at risk of impact by proposed development works).

- **To maintain each feature in favourable condition (see features listed previously in Table 3-2).**

4.1.2 Lough Foyle RAMSAR

Site Code: [7UK130]

Identified Pathway to Designation Surface Water, Land, Air (Noise and Dust) and Visual Pathways

Site Synopsis

Lough Foyle is situated on the north coast of Northern Ireland immediately downstream and extending to the north-east of the city of Londonderry. The site is comprised of a large shallow sea lough which includes the estuaries of the rivers Foyle, Faughan and Roe. The site contains extensive intertidal areas of mudflats and sandflats, saltmarsh and associated brackish ditches.

The Ramsar site includes the whole of Lough Foyle Arca of Special Scientific Interest (ASSI) and the intertidal area of Magilligan Area of Special Scientific Interest in Lough Foyle extending south of Magilligan Point The boundary of the Ramsar site is entirely coincident with that of the Lough Foyle Special Protection Area and it overlaps with Magilligan candidate Special Area of Conservation.

The site qualifies under Criterion la of the Ramsar Convention by being a particularly good representative example of a wetland complex including intertidal sand and mudflats with extensive seagrass beds, saltmarsh, estuaries and associated brackish ditches.

The site also qualifies under Criterion I c by being a particularly good representative example of a wetland, which plays a substantial hydrological, biological and ecological system role in the natural functioning of a major river basin which is located in a trans-border position.

The littoral communities found in Lough Foyle reflect the dominance of intertidal sands and muds. While rocky substrate is very limited, the extensive beds of Common Mussel provide a stable surface for Acom Barnacle Semi *Balanus balanoides* and Edible Periwinkle *Littorina iittorea*. The polychaete Green Leaf Worm *Eulalia viridls* is a common associate. The soft shores hold a range of invertebrates typical of mud and sand shores, with a number of species, such as the polychaete worm *Hediste diversicclor*, indicative of reduced salinity conditions. Balls Point has the highest diversity of sediment and community types in Lough Foyle and holds large populations of the bivalves Sand Gaper *Mya arenaria* and Peppery Furrow Shell *Scabicularia plana*.

The extensive mudflats support large beds of both Common Mussel *Mytilus edulis* and Eelgrass Zostera spp. The latter are amongst the largest colonies of this vegetation type in Northern Ireland and includes two species, Narrow-leaved Eelgrass *Zostera angustifolia* and Dwarf Eelgrass *Z noltii*. Large stands of saltmarsh vegetation occur along the foreshore, displaying a transitional sequence of community types. The lower colonising saltmarsh consists of a community dominated by Common Saltmarsh-grass *Puccinellia maritima.* As tidal influence declines up the shore, this is replaced by a "middle-marsh" community, characterised by Red Fescue Festuca rubra and Mud Rush *Juncus gerardii*. Localised stands of Sea Club-rush *Schoenoplectus maritlmus* and Common Reed *Phragmites australis* also occur. The uppermost saltmarsh features a community dominated by Common Couch *Elytrigla repens*. Just west of the Ballykelly Bank, on the large intertidal mudflats which form part of a larger creek network. the lower saltmarsh communities are replaced by extensive stands of Common Cord-grass *Spartina anglica*. Brackish dykes behind the shore support a maritime aquatic and swamp vegetation, including the Reflexed Saltmarsh-grass *Puccinellia distans* and Spiral Tasselweed *Ruppia cirrhosa*.

The site qualifies under Criterion 2a because it supports an appreciable assemblage of rare, vulnerable or endangered species or sub-species of plant and animal. A range of notable fish species have been recorded for the Lough Foyle estuary and the lower reaches of some of its tributary rivers. These include Allis Shad *Alosa alosa,* Twaite Shad A. *falax falax*, Smelt *Osmerus eperlanus* and Sea Lamprey *Petromyzon marinus*, all of which are Jrisb Red Data Book species. In addition, important populations of Atlantic Salmon *Salmo solar* migrate through the system to and from their spawning grounds.

The site qualifies under Criterion 3a of the Directive by supporting over 20,000 waterfowl. Peak numbers averaged 36,599 birds in the five years between 1991/92 and 1995/96.

The site qualifies under Criterion 3b by regularly supporting substantial numbers of individuals from particular groups of waterfowl which are indicative of wetland values, productivity and diversity. These include internationally important populations of Whooper Swan *Cygnus cygnus*, Light-bellied Brent Goose *Branta bernicla hrota* and Bar-tailed Godwit *Limosa lapponica*. Additional wildfowl species which are nationally important in an all-Ireland context are Red-throated Diver Gavia stellata (an average of 27 birds, 2.7% of the all-Ireland wintering population), Great Crested Grebe *Podiceps cristatus* (220, 7.3%), Mute Swan *Cygnus olor* (91, 1.8%), Bewick's Swan *C. columbianus* (78, 3.1%), Greylag Geese *Anser anser* (61, 1.7%), Shelduck *Tadorna tadorna* (287, 4.1 %), Teal *Anos crecca* (15 I, 1.2%), Mallard *Anos platyrhynchos* (1694, 3.4%), Wigeon *A. penelope* (8107, 6.5%), Eider *Somateria molissima* (50, 2.5%) and Red-breasted Merganser *Mergus serrator* (73, 3.7%). Nationally important wader species arc Oystcrcatcher *Haematopus ostralegus*

(2045, 4.1%), Golden Plover *Pluvialis apricaria* (4999, 2.5%), Curlew *Numenius Arquata* (2152, 2.5%), Redshank Tringa totanus (791, 3.2%) and Greenshank *T. nebularia* (30, 3.3%).

In recent years a notable wintering population of Slavonian Grebe *Podiceps auritus* has been observed in Lough Foyle (a peak of 103 birds was recorded in 1995/96 which comprises 2.1% of the international population).

The site qualifies under Criterion 3c by regularly supporting internationally important numbers of Whooper Swan *Cygnus cygnus* (the five year peak mean for the period 1991/92 to 1995/96 was 890, which comprises 5.6% of the international population), Light-bellied Brent Goose *Branta bernicla hrota* (the five year peak mean for the period 1991/92 to 1995196 was 3730 which comprises 18.7% of the international population) and Bar-tailed Godwit *Limosa lapponica* (the five year peak mean for the period 199 I /92 to 1995/96 was 1896 which comprises 1.9% of the international population).

Conservation Objectives of Lough Foyle Ramsar (N.B.: Conservation Objectives in bold are at risk of impact by proposed development works).

- **No Specific Conservation Objectives are listed for Lough Foyle Ramsar Site.**

4.2 Impact on Screened-in QIs and Affected Attributes & Targets

The anticipated impacts on the screened-in Qualifying Interests (QIs) were evaluated in accordance with the Attributes and Targets specified in their Conservation Objectives. This assessment was informed by detailed information obtained from site-specific webpages available on the DAERA website. The findings of this evaluation are summarised in **Table 4-1** below.

Table 4-1: Anticipated Impacts on Screened-in Qualifying Interests.

Screened-in Qualifying Interest	Conservation Objective	Identified Pathway of Impact	Anticipated Impacts to QI from Works	Attribute & Target affected
[UK9020031] Lough Foyle SPA				
All Wintering Bird QI Species Waterfowl Assemblage Wintering Population	To maintain or restore the favourable conservation condition of each feature (listed in Table 3-1 above).	Surface Water Land Dust Noise Visual	The development site has a direct hydrological connection to Lough Foyle via direct input to Lough Foyle within the site boundary and extended survey area. Contaminants and sediments from the construction phase of works have the potential to reach sensitive receptors of Lough Foyle SPA and potentially reduce prey availability and habitat suitability.	**Bird Numbers:** No significant decrease in population against national trends

			Additionally, the movement of machinery/site compound erected (direct land disturbance/habitat degradation), and the increased noise and visual disturbance may temporarily reduce the availability of wintering habitat for QI Bird species.	
Habitat Extent & Roosting Sites	Maintain the extent of main habitat components and areas of natural and semi-natural habitat Maintain sites utilised as roosts	Surface Water Land Dust Noise Visual	The development site has a direct hydrological connection to Lough Foyle via direct input to Lough Foyle within the site boundary and extended survey area. Contaminants and sediments from the construction phase of works have the potential to reach sensitive receptors of Lough Foyle SPA and reduce the extent of suitable habitat and degrade habitat of available roosting sites. Additionally, given the proximity of Lough Foyle SPA to the site (partially within), land, noise and visual pathways are also anticipated which have the potential to degrade habitats or reduce suitability of roosting sites of the SPA.	**Habitat Extent:** Maintain the area of natural and semi-natural habitats used by notified species within the SPA, subject to natural processes **Extent of different habitats:** Maintain the extent of main habitat components subject to natural processes **Roost Sites:** Maintain or enhance sites utilised as roosts
[7UK130] Lough Foyle RAMSAR Site				
Criterion 1a, 1c – Wetland Complex including Intertidal Sand and Mudflats and other associated habitats, which plays a role in functioning of major river basin	N/A – See Attribute & Target Affected Column	Surface Water Land Dust Noise Visual	The development site has a direct hydrological connection to Lough Foyle via direct input to Lough Foyle within the site boundary and extended survey area.. Contaminants and sediments from the construction phase of works have the potential to reach sensitive receptors of Lough Foyle Ramsar and reduce the extent of suitable habitat and degrade habitat of available roosting sites. Additionally, given the proximity of Lough Foyle Ramsar to the site (partially within), land, noise and visual pathways are also anticipated which have the potential to degrade habitats of the SPA, as well as dust pollution pathways.	**N/A** – Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.
Criterion 2a – Supports assemblage of rare, vulnerable or endangered	N/A – See Attribute & Target Affected Column	Surface Water Land Dust	The development site has a direct hydrological connection to Lough Foyle via direct input to Lough Foyle within the site boundary and extended survey area. Pollutants from the works may hinder downstream impacts which Fisheries utilise within Lough Foyle. This may also apply to dust pathways from the site.	**N/A** – Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the

species/sub-species such as Fisheries.		Noise Visual	Additionally, the Fish assemblage criterion provides a non-exhaustive list on the importance assemblage of Fish species within Lough Foyle Ramsar Site, and as such some species may utilise freshwater watercourses from Lough Foyle, such as those within the surrounding environs The usage of a standard within the water to support the capsule may cause the temporary loss of commuting corridor for Fish species or direct mortality through site works. Further assessment is required to deem significance.	works will cause divergence from the favourable condition of this Criterion.
Criterion 3a, 3b, 3c – Supporting over 20,000 waterfowl (See Lough Foyle SPA for breakdown of species).	N/A – See Attribute & Target Affected Column	Surface Water Land Dust Noise Visual	The development site has a direct hydrological connection to Lough Foyle via direct input to Lough Foyle within the site boundary and extended survey area. Contaminants and sediments from the construction phase of works have the potential to reach sensitive receptors of Lough Foyle Ramsar site and potentially reduce prey availability and habitat suitability. Additionally, the movement of machinery/site compound erected (direct land disturbance/habitat degradation), and the increased noise and visual disturbance may temporarily reduce the availability of wintering habitat for QI Bird species.	**N/A** – Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.

5. Cumulative Impacts

5.1 Existing Threats and Pressures to Qualifying Interests

An assessment for the potential for cumulative/combined effects with other pressures/threats in each 'screened in' Natura 2000 site was undertaken, using relevant documents available on the DAERA website. This included the Conservation Objectives Supporting Document, Site Synopsis, and the Natura 2000 Standard Data Form. These threats and pressures are currently existing on the screened-in European Designations; the proposed development was assessed to identify the undertaking of works would produce in combination effects with the pre-existing threats. No documentation on threats and pressures for Lough Foyle RAMSAR Site were available online, however, they are expected to be similar to those of Lough Foyle SPA given the overlap in several Qualifying Interests and spatial coverage.

For Lough Foyle SPA, relevant existing threats and pressures are documented and include:

- Lough Foyle SPA: Dredging, Recreational Activities, Boating Activity – Commercial

Given the scope of works and timeframe of completion, work activities are not considered likely to act cumulatively or in-combination with the existing pressures identified within these designated sites. As such, no significant cumulative effects are anticipated as a result of existing threats and pressures.

5.2 Other Plans and Projects

An extensive search and examination were carried out inclusive of any plans and projects with the potential for cumulative effects on all designated sites downstream of the application site when considered in conjunction with the works proposed as part of this development.

The Northern Ireland Planning Register was consulted reviewing planning applications within the locality of the application site, applications within the last 5 years, including any proposed plans and developments still under consideration were assessed for their potential cumulative impacts.

The assessment considered the following Planning Policies and Development Plans:

- Planning Policy Statements (PPS) – PPS 2: Natural Heritage
- Department for Infrastructure - Regional Development Strategy 2035
- A Community Plan for Causeway Coast and Glens 2017 – 2030
- Green Growth Strategy for Northern Ireland

The review for this Habitat Regulation Assessment of the Regional Development Strategy 2035 for Northern Ireland and Draft Green Growth Strategy for Northern Ireland as well as the Planning Policy Statement (PPS) – PPS 2: Natural Heritage and the document "A Community Plan for Causeway Coast and Glens 2017 – 2030", primarily focused on

policies and objectives related to Natura 2000 sites and natural heritage. Additionally, policies and objectives concerning sustainable land use were also considered. Table 4 below outlines this summary.

Table 5-1: Cumulative Impact Assessment of development when considered with surrounding developments

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Cumulative Impacts on European Designated Sites
Planning Policy Statements (PPS) – PPS 2: Natural Heritage	**Policy NH 1** - European and Ramsar Sites - International Planning permission will only be granted for a development proposal that, either individually or in combination with existing and/or proposed plans or projects, is not likely to have a significant effect on: • A European Site (Special Protection Area, proposed Special Protection Area, Special Areas of Conservation, candidate Special Areas of Conservation and Sites of Community Importance); • A listed or proposed Ramsar Site Where a development proposal is likely to have a significant effect (either alone or in combination) or reasonable scientific doubt remains, the Department shall make an appropriate assessment of the implications for the site in view of the site's conservation objectives. Appropriate mitigation measures in the form of planning conditions may be imposed. In light of the conclusions of the assessment, the Department shall agree to the development only after having ascertained that it will not adversely affect the integrity of the site. In exceptional circumstances, a development proposal which could adversely affect the integrity of a European or RAMSAR Site may only be permitted where: • There are no alternative solutions; and, • The proposed development is required for imperative reasons of overriding public interest; and	Several planning applications have been granted planning permission or are under review in the preceding five years, and where necessary, these applications were accompanied by HRA reports (Stage I / Stage II). The majority of these applications are expected to result in minimal disruption, such as change of use of buildings, construction of single dwellings and single-storey extensions to dwellings. Any future individual application that has the potential to impact upon a Natura 2000 site will be subject to AASR as required under Articles 6(3) of the Habitats Directive. A list of planning applications within proximity of the site that have been granted in the past 5 years or are currently under review are listed below. 1. LA11/2021/0274/F (04/03/2021) - Extension to an existing shed for the manufacturing, storage and distribution of wooden and steel products. 2. LA11/2022/0446/O (31/03/2022) - Proposed infill dwelling. 3. LA11/2021/0205/F (07/12/2020) – Erection of metal structure/container for 4 No. drying kilns (2 previously relocated from approval 4. LA01/2023/0482/F (26/03/2023) – Retention of existing mobile coffee kiosk, ancillary portaloo and storage container 5. LA01/2025/0744/F (24/07/2025) – Proposed erection of three bay insignia bus shelter 6. LA01/2025/0745/A (24/07/2025) – Erection of 1 x Standard illuminated Paper Bus Shelter Advertisement Unit 7. LA01/2022/0346/RM (18/03/2022) – Reserved Matters application for proposed 1 storey farm dwelling and detached single storey domestic garage. 8. LA01/2024/0959/RM (27/08/2024) – Proposed site for dwelling and garage 9. LA01/2024/0002/O (21/12/2023) – Proposed single storey rear extension to kitchen/dining These developments are relatively small-scale developments. The proposed development will not lead to any cumulative impacts upon any designated site when considered in combination with other developments.

	• Compensatory measures are agreed and fully secured. As part of the consideration of exceptional circumstances, where a European or Ramsar site hosts a priority habitat or priority species listed in Annex I or II of the Habitats Directive, a development proposal will only be permitted when: • It is necessary for reasons of human health or public safety or there is a beneficial consequence of primary importance to the environment; or, • Agreed in advance with the European Commission.	
A Community Plan for Causeway Coast and Glens 2017 – 2030	**Population Outcome Statement**: All people of Causeway Coast and Glens will value and benefit from a diverse, sustainable and accessible environment with an infrastructure that is fit for its purpose and that allows for further connections. **Outcome 8**: The Causeway Coast and Glens have a sustainably managed natural and built environment This means that: 8.1) The historic and natural environment of Causeway Coast and Glens area is fully understood, protected and well looked after 8.2) The land and sea of the Causeway Coast and Glens is sustainably managed 8.3) The Causeway Coast and Glens area has a clean, healthy, safe environment with improved air, land and water quality 8.4) We, in the Causeway Coast and Glens area, value, protect and appreciate our environment	

6. The Test of Likely Significance

The key test in screening is to establish whether any likelihood of significant effects on European Sites can be ruled out. Once the relevant European Sites and their Qualifying Interests have been identified, this test must be applied.

- Likely – A risk or possibility of effects occurring that cannot be ruled out based on objective information
- Significant – Effects that would undermine the conservation objectives of the European sites, either alone or in-combination with other plans and projects. This depends on:
  - The Ecological Characteristics of the species/habitat e.g., structure, function, conservation status.
  - The character, magnitude, duration, consequences, and probability of the impacts occurring.

Table 6-1 below summarises the findings of this assessment.

Table 6-1: Assessment of Likely Significant Effects for Qualifying Interests of Screened in European Designations

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
[UK9020031] Lough Foyle SPA			
[A037] Bewick's Swan Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises low-lying wet pastures, lakes, and ponds. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. Observed behavioural responses of wintering waterbirds indicate that birds may flush or avoid areas within these distances when exposed to human activity. NatureScot guidance [50] indicates that Bewick's Swan range for disturbance during Non-Breeding Periods = 200–600 m, meaning the proposed noise and visual disturbance may exceed the lower threshold and could potentially cause displacement or flushing. Impacts via land pathways to this QI are deemed non-significant, given the temporary working space of the site, the habitats present within the site and extended survey area, and the extent of more suitable habitats within and surrounding Lough Foyle SPA for this species to utilise.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation.

[50] NatureScot - Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		While Surface water and Dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	An S-P-R model has been established for noise and visual pathways.
[A038] Whooper Swan Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises grassland habitats around Lough Foyle. Fields to the northeast of the site, designated for Whooper Swan, are located beyond approximately 6.8 km from the site. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. Given the documented presence of this suitable habitat within functionally-linked land to this SPA, and the distance between the site works, this is well beyond the upper threshold of the non-breeding disturbance distance for Whooper Swan, documented as 600 m by NatureScot guidance, considering the distance between the works and these designated areas for the species. As a result, site works are unlikely to result in displacement or flushing. While Whooper Swan may occasionally utilise other areas within the SPA outside their core designated fields, these areas are not used in large enough numbers for site activities to cause significant disturbance either through noise or visual exposure, and as such the wintering population is not anticipated to be adversely affected. Impacts via land pathways to this species are deemed non-significant, given the temporary working space of the site and the extent of suitable alternative habitats within and surrounding Lough Foyle SPA. While surface water and Dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	No – No Potential for Significant Effects Anticipated to this QI While impact pathways are present for this qualifying interest (QI), the scope of works e.g., scale and temporary nature, deem impacts to this QI insignificant.
[A140] Golden Plover Wintering Population	To maintain or restore the favourable conservation	During wintering, this species utilises coastal and intertidal habitats, including mudflats and saltmarsh. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
	condition of the species	Observed behavioural responses of wintering waterbirds indicate that birds may flush or avoid areas within these distances when exposed to human activity. NatureScot guidance indicates that the non-breeding disturbance distance for Golden Plover ranges from 200–500 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such significant impacts via land pathways to the wintering population have been ruled in, precautionarily. While surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A157] Bar-tailed Godwit Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises estuarine mudflats and sandflats. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. Observed behavioural responses of wintering waterbirds indicate that birds may flush or avoid areas within these distances when exposed to human activity. NatureScot guidance indicates that the non-breeding disturbance distance for Bar-tailed Godwit ranges from 200–300 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as Bar-tailed Godwit utilises mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such significant impacts to the wintering population has been ruled in, precautionarily. While surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
[A046] Light-bellied Brent Goose Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises estuarine habitats, including mudflats and saltmarsh. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, however, information on the specific minimum and maximum disturbance distances for Light-bellied Brent Goose is not readily available. Studies have shown that wintering Geese can exhibit significant behavioural changes in response to disturbances. A Precautionary maximum of 600m has been applied for this species, based on the values of other QI bird species within this SPA and as such the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such significant impacts to the wintering population has been ruled in, precautionarily. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A005] Great Crested Grebe Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises estuarine waters, shallow coastal lakes, and lagoons. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, however, information on the specific minimum and maximum disturbance distances for Great Crested Grebe is not readily available. Studies have shown that wintering grebes can exhibit significant behavioural changes in response to disturbances. A Precautionary maximum of 600m has been applied for this species, based on the values of other QI bird species within this SPA and as such the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways are considered non-significant, as this species does not utilise mudflats or saltmarsh habitats, which are found within the site.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		Additionally, while surface water, and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	An S-P-R model has been established for noise and visual pathways.
[A017] Cormorant Wintering population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises estuarine waters and coastal intertidal areas. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, however, information on the specific minimum and maximum disturbance distances for Cormorant is not readily available. Studies have shown that wintering birds can exhibit significant behavioural changes in response to disturbances. A Precautionary maximum of 600m has been applied for this species, based on the values of other QI bird species within this SPA and as such the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Land pathways are considered non-significant, as the species forages primarily in open water and does not rely on mudflats or saltmarsh within the site for roosting habitat. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for noise and visual pathways.
[A043] Greylag Goose Wintering Population	To maintain or restore the favourable conservation condition of the species	To maintain or restore the favourable conservation condition of the species During wintering, this species utilises grassland and estuarine habitats. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Greylag Goose ranges from 200–600 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Land pathways are considered non-significant, as Greylag Goose does not utilise mudflats or saltmarsh within the site, and temporary disruption is unlikely to affect the wider wintering population.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	An S-P-R model has been established for noise and visual pathways.
[A048] Shelduck Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises estuarine waters and intertidal mudflats. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Shelduck ranges from 100–300 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such significant impacts to the wintering population has been ruled in, precautionarily. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A050] Wigeon Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises a variety of coastal habitats including estuarine mudflats and grasslands. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Wigeon ranges from 100–300 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such significant impacts to the wintering population has been ruled in, precautionarily.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	An S-P-R model has been established for land, noise and visual pathways.
[A052] Teal Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises a variety of coastal habitats including estuarine mudflats and saltmarsh. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Teal ranges from 100–200 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such significant impacts to the wintering population has been ruled in, precautionarily. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A053] Mallard Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises a variety of coastal habitats including freshwater ponds and estuarine areas. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Mallard ranges from 100–200 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways are considered non-significant, as Mallard do not rely on mudflats or saltmarsh habitats found within the site, and suitable foraging habitat is widely available within Lough Foyle SPA.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	An S-P-R model has been established for noise and visual pathways.
[A063] Eider Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises inshore coastal waters at the mouths of estuaries. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Eider ranges from 100–200 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways are considered non-significant, as Eider feed primarily in open water and do not rely on mudflats or saltmarsh within the site. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for noise and visual pathways.
[A069] Red-breasted Merganser Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises brackish and marine waters. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, however, information on the specific minimum and maximum disturbance distances for Red-breasted Merganser is not readily available. However, studies have shown that wintering birds can exhibit significant behavioural changes in response to disturbances. A Precautionary maximum of 600m has been applied for this species, based on the values of other QI bird species within this SPA. NatureScot guidance indicates that the non-breeding disturbance distance for Red-breasted Merganser ranges from 100–200 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways are considered non-significant, as this species forages primarily in open water and does not utilise mudflats or saltmarsh within the site.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	An S-P-R model has been established for noise and visual pathways.
[A130] Oystercatcher Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises estuarine mudflats and sandy shores. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Oystercatcher ranges from 100–300 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such significant impacts to the wintering population has been ruled in, precautionarily. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A142] Lapwing Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises a variety of coastal habitats including mudflats, saltmarsh, and grasslands. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. Guidance from University of Hull[51] indicates that the disturbance distance for Lapwing ranges up to 300m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot

[51] University of Hull - Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		overlap with a portion of suitable roosting and/or feeding habitats and as such significant impacts to the wintering population has been ruled in, precautionarily. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A143] Knot Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises estuarine mudflats and sandy shores. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Knot ranges from 100–300 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such significant impacts to the wintering population has been ruled in, precautionarily. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A149] Dunlin Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises mudflats and estuarine areas. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Dunlin ranges from 100–300 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats and saltmarsh habitats which are noted to be present within the site. The footprint of works may directly	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		overlap with a portion of suitable feeding habitat and as such significant impacts to the wintering population has been ruled in, precautionarily. Additionally, while surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, risk of any measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A160] Curlew Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises mudflats and estuarine areas. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Curlew ranges from 200–650 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats, saltmarsh, and marginal terrestrial habitats within the site. The footprint of works may directly overlap with a portion of suitable feeding habitat and as such, significant impacts to the wintering population have been ruled in, precautionarily. While surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, the risk of measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
[A162] Redshank Wintering Population	To maintain or restore the favourable conservation condition of the species	During wintering, this species utilises mudflats and estuarine areas. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below. NatureScot guidance indicates that the non-breeding disturbance distance for Redshank ranges from 200–300 m, meaning the proposed disturbance may exceed the lower threshold and could potentially cause temporary displacement. Impacts via land pathways to this species exist, as the species may utilise mudflats, saltmarsh, and marginal terrestrial habitats present within the site. The footprint of works may directly	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		overlap with a portion of suitable feeding habitat and as such, significant impacts to the wintering population have been ruled in, precautionarily. While surface water and dust pathways have been noted to Lough Foyle SPA, given the scale, duration, and methodology of the proposed activities, the risk of measurable deterioration in prey availability or roosting resource for this QI is assessed as negligible	be ruled out, without appropriate mitigation. An S-P-R model has been established for land, noise and visual pathways.
Waterfowl Assemblage Wintering Population	To maintain or restore the favourable conservation condition of each species within the assemblage	During wintering, waterfowl utilise a range of coastal and terrestrial habitats, including intertidal mudflats, saltmarsh, and functionally linked grasslands within and surrounding Lough Foyle SPA. Some of these habitats occur within or immediately adjacent to the site and may be directly affected by works. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed in Appendix B, these disturbances could cause birds to temporarily flush or avoid nearby habitats. Additionally, land disturbance may occur through the establishment of site compounds, access tracks, or machinery usage, potentially reducing habitat availability within the footprint of works. Given that Lough Foyle SPA supports an internationally important assemblage of wintering waterfowl, disturbance during the wintering period (October – March) could result in displacement from key feeding or roosting areas, even if temporary, reducing the functional availability of habitats during critical periods. Therefore, there is potential for significant impacts to waterfowl via noise and land pathways. While surface water and dust pathways have been considered, given the scale, duration, and methodology of the proposed activities, the risk of any measurable deterioration in prey availability or roosting resource is assessed as negligible.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land and noise pathways.
Habitat Extent & Roosting Sites	To maintain the extent of main habitat components and areas of natural and semi-natural habitat.	Waterfowl utilising the site during the winter months depend on a combination of intertidal mudflats, saltmarsh, and surrounding grasslands. Portions of these habitats occur within or adjacent to the site and provide feeding or roosting opportunities. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed in Appendix B, which may lead to birds temporarily avoiding these habitats. Additionally, land-based disturbance could occur through the placement of site	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
	To maintain sites utilised as roosts.	compounds, machinery movement, or access tracks, potentially reducing habitat availability in the immediate footprint of the works. Given that the surrounding SPA and associated habitats support an internationally important assemblage of wintering waterfowl, any disturbance during the key wintering period (October–March) could lead to temporary displacement, even if short-lived, thereby reducing access to important feeding or roosting areas. Surface water and dust pathways have been considered but, due to the temporary nature, scale, and methodology of the works, are unlikely to result in measurable impacts on prey availability or roosting habitat.	the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for land, visual and noise pathways.
[7UK130] Lough Foyle RAMSAR Site			
Criterion 1a, 1c – Wetland Complex including Intertidal Sand and Mudflats and other associated habitats, which plays a role in functioning of major river basin	**N/A** – Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.	The development site is partially located within intertidal habitats of Lough Foyle, including Annex I mudflats and saltmarsh. The footprint of the works, including site compound placement and machinery activity, could directly overlap with portions of intertidal mudflats/sandflats and saltmarsh habitat, which were identified within the site works area and extended survey area, leading to temporary habitat loss or degradation. Contaminants and sediments from the construction phase have the potential to reach sensitive receptors of Lough Foyle Ramsar site and reduce the extent of suitable habitat and degrade habitat of available roosting sites. Annex I Intertidal mudflats and sandflats not covered by seawater at low tide [1140], as well as Priority habitat Coastal saltmarsh, have been identified within the site works area, and mudflats [1140] are also mapped within the extended survey area to the north and east. Whilst these works are temporary in nature and localised around the current site works footprint, pollutants may carry to these habitats and, under the precautionary principle, diverge from the favourable conservation status. Surface water pathways have been ruled in for this Criterion. Given the proximity of Lough Foyle Ramsar site and the presence of functionally-linked habitats, to the site works area land pathways have also been screened in for potential significant effects. While works are temporary and small in scale, the precautionary principle is applied, and significant effects cannot be ruled out without mitigation.	Yes – Potential Significant Effects Anticipated on this QI. There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the RAMSAR Site and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation. An S-P-R model has been established for Surface Water and Land Pathways.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		Visual and noise disturbance pathways have been screened out for this Criterion, as the temporary construction activity is not expected to generate effects that would significantly alter habitat condition or species usage within the intertidal or saltmarsh habitats.	
Criterion 2a – Supports assemblage of rare, vulnerable or endangered species/sub-species such as Fisheries.	**N/A** – Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.	The proposed works at Asset 16E will involve installation of a new rock armour revetment, comprising a double interlocking primary rock armour layer (1–3 t) with geotextile beneath. The area immediately behind the revetment will be filled with smaller-sized rock to restore the embankment to existing levels. The revetment will be installed between Chainages 1700–1713 (254726E, 422262N to 254713E, 422269N) and will tie into the existing grass embankment at both ends. No direct in-stream excavation or permanent obstruction is required. Temporary structures, plant, and material placement within the intertidal zone may be necessary to facilitate construction, but fish passage and access to feeding or migratory routes will not be blocked and the localised footprint of the site works is unlikely to result in significant impacts to rare, vulnerable or endangered species considered as part of this Ramsar site criterion. Surface water and dust pathways have been considered. Given the temporary, localised nature and small scale of the works, these are unlikely to result in measurable deterioration in habitat quality or impact the assemblage of rare or vulnerable species.	<u>No – No Potential for Significant Effects Anticipated to this QI</u> While impact pathways are present for this qualifying interest (QI), the scope of works e.g., scale and temporary nature, deem impacts to this QI insignificant.
Criterion 3a, 3b, 3c – Supporting over 20,000 waterfowl (See Lough Foyle SPA for breakdown of species).	**N/A** – Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.	During wintering, waterfowl utilise a range of coastal and terrestrial habitats, including intertidal mudflats, saltmarsh, and functionally linked grasslands within and surrounding Lough Foyle SPA. Some of these habitats occur within or immediately adjacent to the site and may be directly affected by works. Works at the site may generate temporary noise disturbance within approximately 565 m, the maximum visual disturbance from the works area will vary depending on the bird species, with species-specific disturbance distances detailed below in Appendix B, which could cause birds to temporarily flush or avoid nearby habitats. Additionally, land disturbance may occur through the establishment of site compounds, access tracks, or machinery usage, potentially reducing habitat availability within the footprint of works. Given that Lough Foyle Ramsar supports over 20,000 waterfowl, some of which are considered populations of international importance, disturbance during the wintering period (October – March) and/or peak breeding period could	<u>Yes – Potential Significant Effects Anticipated on this QI.</u> There is a source-pathway-receptor model to this QI from the site works area. Whilst the works are considered relatively small in scale, given the identified pathways and conservation objectives of the QIs, as well as the location of the SPA and functionally linked habitats to works, the potential for significant effects cannot be ruled out, without appropriate mitigation.

Qualifying Interest	Conservation Objectives	Affect from Works anticipated	Potential for Significant Effects
		result in displacement from key feeding or roosting areas, even if temporary, reducing the functional availability of habitats during critical periods. Therefore, there is potential for significant impacts to waterfowl via noise and land pathways. While surface water and dust pathways have been considered, given the scale, duration, and methodology of the proposed activities, the risk of any measurable deterioration in prey availability or roosting resource is assessed as negligible.	An S-P-R model has been established for land, visual and noise pathways.
		KEY: RED = Likely Significant Effects expected; GREEN = Likely Significant Effects not expected.	

7. Stage 2 – Habitats Regulations Assessment

Stage 2 of the Habitats Regulations Assessment process is where a detailed evaluation is carried out to assess the potential effects of a plan or project on the integrity of a Natura 2000 site. This stage is triggered if Stage 1 (Screening) indicates that significant effects cannot be ruled out. The assessment examines the direct, indirect, and cumulative impacts on the site's conservation objectives and qualifying features, outlined in Stage 1. Mitigation measures are considered to mitigate adverse impacts.

7.1 Sources of Impact

As stated in Section 3, sources will come from the Construction Phase. The coastal defence works at Asset 16E and will comprise the installation of a new rock armour revetment. Works will involve site establishment including temporary compounds, access routes, staging areas, and material laydown zones, with access taken from the adjacent shoreline and existing embankment.

Key activities will include excavation and preparation of the eroded embankment toe, placement of a geotextile separation layer, and installation of a double interlocking primary rock armour layer (1–3t). The area directly behind the revetment will be backfilled with smaller sized rock to tie into the existing embankment profile. Plant and machinery will include tracked excavators, dumpers, and support vehicles operating from the foreshore and landward side of the defence.

The revetment will be installed between Chainages 1700–1713 (254726E, 422262N to 254713E, 422269N), tying into the existing grassed embankment at both ends. Upon completion, disturbed areas will be regraded and reinstated to provide a stable interface with surrounding land and to minimise erosion risk.

There will be no impacts within the operational phase; Section 16E will operate as a small section of Sea Defence structure prevent further erosion of the embankment at this location, and no significant impacts are expected to arise as result of this installation. As the development on-site is considered to be permanent, there is no envisioned decommissioning stage of the project. Therefore, no effects are anticipated with regard to decommissioning activities for the application site. The carrying out of demolition or maintenance activities on the site is anticipated to result in comparable disturbances to those outlined in earlier sections relating to the construction phase of the project.

Source-Pathway-Receptor Models were established to 2-no. European Designation. Without mitigation, it is likely that significant affects to the Qualifying Interests of these European Designations will occur if appropriate mitigation is not implemented. The 2-no. European Designation with an established Source-Pathway-Receptor from the site works area are as follows:

- Lough Foyle SPA; and,
- Lough Foyle RAMSAR Site.

7.1.1 Source of Impact via Surface Water Pathways

The following sources of impact are identified as potentially impacting upon the above European Designations through Surface Water Pathways:

- **Release of Suspended Solids**: The release of suspended solids during site works can significantly impact downstream features. Increased turbidity reduces light penetration, limiting photosynthesis and oxygen production in aquatic habitats. Sediment deposition can smother benthic habitats, impair fish spawning grounds downstream, and disrupt ecosystems. Suspended solids may carry nutrients, heavy metals, and organic matter, degrading water quality and contributing to eutrophication. These effects can harm aquatic life and alter downstream features.
- **Chemical Spills and Leaks**: Spills or leaks of fuels, oils, lubricants, paints, solvents, or highly alkaline concrete washout water from construction equipment and storage areas can degrade aquatic habitats and reduce their suitability for fauna Qualifying Interests (QIs). These pollutants can harm aquatic ecosystems by introducing toxic substances, altering water chemistry, and reducing oxygen levels, which may be detrimental to aquatic life.
- **Waste and Debris**: Improper disposal or water-driven transport of solid waste, such as plastics, construction materials, and packaging, can degrade habitat quality and directly harm fauna Qualifying Interests (QIs) utilising these habitats. Such waste may result in injury or death to wildlife through entanglement, ingestion, or habitat contamination. Implementing proper waste management practices and containment measures is essential to minimise these risks and protect the environment.

7.1.2 Source of Impact via Land

The following sources of impact are identified as potentially impacting upon the above European Designations through Land Pathways:

- **Encroachment of Annex I and Priority Habitats:** The Asset 16E works footprint directly overlaps with areas of coastal saltmarsh, Tidal mudflats and sandflats and grassed embankment, with further sections of tidal mudflats and sandflats [1140] mapped immediately north and east of the site within the extended survey area. Land disturbance from machinery use, site compound set-up, and access tracks has the potential to temporarily or permanently reduce the availability of suitable habitat within the works footprint.
- **Disruption of Important Wintering Habitats:** Given the proximity of Lough Foyle SPA and RAMSAR to the site (site works area located partially within boundary of both sites), land pathways are also anticipated which have the potential to permanently degrade habitats within these European Designations. The lack of detail within Criterion 1a, 1c leads to the application of the precautionary principle in this instance. Additionally, the intertidal mudflats [1140], sandflats [1140], coastal saltmarsh [1330], and adjacent grassland habitats are used by wintering waterfowl for feeding, roosting, and refuge. Land disturbance within these areas may reduce the availability or quality of these critical habitats.

7.1.3 Source of Impact via Noise

The following sources of impact are identified as potentially impacting upon the above European Designations through Noise Pathways:

- **Disturbance/Displacement of QI Bird species utilising Important Wintering and Functionally-linked Habitat:** Noise generated by construction activities (plant, machinery, and vehicle movements) within the Asset 16E works zone may cause birds utilising adjacent intertidal mudflat/sandflats habitats, saltmarsh, and grasslands to temporarily flush or avoid these areas. Temporary noise disturbance is predicted within approximately 565 m of the works area, potentially overlapping important wintering habitats.

7.1.4 Source of Impact via Visual Impact

The following sources of impact are identified as potentially affecting the above European Designations through visual pathways:

- **Disturbance/Displacement of QI Bird species utilising Important Wintering and Functionally-linked Habitat:** Visible construction activities within the Asset 16E footprint, including placement of rock armour and associated works, may cause visual disturbance to birds in adjacent mudflats/sandflats, saltmarsh, and grassland habitats. Visual disturbance is predicted to affect areas within an upper limit of approximately 650 m of the works, potentially reducing the functional availability of feeding and roosting areas during the wintering period.

7.2 Impact Assessment

The Impact Assessment of a Stage 2 Habitats Regulation Assessment considers the likely significant effects of screened in Qualifying Interests of the European Designations, and whether residual effects will still be present with the implementation of avoidance/mitigation measures. Impact Assessments for each Screened-in European Designation are outlined in the following tables:

- **Table 7-1**: Impact Assessment of Lough Foyle SPA
- **Table 7-2**: Impact Assessment of Lough Foyle RAMSAR Site

7.2.1 Do-Nothing Scenario

In a “do nothing” scenario, where no works are undertaken at Asset 16E, the existing eroded grassed embankment would continue to deteriorate due to wave action, tidal flows, and extreme water levels. Scouring at the toe of the embankment would likely progress, increasing the risk of localised embankment failure. Without intervention, this could result in ongoing erosion, loss of embankment material, and potential breaches during storm events or high tides.

The erosion of the embankment poses a direct risk to the stability of the adjacent railway track. Progressive degradation could undermine the track bed, increasing the likelihood of track misalignment or, in the worst-case scenario, a train derailment. This would present serious operational safety risks and potential disruption to railway services.

The failure or continued erosion of this section of embankment could compromise the structural integrity of the wider sea defence network along this coastal corridor, reducing the protection of adjacent land and habitats, including intertidal mudflats and sandflats [1140], coastal saltmarsh, and other functionally linked habitats used by wintering

waterfowl. Over time, the absence of maintenance would increase the likelihood of larger-scale erosion events, potentially leading to irreversible habitat loss, increased sediment deposition in sensitive areas, and elevated risk of flooding to adjacent terrestrial habitats and infrastructure.

In the long term, a "do nothing" approach would likely result in higher ecological and economic costs, greater risk to protected habitats and species, and increased likelihood of emergency remedial works, which would be more disruptive, expensive, and ecologically damaging than planned, managed refurbishment of the embankment.

7.2.2 In-Combination Effects

In Section 5.1 of this report, site-specific conservation objectives for Lough Foyle SPA/Lough Foyle RAMSAR Site were reviewed to identify existing threats and pressures for the screened-in qualifying interests per site. Each screened-in QI was determined to have existing threats and pressures, of which the proposed development could have in-combination effects with.

Additionally, an extensive search and examination were carried out inclusive of any plans and projects with the potential for cumulative effects on all designated sites downstream of the application site when considered in conjunction with the works proposed as part of this development. The Northern Ireland Planning register was consulted reviewing planning applications within the locality of the application site, applications within the last 5 years, including any proposed plans and developments still under consideration were assessed for their potential cumulative impacts. Several planning applications have been granted planning permission or are under review in the preceding five years, and where necessary, these applications were accompanied by HRA reports (Stage I / Stage II). The majority of these applications are expected to result in minimal disruption, such as change of use of buildings, and construction of single dwellings. Any future individual application that has the potential to impact upon a Natura 2000 site will be subject to HRA as required under Articles 6(3) of the Habitats Directive.

7.2.3 Results of Impact Assessment

See below the Results of Impact Assessments for screened-in Qualifying Interests of Lough Foyle RAMSAR Site and Lough Foyle SPA, with the implementation of mitigation measures where appropriate.

Table 7-1: Impact Assessment of Lough Foyle RAMSAR Site

[7UK130] Lough Foyle RAMSAR Site				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
Surface Water Pathways				
Release of suspended solids Waste and Debris Chemical Spills and Leaks	Criterion 1a, 1c – Wetland Complex including Intertidal Sand and Mudflats and other associated habitats, which plays a role in functioning of major river basin	Criterion 1a, 1c – Wetland Complex including Intertidal Sand and Mudflats [1140] and other associated habitats, including Coastal Saltmarsh, which play a role in the functioning of the major river basin. The area of works at Asset 16E is immediately adjacent to Lough Foyle and includes intertidal habitats that are highly sensitive to surface water contamination. The release of suspended solids, sediment mobilisation, and potential chemical spills during construction could degrade water quality, smother mudflats and saltmarsh, and reduce habitat suitability for wintering waterfowl. This diverges from the favourable condition of these habitats, presenting a risk of significant effects given existing pressures. The following conservation objectives could be compromised without avoidance or mitigation measures: - [Criterion 1a, 1c]: N/A - Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.	To mitigate environmental risks during the construction phase to downstream designations and their QIs via surface water pathways, the following measures should be implemented: **Construction Environmental Management Plan (CEMP) :** o Address potential pollution from surface water runoff and mobilization of silts and sediments e.g., erection of standard within watercourse. o Incorporate best practices for all construction activities and establish clear protocols for managing surface water runoff. This mitigation is outlined further in Appendix A of this report.	None
Land Pathways				
Disruption to Annex I and Priority Habitats/	Criterion 1a, 1c – Wetland Complex	Criterion 1a, 1c – Wetland Complex including Intertidal Sand and Mudflats [1140] and Coastal Saltmarsh [1330].	To mitigate risks during the construction phase of works to sensitive Qualifying	

[7UK130] Lough Foyle RAMSAR Site				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
Functionally-Linked Habitat Encroachment of Works into QI Habitats.	including Intertidal Sand and Mudflats and other associated habitats, which plays a role in functioning of major river basin Criterion 3a, 3b, 3c – Supporting over 20,000 waterfowl (See Lough Foyle SPA for breakdown of species).	Criterion 3a, 3b, 3c – Supporting over 20,000 waterfowl (Waterfowl Assemblage Wintering Population). Some of these habitats and functionally-linked grasslands occur within or immediately adjacent to the site works footprint at Asset 16E. Land disturbance through machinery use, site compound placement, or access tracks may reduce habitat availability for these habitats and species. The lack of spatial detail in Criterion 1a, 1c requires application of the precautionary principle, indicating potential divergence from favourable condition. The following conservation objectives could be compromised without avoidance or mitigation measures: - [Criterion 1a, 1c]: N/A - Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.	Interests via land pathways, the following measures should be implemented: **Construction Environmental Management Plan (CEMP) :** o Confine all works strictly within the defined Asset 16E footprint to avoid unnecessary encroachment onto intertidal habitats (mudflats [1140], sandflats [1140], and coastal saltmarsh habitat within surrounding environs of site works area. o Avoidance of works within nearby functionally-linked grasslands potentially used by wintering waterfowl from machinery access or by using existing access tracks. o Toolbox talks for all site personnel to raise awareness of intertidal habitats, coastal saltmarsh, and potential waterfowl feeding/roosting areas. o Post-construction reinstatement works to Annex/Priority habitats: o **Intertidal mudflats and sandflats ([1140])** – Any temporarily disturbed areas should be	**None**

[7UK130] Lough Foyle RAMSAR Site				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
			reinstated using excavated substrate, re-profiled to original contours, and returned to natural tidal function to maintain habitat structure and ecological function. ○ **Coastal saltmarsh** – Turves and associated soils should be carefully lifted, stored, and replaced post-works, with vegetation re-established where possible to allow natural recovery and maintain habitat connectivity and ecological value. ○ Reinstated areas will be monitored to ensure successful recovery and restoration of pre-construction habitat condition. Staged works and reinstatement will be carried out in line with all appropriate available guidance, with further details on the steps provided in Appendix A – General CEMP Mitigation Measures.	

[7UK130] Lough Foyle RAMSAR Site				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
Noise Pathways				
Disturbance/Displacement of QI Bird species utilising Important Wintering and Functionally-linked Habitat	Criterion 3a, 3b, 3c – Supporting over 20,000 waterfowl (See Lough Foyle SPA for breakdown of species).	During wintering, waterfowl utilise a range of important coastal and terrestrial habitats, including grasslands, intertidal mudflats, and saltmarsh within and surrounding Lough Foyle SPA. Some of these habitats occur within or immediately adjacent to the site and may be temporarily affected by works. Works at Asset 16E involve construction of a rock armour revetment along a 13 m section of eroded embankment, requiring machinery operation and temporary disturbance within the site footprint. Disturbance has the potential to displace waterfowl from nearby habitats, even if temporary, reducing the functional availability of feeding and roosting areas during critical wintering periods (October–March). Noise disturbance from machinery and other site activities may extend up to 565 m, overlapping with some nearby protected habitats and functionally-linked habitats. The following conservation objectives could be compromised without avoidance or mitigation measures: - [Criterion 3a, 3b, 3c]: N/A - Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.	To mitigate risks during the construction phase of works to sensitive Qualifying Interests via noise pathways, the following measures should be implemented: **Avoidance of Peak Over-wintering Season:** Works should be undertaken outwith the Wintering Bird Season, running from October to March inclusive. During these months, bird activity of this QI will be at its highest. To minimise disturbance to both wintering and breeding birds, works are best undertaken in September, as this falls after the main breeding period (March 1st to August 31st) and before the arrival of most overwintering populations. Additionally, a Pre-construction survey should be undertaken immediately prior to site work commencement to ensure no QI bird species are present within the disturbance zones, as outlined in Appendix B.	**None**
Visual Pathways				

[7UK130] Lough Foyle RAMSAR Site				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
Disturbance/Displacement of QI Bird species utilising Important Wintering and Functionally-linked Habitat	Criterion 3a, 3b, 3c – Supporting over 20,000 waterfowl (See Lough Foyle SPA for breakdown of species).	During wintering, waterfowl utilise a range of important coastal and terrestrial habitats, including grasslands, intertidal mudflats, and saltmarsh within and surrounding Lough Foyle SPA. Some of these habitats occur within or immediately adjacent to the site and may be temporarily affected by works. Works at Asset 16E involve construction of a rock armour revetment along a 13 m section of eroded embankment, requiring machinery operation and temporary disturbance within the site footprint. Visual disturbance resulting from machinery, site personnel, and other construction activity could be perceived by birds in nearby habitats, potentially causing temporary flushing. Disturbance has the potential to displace waterfowl from on-site or adjacent habitats, reducing the functional availability of feeding and roosting areas during critical wintering periods (October–March). According to NatureScot guidance [52], observed non-breeding disturbance distances for qualifying interest (QI) waterfowl species of Lough Foyle SPA (which underpin Criterion 3 of the Lough Foyle Ramsar Site) are species-dependent but generally within 650 m. The works area falls within this range, indicating that visual disturbance could overlap with the disturbance thresholds of some species. The following conservation objectives could be compromised without avoidance or mitigation measures:	To mitigate risks during the construction phase of works to sensitive Qualifying Interests via visual pathways, the following measures should be implemented: **Avoidance of Peak Over-wintering Season:** Works should be undertaken outwith the Wintering Bird Season, running from October to March inclusive. During these months, bird activity of this QI will be at its highest. To minimise disturbance to both wintering and breeding birds, works are best undertaken in September, as this falls after the main breeding period (March 1st to August 31st) and before the arrival of most overwintering populations. Additionally, a Pre-construction survey should be undertaken immediately prior to site work commencement to ensure no QI bird species are present within the disturbance zones, as outlined in Appendix B.	

[52] NatureScot - Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species

[7UK130] Lough Foyle RAMSAR Site				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
		- [Criterion 3a, 3b, 3c]: N/A - Conservation Objectives, Attributes and Targets not listed for this Criterion. The precautionary principle has been applied, assessing that the works will cause divergence from the favourable condition of this Criterion.		
KEY: RED = RESIDUAL EFFECTS EXPECTED AFTER MITIGATION/AVOIDANCE; GREEN = NO RESIDUAL EFFECTS EXPECTED AFTER MITIGATION/AVOIDANCE				

Table 7-2: Impact Assessment of Lough Foyle SPA

[UK9020031] Lough Foyle SPA				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
Surface Water Pathways				
Release of suspended solids Waste and Debris Chemical Spills and Leaks	Habitat Extent & Roosting Sites	The release of suspended solids, chemical spills and leaks, and the presence of waste and debris can all negatively impact Habitats and Roosting Sites downstream via surface water pathway. Suspended solids can degrade water quality by smothering habitats and disrupting aquatic ecosystems. Chemical spills introduce harmful toxins that can impair habitat suitability and threaten species health. Waste and debris can physically damage habitats and contribute to pollution, further reducing the	To mitigate environmental risks during the construction phase to downstream designations and their QIs via surface water pathways, the following measures should be implemented: **Construction Environmental Management Plan (CEMP) :** o Address potential pollution from surface water runoff and	**None**

[UK9020031] Lough Foyle SPA				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
		quality of downstream environments. Therefore, these sources of impact diverge the QI from its favourable conservation condition, posing a risk of significant effects given existing pressures on these sensitive qualifying interests. The following conservation objectives could be compromised without avoidance or mitigation measures: - [Habitat Extent & Roosting Sites]: To maintain the extent of main habitat components and areas of natural and semi-natural habitat. To maintain sites utilised as roosts.	mobilization of silts and sediments e.g., erection of standard within watercourse. o Incorporate best practices for all construction activities and establish clear protocols for managing surface water runoff. This mitigation is outlined further in Appendix A of this report.	
Land Pathways				
Disruption to Annex I and Priority Habitats/ Functionally-Linked Habitat	- [A140] Golden Plover Wintering Population - [A157] Bar-tailed Godwit Wintering Population - [A046] Light-bellied Brent Goose Wintering Population - [A048] Shelduck Wintering Population - [A050] Wigeon Wintering Population	During wintering, waterfowl utilise a range of important coastal and terrestrial habitats within and surrounding Lough Foyle SPA, including intertidal mudflats [1140], coastal saltmarsh, and adjacent grasslands. Several of these habitats occur within or immediately adjacent to the Asset 16E works area and may be temporarily affected. The following species and habitat QIs were screened in for potential land-based disturbance impacts: - [A140] Golden Plover (Wintering Population) - [A157] Bar-tailed Godwit (Wintering Population) - [A046] Light-bellied Brent Goose (Wintering Population) - [A048] Shelduck (Wintering Population) - [A050] Wigeon (Wintering Population) - [A052] Teal (Wintering Population)	To mitigate risks during the construction phase of works to sensitive Qualifying Interests via visual pathways, the following measures should be implemented: **Construction Environmental Management Plan (CEMP):** o Confine all works strictly within the defined Asset 16E footprint to avoid unnecessary encroachment onto intertidal habitats (mudflats [1140], sandflats [1140], and coastal saltmarsh habitat within surrounding environs of site works area.	**None**

[UK9020031] Lough Foyle SPA				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
	- [A052] Teal Wintering Population - [A130] Oystercatcher Wintering Population - [A142] Lapwing Wintering Population - [A143] Knot Wintering Population - [A149] Dunlin Wintering Population - Waterfowl Assemblage Wintering Population - Habitat Extent & Roosting Sites	- [A130] Oystercatcher (Wintering Population) - [A142] Lapwing (Wintering Population) - [A143] Knot (Wintering Population) - [A149] Dunlin (Wintering Population) - Waterfowl Assemblage (Wintering Population) - Habitat Extent and Roosting Site Temporary land-take for machinery, compound set-up, and ground disturbance could overlap with intertidal mudflats and saltmarsh within the works area, leading to localised habitat loss or degradation. Disturbance may reduce the functional availability of feeding and roosting areas during critical wintering periods (October–March). The following conservation objectives could be compromised without avoidance or mitigation measures: - [A038]: Distribution of Species within site, Structure, function, and supporting processes of habitats supporting the species - [Waterfowl Assemblage Wintering Population]: Distribution of Species within site - [Habitat Extent & Roosting Sites]: Maintain or enhance the area of natural/semi-natural habitats potentially used by Feature bird species.	o Avoidance of works within nearby functionally-linked grasslands potentially used by wintering waterfowl from machinery access or by using existing access tracks. o Toolbox talks for all site personnel to raise awareness of intertidal habitats, coastal saltmarsh, and potential waterfowl feeding/roosting areas. o Post-construction reinstatement works to Annex/Priority habitats: - **Intertidal mudflats and sandflats ([1140])** – Any temporarily disturbed areas should be reinstated using excavated substrate, re-profiled to original contours, and returned to natural tidal function to maintain habitat structure and ecological function. - **Coastal saltmarsh** – Turves and associated soils should be carefully lifted, stored, and	

[UK9020031] Lough Foyle SPA				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
			replaced post-works, with vegetation re-established where possible to allow natural recovery and maintain habitat connectivity and ecological value. o Reinstated areas will be monitored to ensure successful recovery and restoration of pre-construction habitat condition. Staged works and reinstatement will be carried out in line with all appropriate available guidance, with further details on the steps provided in Appendix A – General CEMP Mitigation Measures. **Avoidance of Peak Over-wintering Season:** Works should be undertaken outwith the Wintering Bird Season, running from October to March inclusive. During these months, bird activity of this QI will be at its highest.	
Noise Pathways				

[UK9020031] Lough Foyle SPA				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
Disturbance/Displacement of QI Bird species utilising Important Wintering and Functionally-linked Habitat	All QI Bird Species of Lough Foyle SPA Waterfowl Assemblage Wintering Population	During the wintering period, bird species that form the Lough Foyle SPA waterfowl assemblage utilise a range of habitats including grasslands, intertidal mudflats, and coastal saltmarsh within and surrounding the SPA. Some of these habitats occur immediately adjacent to Asset 16E and may be temporarily affected. Noise disturbance from machinery (including rock armour placement and power tools) has potential to cause temporary displacement of wintering waterfowl from these functionally linked habitats during critical feeding and roosting periods. The following conservation objectives could be compromised without avoidance or mitigation measures: - All QI Species of Lough Foyle SPA: Distribution of Species within site, Structure, function, and supporting processes of habitats supporting the species - [Waterfowl Assemblage Wintering Population]: Distribution of Species within site	To mitigate risks during the construction phase of works to sensitive Qualifying Interests via noise pathways, the following measures should be implemented: **Avoidance of Wintering Season:** Works should be undertaken outwith the Wintering Bird Season, running from October to March inclusive. During these months, bird activity of this QI will be at its highest.	**None**
Visual Disturbance				
Disturbance/Displacement of QI Bird species utilising Important Wintering and Functionally-linked Habitat	All QI Bird Species of Lough Foyle SPA Waterfowl Assemblage Wintering Population	During wintering, waterfowl utilise a range of important coastal and terrestrial habitats, including grasslands, intertidal mudflats, and saltmarsh within and surrounding Lough Foyle SPA. Some of these habitats occur within or immediately adjacent to the site and may be temporarily affected by works.	To mitigate risks during the construction phase of works to sensitive Qualifying Interests via visual pathways, the following measures should be implemented:	**None**

[UK9020031] Lough Foyle SPA				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
		Works at Asset 16E involve construction of a rock armour revetment along a 13m section of eroded embankment, requiring machinery operation and temporary disturbance within the site footprint. Visual disturbance resulting from machinery, site personnel, and other construction activity could be perceived by birds in nearby habitats, potentially causing temporary flushing. Disturbance has the potential to displace waterfowl from on-site or adjacent habitats, reducing the functional availability of feeding and roosting areas during critical wintering periods (October–March). According to NatureScot guidance [53], observed non-breeding disturbance distances for qualifying interest (QI) waterfowl species of Lough Foyle SPA (which underpin Criterion 3 of the Lough Foyle Ramsar Site) are species-dependent but generally within 650 m. The works area falls within this range, indicating that visual disturbance could overlap with the disturbance thresholds of some species. The following conservation objectives could be compromised without avoidance or mitigation measures: - All QI Species of Lough Foyle SPA: Distribution of Species within site, Structure, function, and supporting processes of habitats supporting the species - [Waterfowl Assemblage Wintering Population]: Distribution of Species within site	**Avoidance of Peak Over-wintering Season:** Works should be undertaken outwith the Wintering Bird Season, running from October to March inclusive. During these months, bird activity of this QI will be at its highest.	

[53] NatureScot - Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species

[UK9020031] Lough Foyle SPA				
Source of Impact	S-P-R Model determined for QI	Effects on Attribute and Target Prior to Mitigation/Avoidance	Avoidance/Mitigation Measures	Anticipated Impacts from Works with implementation of mitigation measures
KEY: RED = RESIDUAL EFFECTS EXPECTED AFTER MITIGATION/AVOIDANCE; GREEN = NO RESIDUAL EFFECTS EXPECTED AFTER MITIGATION/AVOIDANCE				

8. Assessment of Potential Impacts to Designations

At Stage 1 Screening Test of Likely Significance, undertaken by AVRIO Environmental Management between August 2025 and September 2025, demonstrated that the proposed development was likely to cause degradation to sensitive European Designations within the Zone of Impact; namely, Lough Foyle SPA and Lough Foyle RAMSAR Site. Potential impacts were identified through pathways (land, noise, surface water and Visual). The prevention of contaminants, and sediments from entering or affecting these pathways during the construction phase is therefore critical. Where these pathways can be effectively managed or eliminated, potential impacts on the integrity of these sites will be significantly reduced, ensuring no detrimental effects are likely to occur.

The implementation and installation of the following mitigation measures will prevent the source (contaminants, silts, sediments) from entering the pathways (watercourse on-site, direct land pathways, noise pathways), therefore not adding to/increasing the total pollutant concentrations of the receptor (Lough Foyle SPA, Lough Foyle RAMSAR Site)

- Implementation of a robust Construction Environmental Management Plan (CEMP). The CEMP should incorporate best practices for all aspects of the construction phase and provide clear protocols for managing surface water runoff via the waterbody on-site (Lough Foyle);
    - The CEMP should also include buffers to habitats associated with Lough Foyle SPA and Lough Foyle RAMSAR (Criterion 1a, 1c) within site works area and extended survey area for personnel, site equipment, and materials to negate impact via land pathways.
    - Establish and maintain buffers to Annex I intertidal mudflats and sandflats [1140], Priority Coastal Saltmarsh habitats, and other functionally-linked habitats for QI bird species. Avoid encroachment by personnel, site equipment, and materials. Temporary land-take for machinery, site set-up, or excavation must be minimised, and any disturbed habitats must be reinstated post-construction, including careful storing and reinstatement of displaced substrate, and re-establishment of vegetation where appropriate.
- Avoidance of Works during Wintering Bird Period for all QI bird species of Lough Foyle SPA and Lough Foyle Ramsar site (October to March inclusive). Works should ideally be planned for September to fall outside of Breeding Bird and Wintering Bird seasons
- A Pre-construction survey should be undertaken immediately prior to site work commencement to ensure no QI bird species are present within the disturbance zones, as outlined in Appendix B.
- All temporarily disturbed areas of intertidal mudflats, sandflats ([1140]), and coastal saltmarsh should be reinstated to maintain habitat structure and ecological function. Measures include careful storage and replacement of turves and substrate, re-profiling to original contours, re-establishing vegetation where possible, and monitoring recovery in line with all appropriate available guidance. Further methodology and monitoring details are provided in Appendix A.

To conclude, upon the implementation of the appropriate mitigation measures stated above, a 'source-pathway-receptor' model will not be present; the proposed development will not adversely impact European designations identified within the likely zone of influence during Stage 1 Screening.

Appendix A – General Contents of a Construction Environmental Management Plan

The Principal Contractor should implement the following mitigation measures into a CEMP to ensure environmental and ecological issues are prevented as a result of construction activities on-site (***Note: Appendix A offers a general outline of measures; within the CEMP itself, these should be site specific in detail***):

- Construction workers should take all possible steps to avoid impacts on wildlife, habitats, and designated sites. Environmental awareness and a responsible attitude towards the natural environment are essential. The environmental objectives of the construction phase of the development should include minimising the generation of pollutants (i.e., dust, sediment, waste etc.), ensure no pollution incidents occur and minimise disturbance to wildlife while protecting and enhancing biodiversity;
- Prior to any works undertaken, appropriate measures should be implemented to prevent any pollution inputs into the surrounding drains and areas likely to be affected through surface water runoff. If runoff is still likely to occur, surface water should be managed to ensure it does not run into excavations, over disturbed ground or onto haul roads.

<u>Surface Water Management</u>

- Surface water drains, check dams, silt fencing, sediment traps (dynamic separator, straw bales, straw wattles etc., as deemed necessary prior to works commencing), and geotextile materials will be installed where necessary during the construction phase of the development. These measures will protect the surrounding surface and ground water, drains and waterbodies from any sediment (loose soil and debris) that may arise in the event of surface or ground water runoff on-site;
- Existing surface water channels or, where necessary new appropriately sized channels will be installed to collect and channel all surface water runoff.
- Appropriately sized gravel check dams will be installed within all sediment management surface water channels to minimise sediment mobilisation. All surface water channels will be directed to appropriately sized and designed sediment traps;
- Where dewatering from excavated areas is required, water should be pumped to a suitably sized portable settlement tank with silt bags included at the outlet to assist in sediment removal. The location of this system if required should be determined in conjunction with an ECoW on-site prior to dewatering works being undertaken;
- Stockpiles will be kept to a minimum. If soil stockpiling is required, they will be covered with geotextile material, and a silt fence will be erected at the toe of said stockpiles to minimise sediment mobilisation. A perimeter channel will be installed around the base of the stockpiles and directed towards the on-site sediment management channels, which will capture and re-treat any excess stockpile surface water runoff. Timeframes, the soil is stockpiled, and stripped grounds are exposed, will be kept to a minimum.

<u>Sediment Management</u>

- Silt fencing and geotextile materials will be installed during the construction phase of the development. These measures will protect the adjacent watercourse from any sediment (loose soil and debris) that may arise in the event of surface water runoff on-site.
- Silt fencing will be installed along the site boundary to include between the adjacent watercourses and the main site;
- Appropriately sized channels will be installed, as detailed above, to collect and channel all surface water runoff. Appropriately sized gravel check dams will be installed within all sediment management surface water channels to minimise sediment mobilisation. All surface water channels will be directed to an appropriately sized and designed sediment traps;
- Earthworks should not be undertaken during heavy periods of rain;
- Daily inspection and monitoring of sediment management measures and their effectiveness will be undertaken. Maintenance measures will be implemented as required. Waste will be disposed of in accordance with the Waste Hierarchy using licenced contractors

<u>Protection Zone around habitats designated as qualifying interests of Lough Foyle RAMSAR Site (Criterion 1a, 1c) and Lough Foyle SPA</u>

- Protection Zone sign-posted and erected around to habitats associated with Lough Foyle RAMSAR (Criterion 1a, 1c) within site works area including Intertidal mudflats [1140], coastal saltmarsh, and other functionally-linked habitats supporting all QI bird species of Lough Foyle SPA. These zones should prevent encroachment by personnel, machinery, or materials where not deemed necessary for completion of works.
- An Ecological Clerk of Works should confirm the positioning of this buffer/protection zone prior to the commencement of works.
- All temporarily disturbed areas of intertidal mudflats, sandflats, and coastal saltmarsh should be remediated post-construction to maintain habitat structure and function. This includes careful storage of turves and substrate, re-profiling disturbed areas, and re-establishing vegetation to support natural recovery. Further Details of this are provided below

<u>Avoidance of Works during Peak Over-Wintering Bird Season (All QI Bird Species of Lough Foyle SPA and species designated in Lough Foyle RAMSAR site (Criterion 3a, 3b, 3c))</u>

- Works should avoid the wintering bird season, running from October to March inclusive, to prevent significant effects via noise to all QI Bird species of Lough Foyle SPA and Species included within Criterion 3a, 3b, 3c of Lough Foyle Ramsar site.
- It is recommended that works be scheduled for September, which falls outside both the peak overwintering bird season (October to March) and the peak bird breeding period (March 1st to August 31st), thereby further reducing the risk of disturbance to sensitive species.

<u>Fuels, Oils, Chemicals, Liquids & Hazardous Materials</u>

- All fuels, oils, chemicals, liquids and hazardous materials will be stored in a designated location with an impervious base and adequately bunded. This area should be located within the construction compound or at an alternative agreed location to secure these materials from possible accidental or intentional damage. This storage location must be located on level ground at least 10 meters from any drain, ditch or possible route of connectivity with the designations. This area must have appropriate signage;
- All material containers will be clearly labelled and stored in resealable containers;
- Bunding must have a minimum capacity of 110% of the volume of the largest tank or 25% of the total storage capacity, whichever is greater. Bunding will be impermeable to the substance being stored;
- Where a Contractor is responsible for materials stored in a bunded area, that Contractor will implement measures for the regular inspection of bunds and emptying of rainwater (when uncontaminated);
- Material storage areas will be at a safe distance from live construction activities;
- All fuels, oils, chemicals, liquids and hazardous materials brought on-site must be accompanied by a Safety Data Sheet (SDS). These products will be stored in accordance with any specific requirements of the SDS;
- A complete register of all SDS's in use on-site will be maintained. Copies of all SDS's will be retained;
- Careful ordering of materials to minimise quantities present on-site;
- Daily inspection and monitoring of fuels, oils, chemicals, liquids and hazardous materials management measures and their effectiveness will be undertaken. Maintenance measures will be implemented as required. Waste will be disposed of in accordance with the Waste Hierarchy using licenced contractors.

Cement, Concrete, Grout & On-Site Washing Facilities

- If concrete is mixed on-site, such activities will be carried out on an impermeable designated area located at least 10 meters from any watercourse or surface water drain to reduce the risk of runoff entering a watercourse;
- Surplus dry concrete, cement and grout will be used elsewhere on-site if possible. Where this is not possible, this material will be disposed of off-site at a suitable disposal facility and transported using a registered waste carrier;
- Excess concrete shall be returned to the batching plant where possible;
- Concrete mixing and delivery lorries shall return to the batching plants for washout;

- All vehicles and equipment used for on-site activities shall be washed out in a designated bunded washout area, specifically designed to contain such wash water. The washout area will be located at least 10 meters away from any watercourse or other elements sensitive to contamination to reduce the risk of runoff entering a watercourse;
- No detergents shall be used in any on-site washdown processes;
- Wash waters will be stored to allow solids to settle out and recirculated to minimise the risk of pollution. Recirculation of wash water will ensure reduced water usage on-site;
- Daily inspection and monitoring of cement, concrete, grout and on-site washing facilities management measures and their effectiveness will be undertaken. Maintenance measures will be implemented as required. Waste will be disposed of in accordance with the Waste Hierarchy using licenced contractors.

Air Quality – Dust Minimisation

- All construction-related traffic will have speed restrictions on unsurfaced roads to 15 kmph;
- Any site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and windy conditions;
- Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy conditions;
- The designated public roads outside the site and the main transport routes to the site will be periodically inspected for cleanliness and cleaned as necessary;
- Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind;
- The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary;
- Daily inspection and monitoring of dust minimisation measures and their effectiveness will be undertaken.

Noise Minimisation

Best Practicable Means (BPM) of noise control will be applied during construction works to minimise noise (including vibration) at neighbouring residential properties and other sensitive receptors arising from construction activities.

The general principles of noise management are given below:

Control at source:

- Equipment – noise emissions limits for equipment brought to site;
- Equipment – method of directly controlling noise e.g. by retrofitting controls to plant and machinery;
- Equipment - indirect method of controlling noise e.g. acoustic screens;

- Equipment - indirect method of controlling noise e.g. benefits and practicality of using alternative construction methodology to achieve the objective e.g. vibratory piling techniques or hydrodemolition as opposed to more conventional but noisier techniques; selection of quieter tools/machines; application of quieter processes.

Control across the site by:

- Administrative and legislative control;
- Control of working hours;
- Control of delivery areas and times;
- Careful choice of compound location;
- Physically screening site;
- Control of noise via Contract specification of limits;
- Noise Monitoring, to check compliance with noise level limits, cessation of works until an alternative method is found;
- Many of the activities which generate noise can be mitigated to some degree by careful operation of machinery and use of tools.

Ecological Clerk of Works

Due to the sensitive nature of the site. The CEMP will include for the provision of an Ecological Clerk of Works (ECoW) for the duration of the construction phase, as required.

- An Ecological Clerk of Works (ECoW) will be appointed as part of the construction process;
- The ECoW will be an experienced ecologist and shall have the authority to stop or delay the works if necessary, should there be an ecological issue;
- The ECoW will carry out weekly monitoring visits at a minimum;
- The ECoW may appoint an appropriately qualified deputy to carry out monitoring visits;
- There will be clear point of contact within the project team for the ECOW so that issues can be easily raised, and any urgent problems on the ground can be communicated to the works team;
- The ECoW will be 'on call' to deal with any ecological issues as they arise.

Pre-construction Check for QI Bird species of Lough Foyle RAMSAR site (Criterion 3a, 3b, 3c)

- A pre-construction check, following ECoW confirmation of buffer zones, should be undertaken immediately prior to each phase of works. The check should verify that no QI bird species are present within the relevant disturbance zones for the specific works, taking into account species-specific sensitivity and maximum disturbance distances, as outlined in Appendix B.

- Checks shall account for species-specific sensitivity (taking into account all species designated as Qualifying Interests of Lough Foyle Ramsar site), flight distances, and any other factors affecting bird presence.
- Observations shall be made from outside buffer zones using binoculars or spotting scopes to minimise disturbance.
- If QI birds are present, works shall be delayed until the area is clear or additional mitigation (e.g., temporary exclusion zones, use of equipment-silencers) is applied, as deemed appropriate by the ECoW.
- All checks shall be recorded, including date, time, personnel, weather, tide, and results, and reported in the ECoW/Pre-construction monitoring log.
- Personnel shall be briefed on buffer zones and instructed to follow ECoW guidance to prevent disturbance.
- This approach ensures that site layout, mitigation planning, and pre-construction surveys are tailored to the most sensitive species present and account for variability in individual and species responses within the SPA.

Pre-works Habitat Condition Assessment, Staged Excavation and Reinstatement works outline for Intertidal Mudflats and Sandflats [1140] and Coastal Saltmarsh habitat

The following measures will be adopted to ensure that Annex I habitats [1140] Intertidal mudflats and sandflats, Priority Coastal Saltmarsh habitats, and other functionally-linked habitats supporting Qualifying Interest bird species are protected and reinstated following construction works. The reinstatement and restoration measures outlined below draw on established best practice from published guidance.[54][55][56][57]

1. Pre-Works Habitat Condition Assessment

- **Baseline survey**: Prior to works, a detailed survey will record habitat type, extent, vegetation cover, species composition, substrate character, elevation, tidal inundation regime, and hydrological connectivity.
- **Vegetation Condition**: Record condition of saltmarsh vegetation and associated flora/fauna to establish a baseline for reinstatement and monitoring.

2. Staged Excavation and Temporary Land-Take

- **Phased approach**: Works will be carried out in small sequential phases to limit the extent of disturbed habitat at any one time.

[54] Environment Agency (2023). *Saltmarsh Restoration Handbook*. Catchment Based Approach (CaBA).
[55] Conservation Evidence - 5 Guidance on reprofiling salt marshes and intertidal flats v1.pdf
[56] Conservation Evidence - 6 Guidance on restoring or creating salt marsh vegetation v1.pdf
[57] Lewis, R.R. (2009). Salt Marsh Restoration: A Summary of Approaches. UF/IFAS FA-269.

- **Buffers**: Habitat buffers will be demarcated to prevent encroachment by machinery, materials, or personnel.
- **Substrate handling**: Removed turves and substrates will be carefully lifted, stored in a designated area, kept moist, and stored by stratigraphic layer to allow like-for-like reinstatement.
- **Minimised footprint**: Temporary land-take for plant, compounds, or haul routes will be minimised, avoiding sensitive features such as saltmarsh creeks.

3. Reinstatement

- **Substrate replacement**: Following completion of works, turves/substrate will be reinstated in reverse order, restoring original stratigraphy, elevations, and slopes.
- **Re-profiling**: Where necessary, habitat profiles (e.g. saltmarsh benches, tidal flat slopes) will be re-graded to match baseline elevations and hydrological connectivity.
- **Vegetation recovery**: Natural regeneration will be allowed where viable. Where vegetation fails to re-establish within agreed timeframes, assisted re-vegetation will be undertaken using donor material or appropriate local species mixes based on the original species and habitat composition as documented in the pre-works habitat condition assessment.

4. Monitoring and Maintenance

- **Monitoring schedule**: Habitat condition assessments will be repeated at 12, 24 and 36-months post-works to track recovery of vegetation cover, species composition, sediment stability, and any documented habitat use by QI Bird species of Lough Foyle SPA and Lough Foyle Ramsar site.
- **Adaptive management**: If reinstatement is unsuccessful (e.g. erosion, vegetation failure), corrective measures such as additional sediment placement, re-planting, or erosion control will be implemented in consultation with the ECoW and appropriate guidance.
- **Reporting**: Monitoring results will be reported to the client and regulatory bodies as required.

Appendix B - Summary of likely sensitivity to disturbance, and suggested buffer zones during the breeding (BR) and nonbreeding (NBR) season

Table 8 – Summary of Disturbance distances for QI Bird Species of Lough Foyle SPA - NatureScot[58]

Species	Likely sensitivity to disturbance	Quality of quantitative information (AD/FID)	Buffer Zone (M) during breeding (BR) and nonbreeding (NBR) seasons
[A037] Bewick's Swan	Medium	Medium agreement; Limited evidence	NBR = 200–600
[A038] Whooper Swan	Medium	Medium agreement; Limited evidence	NBR = 200–600
[A140] Golden Plover	Medium	Medium agreement; Medium evidence	BR/NBR = 200–500
[A157] Bar-tailed Godwit	Medium	Medium agreement; Medium evidence	NBR = 200–300
[A046] Light-bellied Brent Goose	*No information available	*No information available	*No information available
[A005] Great Crested Grebe	*No information available	*No information available	*No information available
[A017] Cormorant	*No information available	*No information available	*No information available
[A043] Greylag Goose	Medium	Medium agreement; Limited evidence	BR/NBR = 200–600
[A048] Shelduck	High	Medium agreement; Medium evidence	BR/NBR = 100–400
[A050] Wigeon	High	Medium agreement; Medium evidence	BR = 100–200/NBR = 200-500
[A052] Teal	Medium	Medium agreement; Limited evidence	BR/NBR = 100–200
[A053] Mallard	Low/Medium	High agreement; High evidence	BR = 50-100, NBR = 200-500
[A063] Eider	Medium/High	Medium agreement; Medium evidence	BR = 100–200/NBR = 200-500
[A069] Red-breasted Merganser	*No information available	*No information available	*No information available
[A130] Oystercatcher	Medium	Robust evidence	BR = 50-100, NBR = 200-500

[58] NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species | NatureScot

[A142] Lapwing	Medium	*No information available	300m* Based on University of Hull Data [59]
[A143] Knot	High	Medium agreement; Medium evidence	NBR = 100-300
[A149] Dunlin	Medium	Medium agreement; Medium evidence	BR = 100–200/NBR = 200-300
[A160] Curlew	High	Medium agreement; Robust evidence	BR = 200-300m NBR = 200-650m
[A162] Redshank	Medium	Medium agreement; Robust evidence	BR = 100-200m NBR = 200-300m

[59] University of Hull - Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects