Galway Harbour Company

Galway Harbour Extension

Response to An Bord Pleanála

NIS Addendum September 2024

An Bord Pleanála (Ref: 61.PA 0033)

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1. Introduction

The previously submitted Natura Impact Statement ("NIS") and subsequent Addenda/Errata documents (2014, 2015, 2019, and 2022) assessed the potential impacts on the surrounding area of Galway Harbour due to the proposed development, including the positive impacts associated with the proposed compensatory measures at Tawin Island. Notably, the compensatory measures proposed have been accepted by T.D. Mr Darragh O'Brien, Minister for Housing, Local Government and Heritage as confirmed in the letter of 27 February 2024.

The findings of the Natura Impact Statement (NIS) showed there will be an adverse effect on Qualifying Interests (QIs) of the Galway Bay Complex Special Area of Conservation (SAC) and, as a result, compensatory measures were proposed and detailed in the Addendum to the NIS compiled in 2019 and revised in 2022.

A review of current legislation, guidance, and Natura 2000 conservation objectives documents were completed to determine if any information in the original NIS and subsequent Addenda/Errata documents had become outdated or to include any new information that could supplement the data already submitted.

This NIS Addendum has been prepared by Brónagh Boylan (B.Sc.) of AQUAFACT (APEM Group). Brónagh has a wide range of experience in ecological survey techniques and methodologies including terrestrial habitat classification, freshwater habitat assessment, invasive species management, and protected species surveying. Brónagh has a JNCC certification as a Marine Mammal Observer and has carried out both desk and field based assessments regarding Marine Mammals in Ireland. Brónagh has a wide range of experience in the preparation of Appropriate Assessment Screening reports, Natura Impact Statements, and Environmental Impact Assessment Reports. Brónagh's project history includes working on large scale residential developments, renewable energy projects (both solar and onshore wind) and railway infrastructure projects.

2. Review of any material changes

The section below details the guidance used, and surveys carried out, to inform the NIS and the addenda to same that have been produced in respect of the proposed development of the Galway Harbour Extension (GHE) and the compensatory measures proposed in relation to same. Where 'No additional information' is stated, it entails there has been no update in guidance and/or surveys since the NIS and previous Addenda / Errata to same.

Natura Impact Statement (1) January 2014

A planning application, including an Environmental Impact Statement (EIS) (1) and Natura Impact Statement (NIS) (1) for the proposed Extension to Galway Harbour, was submitted to An Bord Pleanála (ABP) for consideration on 10 January 2014.

Guidelines/legislation in place as of 10 January 2014

- Planning and development Act 2000, as amended
- EU Habitats Directive (92/42/EEC)
- Birds' directive (2009/147/EC)
- Wildlife Act 1976, as amended
- European Communities (Natural Habitats) Regulations 1997, as amended
- European Communities (Birds and Natural Habitats) Regulations 2011, as amended
- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG 2009, Revised February 2010)
- EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (EC, 2007)
- 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 (EC, 2002); and
- Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2000).
- European Commission Methodological Guidance (EC2001).
- Institute of Ecology and Environmental Management (IEEM, 2006).
- Marine Natura Impact Statements in Irish Special Areas of Conservation – A Working Document. April 2012 (Department of Arts Heritage and the Gaeltacht) (DAHG), 2012)
- EU Guidance document on Article 6 of the 'Habitats Directive' 92/43/EEC (EC, 2007),

- 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 (EC, 2002)
- 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 (2007).
- Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging (2011)
- EU (2018). Managing Natura 2000 site. The provisions of Article 6 of the Habitats Directive 92/43/EEC. C(2018) 7621 final.

Surveys conducted and referred to in NIS of January 2014:

- Terrestrial habitat survey
- Birds survey
- Mammals survey
- Lagoonal habitat survey
- Intertidal habitats survey
- Marine habitats survey
- Fish species survey

Natura Impact Statement Addendum/Errata (2nd) October 2014

Subsequently, a Response to a Request for Further Information was submitted on 16 October 2014. The Response included an Errata and Addenda to the NIS (2) dated October 2014.

Guidelines/legislation as of October 2014

Same as of January, 2014.

Surveys conducted:

- Lough Atalia & Renmore habitat survey and stony banks assessment
- Kelp Marine Research Ltd. desktop analysis of harbour seal habitat and risk assessment of marine mammals within the area of the proposed development.
- Bird desktop study to assess the sensitivity of bird species to potential impacts from the proposed development.

Natura Impact Statement Addendum/Errata (3rd) January 2015

Following review of submissions on the Response to Further Information, some additional information was prepared including a further Addenda/Errata to the NIS (3) of January 2015. Generally, the information presented in the NIS Addendum / Errata Document (3), was additional information to that included in the NIS and NIS Addenda/Errata Documents of January and October 2014, respectively.

Guidelines/legislation

Same as before.

Surveys conducted

No additional surveys presented.

Natura Impact Statement Addendum (4th) April 2019 and (5th) May 2022

These Addenda to the NIS considered the overall project including the Compensatory Measures proposed as detailed in the Report on Compensatory Measures of April 2019 and the Addendum to Natura Impact Statement to include Consideration of the Compensatory Measures, Complementary Actions and Environmental Benefits of May 2022, and included the assessment of those measures in combination with the overall project along with the impacts of the historic development of the Galway Harbour Enterprise Park (GHEP) and any other relevant developments previously carried out in the area around the Northern part of Inner Galway Bay, approved or which had been the subject of applications for development consent.

Guidelines/legislation

As before, subject to the following

- The EU Guidance Document on Article 6 of the Habitats Directive (EU, 2018)

Surveys conducted:

- Assessment of the Intertidal habitat at Renmore.
- Survey and assessment of the Stony bank habitat at Renmore.
- Qualitative surveys at Mweeloon Lagoon, Glasheen Island and Tawin west.

Compensatory Measures Plan 2022

A Compensatory Measures Plan, Accompanying Measures and Additional Environmental Benefits report was compiled in 2022 to outline the Compensatory Measures proposed by Galway Harbour Company (GHC) to compensate for the potential impacts to Qualifying Interests of the Galway Bay

Complex Special Area of Conservation ("SAC") arising from the development of Galway Harbour Extension ("GHE").

3. Report Format

Natura Impact Statement Addendum/Errata (6) July 2024

This document reviews the data that has been previously submitted and relied upon, and the results published in the previous NIS documents to confirm whether same remains valid and also update any sections with additional relevant results and data as appropriate. This report includes updates to conservation objectives documents for relevant Special Area of Conservation (SAC) and Special Protection Area ("SPA") sites and updated terrestrial and marine survey data.

4. Summary of previous conclusions

4.1. Natura Impact Statement (1st) January 2014

The original NIS concluded that the proposed GHE was found to have the potential to either directly or indirectly impact four Natura sites *i.e.* Galway Bay SAC, Inner Galway Bay SPA, Lough Corrib SAC, and Lough Corrib SPA.

4.2. Natura Impact Statement Addendum/Errata (2nd) October 2014

The original NIS concluded that the proposed GHE was found to have the potential to either directly or indirectly impact four Natura sites *i.e.* Galway Bay SAC, Inner Galway Bay SPA, Lough Corrib SAC, and Lough Corrib SPA.

4.3. Natura Impact Statement Addendum/Errata (3rd) January 2015

The original NIS concluded that the proposed GHE was found to have the potential to directly impact two Natura sites (also referred to as "European Sites") *i.e.* Galway Bay SAC and SPA. The impacts are the permanent loss of qualifying interest habitats and the potential impact on certain species arising from this loss, but the effects are not considered to be significant on either of the Natura sites. However, adopting the precautionary principal, and on the basis that it cannot be said without reasonable scientific doubt that the impacts would not be significant, for the purpose of this assessment such habitat loss and impact on species is being treated as significant.

4.4. Natura Impact Statement Addendum (4th) April 2019

The Natura Impact Statement Addendum (4th) April 2019 assessed the residual adverse effects of the proposed development following the inclusion of compensatory measures. The report concluded that there will be significant positive beneficial impacts due to the compensatory measures on Galway Bay Complex SAC and Inner Galway Bay SAC and that the impacts of the proposed works, both alone and in-combination with other projects, will not have any significant effects on either Galway bay Complex SAC or the Inner Galway Bay SPA Natura 2000 sites, their Qualifying Interests/ Special Conservation interests or conservation objectives. The requirement for Imperative Reasons for Overriding Public Interest as detailed in the 2019 NIS is detailed below:

"*A Natura Impact Statement (NIS) (as previously supplemented) was prepared for the GHE project and was submitted to An Bord Pleanála (ABP) which carried out an assessment of the project at that time (without any consideration of any Compensatory Measures). The conclusions of ABP's Appropriate Assessment (AA) (see in Appendix I, Statement of Appropriate Assessment pages 2 and 3), were that approval of the proposed development could not be considered under Article 6(3) of the Habitats Directive, given that a significant adverse impact on the integrity of the Galway Bay Complex cSAC would occur i.e.*

- *the direct and permanent loss of 5.93 ha of Intertidal habitat [1170] Fucoid Dominated Reef habitat and [1140] Mud and Sand Flat habitat in Galway Bay cSAC will result in the conservation objectives for these features not being met. The direct and permanent loss of a habitat, which is part of the conservation objectives of the site, is in general a significant adverse effect on the integrity of the site*
- *ii) the loss of perennial vegetation of 0.35 ha of Stony Bank [1220] due to the sheltering effect of the harbour extension will also have a significant adverse effect on the integrity of the cSAC.*

Although these two habitats are listed as Qualifying Interests for Galway Bay SAC, they are not listed as Priority habitats in the EU Habitats Directive). Regarding the Inner Galway Bay SPA (4031) and the nearby Lough Corrib SAC (000297), ABP's Appropriate Assessment concluded that while some adverse impacts are likely, a significant adverse effect on the integrity of these Natura sites will not arise in view of the site's conservation objectives. ABP invited Galway Harbour Company (GHC) to confirm if it wished the project to be considered for approval under Article 6(4) of the Directive. GHC confirmed it wished to proceed on that basis and commenced the preparation of proposals for Compensatory Measures to address the impacts on the integrity of the Galway Bay Complex cSAC".

4.5. Natura Impact Statement Addendum (5th) 2022

This Addendum to the NIS had been prepared following discussion and consultation with the National Parks and Wildlife Service (NPWS) in relation to the Compensatory Measures proposed in connection with the proposed development herein of the GHE. Following interaction with the NPWS, it was agreed that Compensatory Measures as presented in the Compensatory Measures Report should be revised.

The majority of the Compensatory Measures proposed for the Mweeloon Compensatory Area were retained. A second Compensatory Area was added in this NIS (2022) which is located to the western

end of Tawin Island. This area is referred to as Tawin West. The Compensatory Measures at Mweeloon and Tawin West, which are proposed for the GHE project are detailed in the Compensatory Measures Plan (CMP) (dated May 31st, 2022). This Addendum to the NIS considered the overall project, including the proposed Compensatory Measures detail in the CMP.

In addition to the Compensatory Measures to be implemented at Tawin West, the CMP details actions that will be undertaken by the GHC to supplement the proposed Compensatory Measures. These proposed actions are termed Accompanying Measures. This Addendum to the NIS included a consideration of the Accompanying Measures and included an assessment of those measures in combination with the overall project including impacts of the historic development of the GHEP and any other approved relevant developments previously carried out in the northern part on Inner Galway Bay or which have been the subject of applications for development consent.

5. Any additional surveys, data or policy developments of relevance

The following summarises any updates in guidance/legislation since the previous NIS submission(s), and any updates to the proposed project works. Any additional surveys carried out as part of this assessment are listed below, with the results of each survey found in the relevant Appendices.

5.1. Guidelines/legislation

- 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 (EC, 2021).
- Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin 7, Ireland OPR (2021).
- Scottish Natural Heritage (SNH) Guidance, 'Assessing Connectivity with Special Protection Areas (SPA)' (2016).
- National Parks and Wildlife Services- Updated Conservation Objectives and/or Site Synopsis documents for the following Natura 2000 sites:
    - Galway Bay Complex SAC 000268
    - Duvillaun Island SAC 000495
    - Lough Corrib SAC 000297
    - West Connacht Coast SAC 002998

- Slieve Tooey / Tormore Island / Loughros Beg Bay SAC 000190
- Slyne Head islands SAC 000328
- East Burren Complex SAC 001926
- Connemara Bog Complex SAC 002034
- Kilkieran Bay and Islands SAC 002111

- CIEEM, 2013, Technical Guidance Series – Competencies for Species Survey, Online, Available at: https://cieem.net/resource/competencies-for-species-survey-css/
- CIEEM, 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine.
- Bat Surveys for Professional Ecologists – Good Practice Guidelines (4th edn.) (Collins, 2023)
- Bat Mitigation Guidelines for Ireland – V2. Irish Wildlife Manuals, No. 134. (Marnell, Kelleher & Mullen 2022)
- UK Bat Mitigation Guidelines, (Reason & Wray, 2023)
- Guidance Note 08/23: Bats and Artificial Lighting at Night (ILP, 2023)

Lesser Horseshoe Bat Species Action Plan 2022-2026 (NPWS & VWT, 2022)

5.2. Pre-construction details

The pre-construction works will consist of a series of geotechnical site investigations to determine the changes that may arise in the ground and environmental conditions, either naturally or as a result of the works, and the effect of such changes on the works, on adjacent works, and on the environment in general.

The proposed site investigation works will involve a series of investigations *i.e.* Boreholes, core boreholes, dynamic probes and cone penetration tests in addition to:

- Vane Shear Strength Profiles
- Trial Pits
- 2D Seismic Survey

The site investigation works are proposed to assist with the detailed design and tendering of the proposed development. The aim is to provide a comprehensive baseline of the site prior to the

commencement of construction works. The proposed site investigation works have been designed with proposed mitigation elements to minimise, or avoid, if possible, any harm to the environment. It is proposed that the full site investigation works would be completed within a five-to-seven-month timeframe, with intrusive site investigation works (i.e. boreholes, coreholes) carried out in shifts over a full week i.e. seven days a week. The site investigation works will be carried out in two Phases and are envisaged to involve 120 to 130 site investigations in 55 to 75 site investigation point locations. Phase 1 is comprised of 25 to 35 site investigation points, while Phase 2 is comprised of 30-40 site investigation points. The site investigation works will be carried out within the proposed development area. A separate application for a Maritime Usage Licence, to enable the carrying out of the site investigation works, will be submitted to the Maritime Area Regulatory Authority (MARA) in accordance with Part 5 of the Maritime Area Planning Act 2021, as amended.

A full assessment of the potential for significant effect of the proposed pre-construction works in relation to the QIs and Special Conservation Interests ("SCIs") of the relevant European Designated Sites is provided below in Section 6.6.1.

5.3. ***Updated Surveys:***

- Intertidal habitat survey: Carried out in 2023 by Dr. Brendan O'Connor (BSc., MSc., PhD) and Niamh Lynch (B.Sc., M.Sc.) of AQUAFACT.
- Subtidal habitat survey: Carried out in 2023 by Dr. Brendan O'Connor (B.Sc., M.Sc., PhD) and Jake Shiel (B.Sc.) of AQUAFACT.
- Marine Mammal Observer survey- Carried out in 2023 by Marta Domingos (B.Sc., M.Sc.) of AQUAFACT.
- Lough Atalia Lagoon survey- Carried out in 2024 by Niamh Lynch (B.Sc., M.Sc.) and Micheál McHugh Jewell (B.Sc., M.Sc.) of AQUAFACT.
- Otter survey- Carried out in 2024 by Rachel Minogue (B.Sc.) and Tom Peters (B.Sc., M.Sc.) of MKO.
- Bat survey- Carried out in 2022 by Laura Gránicz (B.Sc.) and Viorel Anitei (B.Sc.). of MKO.
- Terrestrial habitat survey-Carried out in 2024 by Rachel Minogue (B.Sc.) and Tom Peters (B.Sc., M.Sc.) of MKO.
- Bird survey- Carried out in 2022/23 by David Miley (B.Sc., M.Sc.) of MKO and Tom Gittings (B.Sc., PhD).

6. Assessment of validity of earlier conclusions or any necessary amendments to same

6.1. Updated Surveys- Results, Comparison and Discussion:

- Intertidal habitat survey- Section 6.1.1
- Subtidal habitat survey- Section 6.1.2
- Marine Mammal Observer survey- Section 6.1.3
- Lough Atalia and Renmore Lough Lagoon survey- Section 6.1.4
- Otter survey- Section 6.1.5
- Bat survey- Section 6.1.6
- Terrestrial habitat survey- Section 6.1.7
- Bird survey- Section 6.1.8

6.1.1. Intertidal habitat survey

Updated intertidal surveys were conducted to document the current status of the area with reference to the previous surveys carried out for the proposed development. The updated intertidal survey took place on 15 and 16 June 2023. Weather was dry and overcast on both days and low water was at 9.52am on the 15th and 10.35am on the 16th of June. Figure 6-1 shows the intertidal sampling stations used in the 2023 survey.

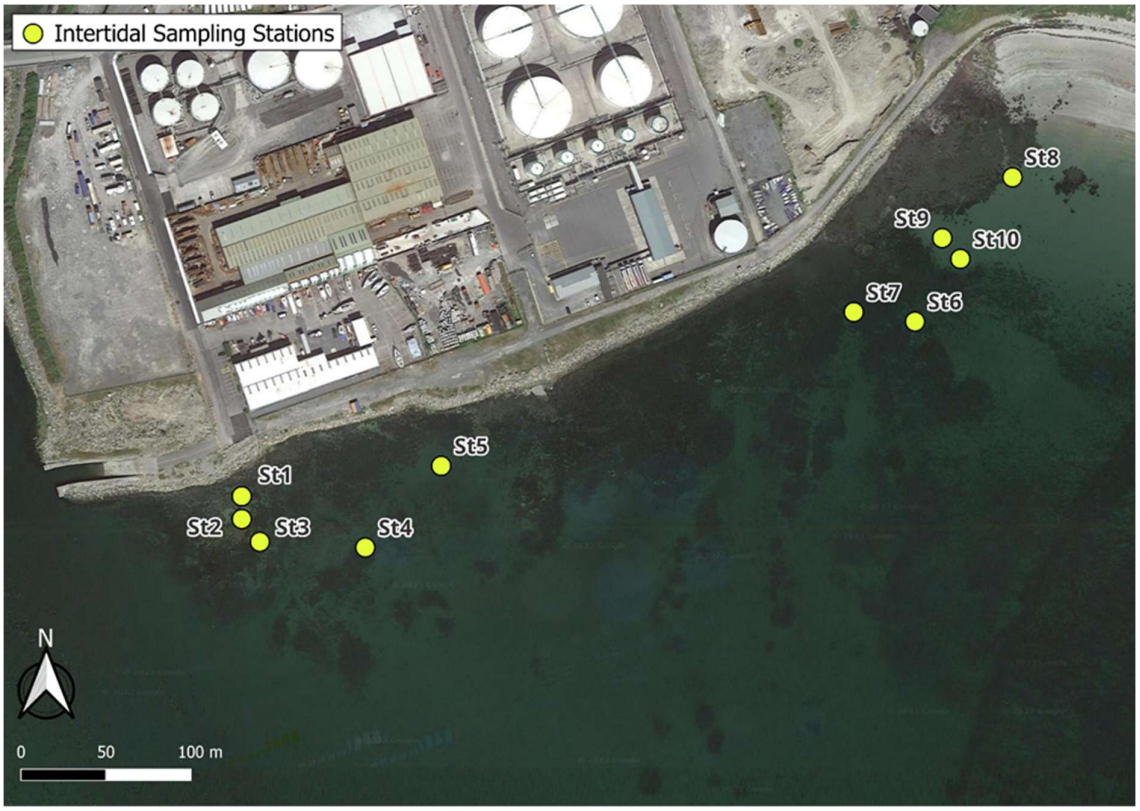

Figure 6-1: Intertidal Sampling stations 2023.

An intertidal walk over survey was carried out by Dr. Brendan O'Connor (B.Sc., M.Sc., PhD) and Niamh Lynch (B.Sc., M.Sc.) from AQUAFACT to document the intertidal habitat types within the proposed development area. The surveyors determined biological zones based on differences in substrata and biological communities. A 0.25m² quadrat was used to record the species present, their abundance and the substrate type. Abundance was recorded as percentage (%) cover where possible. Where sediment sampling was possible, 2 replicate faunal samples were collected and a third was collected for grain size and organic carbon analysis. Full results of the Intertidal survey are available in Appendix A.

6.1.1.1. Results

The full scope of the intertidal habitat survey results can be seen in Appendix A.

Sediment Results

Three of the 10 stations sampled were classified as gravelly sand (St 1, St 2, and St 3), three stations were classified as sandy gravel (St 4, St 6, and St1 0), 3 stations were classified as sand (St 7, St 9, and St 10) and one station was classified as slightly gravelly sand (St 5) according to Folk (1954). Organic matter values ranged from 1.31% (St 7) to 5.28% (St 3).

Littoral Rock Biotopes

These are described in Appendix A.

Intertidal Core Infaunal analysis

The taxonomic identification of the benthic fauna across all 10 core stations sampled at the Renmore intertidal stations yielded a total count of 55 taxa ascribed to 6 phyla. The 55 taxa consisted of 2,110 individuals. Appendix A shows the faunal abundances from the sampled sites.

Of the 55 taxa present, 1 was a cnidarian (anemone), 1 was a nematode (roundworm), 1 was a nemertean (ribbon worm), 21 were annelids (segmented worms including sipunculans and polychaetes), 14 were arthropods (crabs, shrimps, prawns), and 16 were molluscs (mussels, cockles, snails *etc*.). The most dominant species were the oligochaetes *Tubificoides benedii* (932 individuals) and *Tubificoides pseudogaster* (141 individuals), Nematoda (317 individuals) and the polychaete *Capitella* sp. complex (141 individuals) which together accounted for just almost 73% of the total faunal abundance.

Multivariate Analysis Results

The same infaunal dataset was use for both the d univariate and multivariate analyses. Univariate analysis can be accessed in Appendix A whilst the multivariate analysis is set out below. SIMPROF analysis revealed 4 statistically significant groupings between the 10 stations.

Group A contains St9. This group separated from all other groups at an 83.68% dissimilarity level. The group contained only 3 taxa comprising 7 individuals: Nematoda, *Nephtys* sp. and *Eteone longa*. No JNCC biotope could be assigned to this station based on the low faunal returns.

Group B contained 3 stations (St 4, St 8 and St 10) and separated from Groups C and D at a 76.5% dissimilarity level. Two taxa accounted for over 77% of the faunal abundance: the polychaetes *Capitella* sp. complex and *Eteona longa*. SIMPER analysis further revealed *Tubificoides benedii* and Nematoda as characterising taxa of this group. The stations of this group can be classified as belonging to the JNCC biotope LS.Lsa.MuSa.HedMacEte – *Hediste diversicolor, Macoma balthica* and *Eteona longa* in littoral muddy sand (EUNIS code: A2.243) (Ashley, 2016).

Group C contains 3 stations (St 1, St 2, and St 3). This group separated from group D at a 60.27% dissimilarity level. This group had a within group similarity of 50.03%. Five taxa accounted for over 87% of the faunal abundance: *Tubificoides benedii, Tubificoides pseudogaster* agg., Nematoda,

Pygospio elegans, and *Eteona longa*. SIMPER analysis revealed the bivalve *Macoma balthica* as an additional characterising species of this group. This group can also be classified as the JNCC biotope LS.Lsa.MuSa.HedMacEte – *Hediste diversicolor, Macoma balthica* and *Eteona longa* in littoral muddy sand (EUNIS code: A2.243).

Group D contained 3 stations (St 5, St 6, and St 7). This group separated from group C at a 60.27% dissimilarity level. This group had a within group similarity of 51.42%. Five taxa accounted for over 76% of the faunal abundance: *Tubificoides benedii, Tubificoides pseudogaster* agg., *Mediomastus fragilis, Eteona longa,* and Nematoda. SIMPER analysis revealed the bivalve *Macoma balthica* as an additional characterising species of this group. This group can also be classified as the JNCC biotope LS.Lsa.MuSa.HedMacEte – *Hediste diversicolor, Macoma balthica* and *Eteona longa* in littoral muddy sand (EUNIS code: A2.243).

The biotope LS.LSa.MuSa.HedMacEte - *Hediste diversicolor, Macoma balthica* and *Eteona longa* in littoral muddy sand (EUNIS code: A2.243) is described by Connor *et al.* (2004) as fine to very fine muddy sand on the mid shore at the lower extreme of estuaries, and in moderately exposed and sheltered bays and marine inlets, sometimes subject to variable salinity. The infauna is characterized by the polychaetes *Eteone longa*, *Hediste diversicolor* (ragworm) and *Pygospio elegans*, oligochaetes (mostly *Tubificoides benedii* and *Tubificoides pseudogaster*), the crustaceans *Corophium volutator* and *Crangon crangon*, the spire shell *Peringia ulvae,* and the baltic tellin *Macoma balthica*. The cockle *Cerastoderma edule* may be abundant, and the sand gaper *Mya arenaria* may be superabundant, though these species are not always present, or may be missed in core samples due to their large size. The polychaetes *Arenicola marina, Polydora cornuta* and *Capitella*, and the mussel *Mytilus edulis* are sometimes present. The three main groups accounting for 9 of the 10 stations can be classified as belonging to this group, though with less mud content, with separations into the 3 groups as a result in variations in abundances of the fauna.

The occurrence of the first order opportunistic taxa *Tubificoides benedii* and *Tubificoides pseudogaster* agg. and *Capitella* in high numbers across all of the 3 main groups points to the influence of organic enrichment along the Renmore intertidal stations as a result of its close proximity to the mouth of the Corrib River.

6.1.1.2. Comparison

The intertidal habitat at the Renmore area has historically been impacted by organic enrichment from loadings in the River Corrib which, on an ebbing tide, flows over the western parts of the area. Before the Mutton Island treatment plant was commissioned in the early years of this century, untreated

sewage effluent was disposed of to the sea either in the river itself or via a disposal pipe south of Nimmo's Pier for many decades giving rise to sediments with low levels of oxygen, high levels of sedimentary hydrogen sulphide and therefore reduced numbers of infaunal invertebrates. Besides the untreated effluent as a historic source of organic enrichment, today the catchment of the Corrib particularly along the eastern section and to a lesser extent, the southern section, drains lands that are intensively farmed. The fact that the water of the Corrib River has its own organic loading contributes to the impact that the intertidal habitat at Renmore is experiencing.

The littoral rock biotopes remain the same as they were in the 2015 survey, and include LR.MLR.BF.PelB – *Pelvetia canaliculata* and barnacles on moderately exposed littoral fringe rock in the upper shore and rock armour, LR.LLR.F.Asc.FS – *Ascophyllum nodosum* on full salinity mid eulittoral rock in the midshore reef/boulder areas and LR.MLR.BF.Fser.R – *Fucus serratus* and red seaweeds on moderately exposed lower littoral eulittoral rock in the lower shore. These species were also recorded in the same distribution patterns in the earlier surveys in 2004 and 2011.

The littoral sand biotope can be classified as LS.LSa.MuSa.HedMacEte - *Hediste diversicolor, Macoma balthica* and *Eteona longa* in littoral muddy sand though there was less mud than typically associated with this biotope. The species found in the present survey are typical of this biotope and were also recorded in the 2015 survey. In the present survey, as in 2015, the opportunistic species *Capitella, Tubificoides* spp. were most abundant in those stations closest to the mouth of the Corrib.

The original intertidal surveys in 2004 and 2011 were qualitative and the subsequent surveys in 2015 and 2023 included quantitative coring.

6.1.1.3. Conclusion

In comparing the studies carried out over multiple years for intertidal benthic flora, fauna, and sediments, only small variations can be seen in abundance and community types. The overall variation is not considered significant or to have any change to the conclusions reached in the NIS and subsequent Addendum/Errata.

6.1.2. Subtidal habitat survey

AQUAFACT was commissioned by GHC to carry out a benthic marine ecology survey of the seabed within Galway Bay in the vicinity of the proposed GHE. The locations surveyed in the present study were previously surveyed in 2004 and 2010, the results of which were documented in the original NIS published in 2013. This survey was used to assess the current benthic habitats in comparison to the previous results.

On 4 May 2023, AQUAFACT surveyors Dr. Brendan O'Connor (B.Sc., M.Sc., PhD), and Jake Shiel (B.Sc.) carried out the benthic community ecology and sediment physiochemical surveys in Galway Bay using a Rigid Inflatable Boat ("RIB"). Sampling was carried out to collect faunal and sediment samples at the 6 locations shown in Figure 6.2. The six stations were chosen from the original 12 survey stations sampled due to their representative nature of the main faunal assemblages in the 2010 subtidal survey.

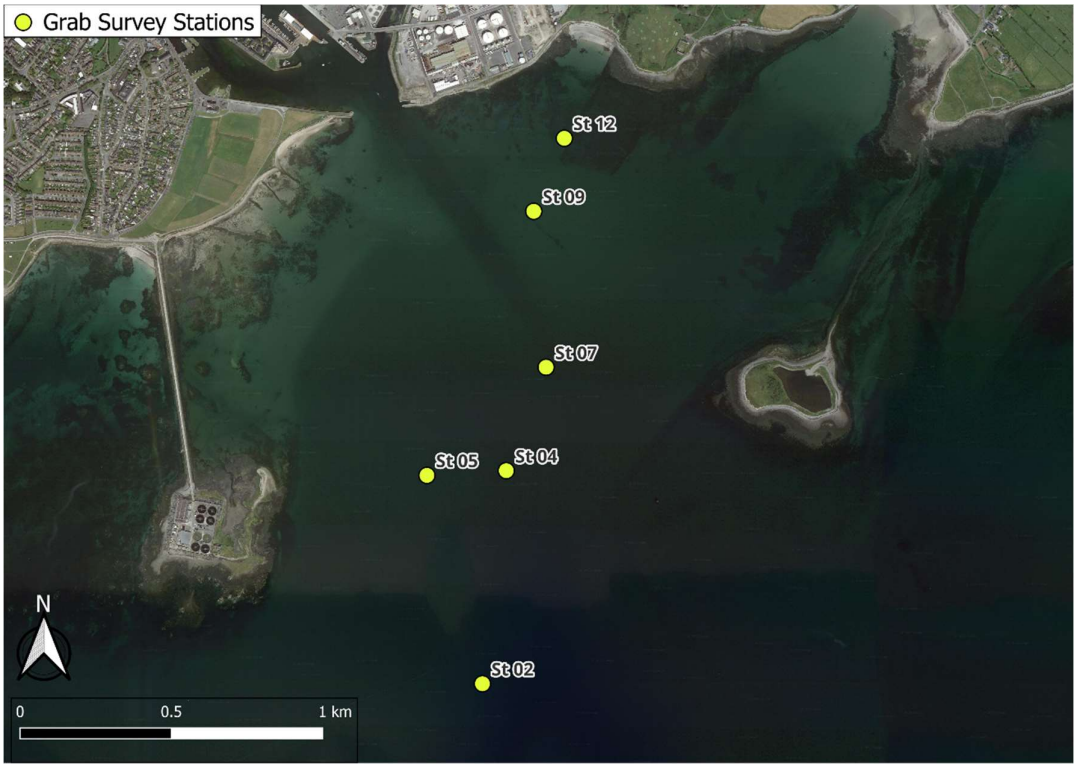

Figure 6-2: Subtidal grab survey stations 2023.

Three replicate samples were collected at each station, comprising two grabs for benthic faunal analysis and a third grab sample for sediment analysis including particle size analysis and organic carbon. The samples were taken back to the lab and analysed.

At one of the stations (St 12) the substrate consisted of cobbles and the sediment sample was unsuitable for analysis due to substrate size.

Full results of the 2023 subtidal survey are available in the attached Appendix B.

6.1.2.1. Results

The full scope of the subtidal habitat survey results can be seen in Appendix B.

Sedimentology

Table 3.2 in Appendix B presents the quantitative granulometric and organic carbon results of the sediment at the stations sampled in Galway Bay. No sample was available for analysis for station 12 as the substrate was of cobbles. Two of the five stations sampled were classified as gravelly muddy sand (St 4 and St 5), 2 were classified as slightly gravelly sand (St 7 and St 9) and one station (St 2) was classified as sand, according to Folk (1954).

Organic matter values ranged from 1.41% (St 9) to 10.45% (St 5). As expected, the stations with a higher proportion of silt clay have the higher organic carbon content.

Faunal Analysis

Macrofauna

The taxonomic identification of the benthic fauna across all 6 grab stations sampled at the Galway Bay sites yielded a total count of 110 taxa ascribed to 9 phyla. The 110 taxa consisted of 809 individuals.

Of the 110 taxa present, 1 was a poriferan (sponge), 2 were cnidarians (anemone), 1 was a nematode (roundworm), 2 were nemerteans (ribbon worm), 54 were annelids (segmented worms including sipunculans and polychaetes), 21 were arthropods (crabs, shrimps, prawns), 24 were molluscs (mussels, cockles, snails *etc*.), 4 were echinoderms (brittlestars, urchins, *etc.*), and 1 were chordates (tunicates). The most dominant species were the gastropod *Turritellinella tricarinata* (formerly *Turritella communis*) (122 individuals), the polychaetes *Pholoe inornata* (sensu Petersen) (37 individuals), *Euclymene oerstedii* (30 individuals) and *Nephtys* spp. (22 individuals) and the bivalve *Thyasira flexuosa* (29 individuals) which together accounted for just over 46% of the total faunal abundance.

Multivariate Analysis

The same infaunal dataset was used for the univariate and multivariate analyses. Univariate analysis can be accessed in Appendix B whilst the multivariate analysis is set out below. SIMPROF analysis revealed 4 statistically significant groupings between the 6 stations.

Group A contains St 12. This group separated from all other groups at a 97.58% dissimilarity level. Three taxa accounted for over 56% of the faunal abundance: *Sabellaria alveolata, Pygospio elegans* and the chiton *Lepidochitona cinerea*. SIMPER analysis could not be carried out as the group only

contained 1 station. No JNCC biotope could be assigned to this station and faunal returns we low, but the presence of the reef building polychaete *Sabellaria alveolata* is notable.

Group B contained 2 stations (St 2 and St 7) and separated from Groups C and D at an 83.75% dissimilarity level. This group had a within group similarity of 36.45%. Five taxa accounted for over 40% of the faunal abundance: *Pholoe inornata* (*sensu* Petersen), *Euclymene oerstedii* ,*Nephtys* sp., *Thyasira flexuosa* and *Thyasira* spp. SIMPER analysis could not be carried out as the group only contained 2 stations. The stations of this group can be classified as belonging to the JNCC biotope SS.SMu.ISaMu.MelMagThy – *Melinna palmata* with *Magelona* spp. and *Thyasira* spp. in infralittoral sandy mud (EUNIS Code A5.334).

Group C contains St 9. This group separated from group D at an 80.81% dissimilarity level. Two taxa accounted for over 36% of the faunal abundance: *Chamelea striatula* and *Scoloplos armiger*. SIMPER analysis could not be carried out as the group only contained 1 station. This station exhibits elements of the JNCC biotope SS.SSa.IMuSa.FfabMag – *Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand EUNIS code A5.242).

Group D contained 2 stations (St 4 and St 5) and separated from group C at an 80.81% dissimilarity level. This group had a within group similarity of 37.96%. Three taxa accounted for over 78% of the faunal abundance: *Turritellinella tricarinata, Hyala vitrea,* and *Nephtys* sp. SIMPER analysis could not be carried out as the group only contained 2 stations. The stations in this group exhibit elements of the JNCC biotope SS.SMx.CMx.KurThyMx – *Kurtiella bidentata* and *Thyasira* spp. in circalittoral muddy mixed sediment (EUNIS code: A5.443), as well as some elements of SS.SMu.ISaMu.MelMagThy – *Melinna palmata* with *Magelona* spp. and *Thyasira* spp. in infralittoral sandy mud (EUNIS Code A5.334).

6.1.2.2. Comparison

In 2010, the majority of the stations were dominated by silt clay (8 of the 12 stations including 3 stations resurveyed in 2023: St 2, St 4, and St 5). The remaining stations were dominated by very fine sand (4 stations including St 7, St 9, and St 12, resurveyed in 2023).

In 2023, the granulometry results showed some changes. Two stations were dominated by silt clay (St 4 and St 5) as they were in 2010; St 2 was dominated by very fine sand (previously dominated by silt clay); 2 stations (St 7 and St 9) were dominated by fine sand where they were previously dominated by very fine sand; one station (St 12) was composed of large cobbles in 2023 and a sediment sample couldn't be collected, whereas in 2010 this station was dominated by very fine sand.

In the 2010 subtidal survey, the dominating macrofaunal subtidal species were the bivalve *Kurtiella bidentata,* the tube-dwelling polychaete *Melinna palmata,* the amphipod *Ampelisca brevicornis* and the bivalve mollusc *Thracia phaseolina*. Other dominants included the polychaete *Phyllochaetopterus anglicus*, the amphipod *Crassicorophium crassicorne*, the polychaetes *Nephtys* spp. and *Euclymene oerstedii*, the bivalves *Fabulina fabula, Venus casina* and *Thyasira flexuosa*, the gastropod *Turritellinella tricarinata* and the ophiuroid *Amphiura filiformis*. These species are quite common for this area and are typical of species that inhabit muddy sand areas. Their characteristics identify them with previously recorded communities in the area: the *Melinna palmata* association reported by Keegan *et al.* (1976), Groups A and C recorded by Shin *et al*. (1982) and is an equivalent to the *Tellina fabula* sub-community described by Spärck (1935).

The groupings identified by the 2010 CLUSTER analysis represented slight variations of the above community between stations, but overall, the faunal assemblage of the area was comparable. *Kurtiella bidentata* is a common species in this area and *Melinna palmata* is tolerant to organic enrichment. These species are typical of the study area, which is a shallow, moderately exposed site and the species inhabiting it are adapted to on-going natural stresses and disturbances (*i.e.,* fluctuations in salinity, strong waves, tides and storms, periodic high turbidity). No unusual species were observed during the 2010 study.

In the present study, the dominant species included a number of taxa that were dominant in the 2010 survey: the gastropod *Turritellinella tricarinata*, the polychaetes *Pholoe inornata* (*sensu* Petersen), *Euclymene oerstedii* and *Nephtys* spp., and the bivalve *Thyasira flexuosa*.

The CLUSTER analysis of the fauna recorded revealed 4 significant groupings. Three of the groups exhibited many of the elements of JNCC biotopes:

- SS.SMu.ISaMu.MelMagThy – *Melinna palmata* with *Magelona* spp. and *Thyasira* spp. in infralittoral sandy mud (Groups b and d),
- SS.SSa.IMuSa.FfabMag – *Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand (Group c), and
- SS.SMx.CMx.KurThyMx – *Kurtiella bidentata* and *Thyasira* spp. in circalittoral muddy mixed sediment.

Group A (St 12) could not be assigned to a biotope and had sparse faunal returns. The presence of *Sabellaria alveolata* is notable and reefs of this tube building polychaete worm are known along the nearby coastline, particularly intertidally at Silver Strand, Galway Bay.

The NPWS has outlined different types of biological communities within certain conservation objectives. Such biological communities are grouped together into what experts consider are sufficiently stable units (*i.e*. a complex) for conservation targets. When compared against the biological communities listed for the Galway Bay Complex SAC Group, the CLUSTER analysis groupings contained many of the same elements.

Groups B and D have overlap with the 'Sandy mud to mixed sediment community complex' outlined in 'Conservation objectives supporting document - Marine habitats and species' produced by the NPWS in 2013. *Pholoe* spp*.*, *Euclymene oerstedii*, *Nephtys* sp., and *Thyasira flexuosa* are all species that overlap with the complex in Group B. *Thyasira sp*. *Nephtys sp.*, *Kurtiella bidentata,* and *Melinna palmata* are all species that overlap with the complex in Group D.

Group A could not be assigned to a JNCC biotope or a biological community set out under the NPWS guidance. It is obvious from the species composition that it is influenced by the freshwater from the Corrib and by its proximity to the intertidal zone.

Group C has some overlap with 'Fine to medium sand with bivalves community complex'. *Chamelea striatula, Thracia phaseolina, Macomangulus tenuis,* and *Fabulina fabula* are all species that overlap with the complex in Group C.

While the groupings within the present study vary slightly when compared to the 2010 benthic macrofauna survey, this is not unexpected in such a dynamic environment, considering the freshwater influence of the Corrib catchment and the influence of Atlantic coastal waters. The biotopes that were recorded are very similar, with many of the dominant species identified in the 2010 survey observed to be dominant again in 2023. The biotopes recorded are typical of the study area and to be expected in the shallow, moderately exposed site.

Conclusion

In comparing the studies carried out over multiple years for subtidal benthic fauna only small variations can be seen in abundance and community types. Some variations can also be seen in the sediment composition at some of the stations analysed. The overall variation in faunal communities and sediments is not considered significant and does not change the conclusions reached in the original NIS and subsequent Addendum/Errata.

6.1.3. Marine Mammal Observer survey

A thorough description of the findings of the desk study and field survey conducted for this assessment can be found in Appendix C.

The key findings of the desk and field study can be found below.

6.1.3.1. Results

Desk Study

Data from the last 5 years from the National Biodiversity Data Centre and National Parks and Wildlife Services were used to carry out a desk study analysis of marine mammals that are qualifying interests of Galway Bay SAC namely:

- Harbour seal (*Phoca vitulina*)
- Grey seal (*Halichoerus grypus*)
- Harbour porpoise (*Phocoena phocoena*)
- Bottlenose dolphin (*Tursiops truncatus*)

The results from the desk study showed that all species listed are recorded within Galway Bay SAC within the last 5 years, with the exception of Harbour porpoise (*Phocoena phocoena*), which had no recent recordings within the area.

The records taken were solely 'live sightings' of each animal, and were targeted within, or in the immediate vicinity, of the proposed development site.

Field Survey

AQUAFACT carried out a Marine Mammal Observer survey between the 18 January 2023 and the 28 April 2023 during daylight hours to record the marine mammal activity in the vicinity of the Proposed Development. The survey was carried out by Marta Domingos (B.Sc., M.Sc.) who holds the JNCC certification- *Marine Mammal Observer (MMO) Guidelines for Industry- Marine Mammal Mitigation* and the NPWS certification – *Irish Mitigation Guidelines for Industry.* The full Marine Mammal Observer report can be found in Appendix C.

The surveys consisted of nine land-based watches at Nimmo's pier and one boat-based watch which was carried out in the vicinity of Galway Bay. A total of 109 sightings were recorded during the 10-day survey.

Harbour Seal (Phoca vitulina)

During the marine mammal observer survey carried out by AQUAFACT in 2023, the harbour seal was the most sighted species with a total of 38 sightings (corresponding to 33% of the total of sightings). The most sighted behaviours for the species were 'resting ("bottling")' and 'travelling', recorded in 15 and 14 of the harbour seal sightings, respectively. All sightings were recorded during the land-based surveys.

Grey Seal (*Halicheros grypus*)

During the marine mammal observer survey carried out by AQUAFACT in 2023, the grey seal was recorded in a total of 9 sightings (8% of the total sightings). 'Travelling' was the most sighted behaviour during the survey which accounted for 45 sightings (40.2% of the total of sightings), with the behaviour noted as the most recorded behaviour for the grey seal.

Bottlenose Dolphin (*Tursiops truncatus*)

During the marine mammal observer survey carried out by AQUAFACT in 2023, at least one odontocete species was encountered during the effort watches, the bottlenose dolphin (*Tursiops truncatus*) with a total of 22 sightings (19% of the total of sightings). For bottlenose dolphins, 'foraging' behaviour was recorded in 17 sightings which corresponded to 77.3% of the total of sightings for this species. During the boat-based surveys the most recorded species was the bottlenose dolphin with 4 sightings and a group size between 2 and 3 individuals.

Harbour Porpoise (*Phocoena phocoena*)

As noted in the Marine Mammal Observer Report in Appendix C, there were no conclusive observations of harbour porpoise, with 'Unidentified' species for dolphins and seals documented across the survey dates.

6.1.3.2. Comparison

This section provides a comprehensive comparison of the previous findings of the desk study carried out by Kelp Marine Research Ltd in 2014., and the desk study carried out by AQUAFACT in 2024 with additional information provided by the field survey carried out by AQUAFACT in 2024 to ascertain the presence, and levels of activity of marine mammals in Galway Bay Complex SAC.

Harbour Seal (*Phoca vitulina*)

The Kelp Marine Research Ltd. report published in 2014, concluded that areas in proximity to the haul-outs are used for mating, nursing, and during breeding, or as a travelling corridor by individuals in

Galway Bay SAC. Through comparison of the desk study results found between 2014 & 2024, this can be verified to still be the case, as there are recent sightings of harbour seal within the last 5 years within Galway Bay SAC of the species. Additionally, Harbour seal made up the greatest numbers of marine mammals identified during the marine mammal observer survey carried out by AQUAFACT in 2024. Numbers have fluctuated within the area over the past number of years, but it is definite that the species still utilise the area for foraging and commuting purposes, with a large haul-out site present on Tawin Island.

Grey Seal (Halicheros grypus)

Grey seal were reported as having very low numbers through the desk study that Kelp Marine Research Ltd. carried out in 2014. Kelp Marine Research Ltd. reported very low numbers of grey seals within the proposed area, with only 8 grey seals recorded in the vicinity of Galway Harbour during two consecutive monitoring periods reported in one of the studies analysed through the assessment. Similarly, the results from the desktop stud carried out by AQUAFACT, reflect similar numbers of activity recorded in Galway Bay of this species, with just 5 recordings detailed on the National Biodiversity Data Centre (NBDC) map viewer, with the most recent record dated from 2019. Galway Bay is not a 'hot-spot' for this species, with just 9 records found during the Marine Mammal Observer survey, with the activity recorded for the sightings being 'travelling'.

Bottlenose Dolphin (Tursiops truncatus)

Kelp Marine Research Ltd. reported that no bottlenose dolphin were observed within the Galway Bay area in a cetacean survey carried out in 2014; however, small numbers were recorded acoustically. No specific numbers of sightings within the proposed development area were noted in the 2014 report. Comparatively in a desk study carried out by AQUAFACT in 2024, multiple sightings have been recorded of the species on the NBDC map viewer. A total of 22 sightings of bottlenose dolphins were recorded in the 2024 survey carried out by AQUAFACT. There were additional recordings of unidentified dolphin species also. A number of SAC's list Bottlenose dolphin *Tursiops truncatus* as a Qualifying Interest, with the QI a new addition to Duvillaun Islands SAC 000496, West Connacht Coast SAC 002998, and Slyne Head Islands SAC 000328 (since the original NIS submission & subsequent Addenda/Errata documents). Bottlenose dolphin were observed as part of the Marine Mammal Observer survey carried out by AQUAFACT in 2023 across both the land-based and boat survey showing the use of the Galway Bay area by the species.

Harbour Porpoise (Phocoena phocoena)

Kelp Marine Research Ltd. did not report exact numbers of harbour porpoise using the proposed development area at the time; however, they referenced a study carried out in 2006 which noted that harbour porpoise are the most frequently recorded cetacean species within Galway Bay SAC (O'Brien, 2009). Furthermore, Kelp Marine Research Ltd. reported that little conclusive information is available on the response of harbour porpoises to boat noise and the fact that harbour porpoises can currently be found in Galway Bay SAC suggests that current sound levels can be tolerated. Comparatively, there were no records of harbour porpoise on the National Biodiversity Data Centre map viewer from within the last 5 years. Additionally, the density estimates of harbour porpoises *Phocoena phocoena* at eight coastal sites in Ireland[1] was reviewed to inform this assessment. The report detailed that six surveys were carried out in Galway Bay, with 62 sightings of a total of 134 individuals. The Marine Mammal Observer survey carried out in 2024 reported there were no observations of harbour porpoise.

This comparison indicates there has been a reduction in numbers of harbour porpoise within the Galway Bay area since the Kelp Marine Research Ltd. desktop assessment was carried out. This could be due to a number of factors included increased activity within the area, climatic factors, and the potential for a reduction in foraging resources for the species within the area.

6.1.3.3. Conclusion

The marine mammals assessed in the preceding section all have some level of use of the Galway Harbour area. Levels of activity fluctuate between the species, with Harbour seal and Bottlenose dolphin indicating the highest level of use across the marine mammals studied, with a reduction in use of the area by harbour porpoise than previously reported. This could be due to a range of factors including increased activity within the area, climatic factors, and the availability of prey species.

The results and subsequent comparison reflect that there is potential for a significant effect on each species if appropriate mitigation is not in place for the duration of the construction period through potential collision risk, noise level disturbance and sedimentation increase in the water column causing dispersal of prey. The mitigation proposed in previous NIS documentation submitted for this project remain valid and will be implemented. Additionally, the provision of an experienced Marine

[1] Berrow, S., Hickey, R., O'Connor, I. And McGrath, D. 2014 Density estimates of harbour *porpoises Phocoena phocoena* at eight coastal sites in Ireland. Biology and Environment: Proceedings of the Royal Irish Academy 2014. DOI: 10.3318/ BIOE.2014.03

Mammal Observer for the duration of the pre-construction works in addition to the construction period of the proposed development will ensure no significant effect on marine mammals within the proposed development area. Updated noise ranges (as published by Southall et. Al, 2019), have been reviewed as part of this assessment, and there is no change in terms of noise mitigation measures necessary for marine mammals, all previously reported buffer zones for noise mitigation will ensure no significant effect on species.

6.1.4. Lough Atalia and Renmore Lough Lagoon Survey

Lough Atalia and Renmore Lough had been previously surveyed over the years of 2011-2013 for depth, salinity, current speeds and directions, and benthic ecology. It had been noted that Lough Atalia is very species poor with six of the ten sites surveyed returning no fauna and two of the remaining four only returning 1 species each. Overall, the conditions at Renmore Lough were also considered to be poor.

An updated benthic survey of Lough Atalia was conducted to document the current status of the area with reference to the previous surveys carried out for the proposed development. The updated survey took place on 12 July 2024 and was carried out by AQUAFACT surveyors Niamh Lynch (B.Sc., M.Sc.) and Micheál McHugh Jewell (B.Sc., M.Sc.). Both Niamh and Micheál are experienced in marine and freshwater ecological surveying and reporting. The survey included a Drop Down Video survey and physicochemical water sample analysis. Weather was dry and overcast and high water was at 10.20am (3.98m). The survey was conducted from AQUAFACT's inflatable (AQUAFACT2). The same 10 stations surveyed in 2013 were again surveyed. A Yellow Springs Instrument (YSI) probe was used to record data on depth, temperature, salinity, dissolved oxygen, pH, chlorophyll, turbidity, and conductivity. A Drop-Down Video (DDV) transect was surveyed for approximately 2 minutes at each of the 10 stations to document the benthic habitat. An updated survey of Renmore Lough was also carried out using a sweep net survey and deployment of a probe. These were carried out from the shore as it was deemed unsafe on the day to carry out a drop-down video analysis due to the shallow depth, deep mud and access issues. The full report and data associated with the updated surveys is provided in Appendix D.

6.1.4.1. Results

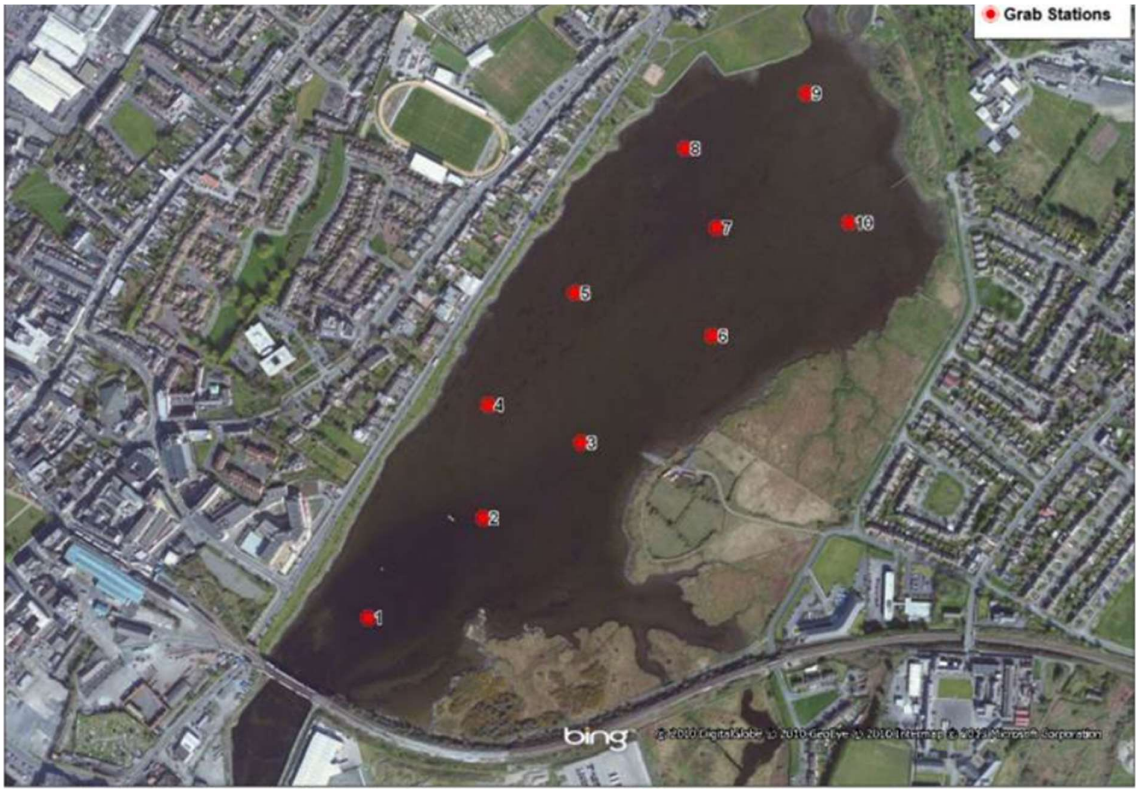

Figure 6-3: Drop down video survey locations at sites of previous sample grabs.

Figure 6-3 shows the drop-down video (DDV) survey locations which took place at previous sample grab locations. A DDV and probe survey was employed to document the condition of the benthic environment in Lough Atalia. As outlined in the 2013 Lough Atalia and Renmore Lough survey, the benthic environment in Lough Atalia is very species poor with six of the ten sites surveyed returning no fauna and two of the remaining four only returning one species each. The most diverse station in the original survey was station 1, closest to the open sea. During that survey, a strong smell of hydrogen sulphide was recorded at each grab station indicating anoxic conditions. The conservation objectives supporting document (lagoons) for Galway Bay SAC state that the conservation status of Lough Atalia was assessed as 'Unfavourable – Bad' with problems of eutrophication and heavily impacted by industrial and domestic effluent from Galway City. Overall, it was regarded as grossly polluted and of no conservation value.

The DDV survey documented similar conditions from the stations sampled previously. At nine of the ten stations soft, thick mud was recorded (see **Figure 6-2**, **Figure 6-3,Figure 6-4**). The surface of the mud was covered in places with benthic diatoms and the redox layer was at or just under the surface indicating anoxic conditions. At one station (station 3), filamentous bacterial mats of *Beggiatoa* were

recorded in a number of places. This is indicative of highly impacted anoxic sediments. Flora recorded include *Ulva* spp., *Enteromorpha* spp., fucoids and *Cladomorpha linum.* Unattached masses of *Cladomorpha linum* were previously recorded in Lough Atalia and were recorded again at stations 1, 8, and 10 (**Figure 6-7**). Station 1 (**Figure 6-4**) nearest to the open sea, was, as expected, the most diverse of the stations. This transect recorded a more varied substrate than the other 9 stations, and included boulders, mussel shell debris, coarse sand and silt. The epiflora on the boulders included *Ulva* spp., fucoids, *Chondrus crispus,* and other filamentous greens (possibly *Cladophora* and/or *Vaucheria*). The fauna recorded at station 1 include the crabs *Necora puber* and *Carcinus maenus,* the polychaetes *Arenicola marina* and *Spirobranchus* spp., and the common goby *Pomatoschistus microps.* A comparison of the results from the 2013 and 2024 surveys are found in Table 6-1.

Table 6-1: Species found during the 2013 and 2024 surveys at Stations 1 to 10.

Station	2013	2024
1	7 taxa, H_2S smell (anoxic)	Mussel shell debris, coarse sand, some boulders with fucoids, filamentous green algae, *Chondrus cripsus/Mastocarpus stellatus, Arenicola marina, Necora puber, Carcinus maenus, Spirobranchus spp., Pomatoschistus microps* and a mysid shrimp.
2	No fauna, H_2S smell (anoxic)	Anoxic silt, patches of *Beggiatoa,* 1 shore crab (*Carcinus maenas*)
3	2 amphipods (Melitidae) H_2S smell(anoxic)	Anoxic silt, patches of *Beggiatoa*
4	No fauna, H_2S smell(anoxic)	Anoxic silt, *Ulva* spp., *Enteromorpha* spp., 1 shore crab (*Carcinus maenas*)
5	1 amphipod (*Gammarus salinus*) H_2S smell (anoxic)	Anoxic silt
6	No fauna, H_2S smell (anoxic)	Anoxic silt, patches of *Beggiatoa*, *Pomatoschistus microps*
7	No fauna, H_2S smell(anoxic)	Anoxic silt, *Pomatoschistus microps*
8	No fauna, H_2S smell (anoxic)	Anoxic silt, *Pomatoschistus microps, Ulva* spp., *Cladophora linum*
9	1 amphipod (*Gammarus salinus*) H_2S smell (anoxic)	Anoxic silt, *Pomatoschistus microps*

Station	2013	2024
10	No fauna, H_2S smell (anoxic)	Anoxic silt, patches of *Beggiatoa, Cladophora linum*

The physiochemical water analysis of Lough Atalia (see Appendix D for table) recorded salinity readings of 22.26 – 26.08, these are indicatory of brackish water and fall within the same ranges as those noted in the original 2013 survey. Average readings taken at stations 3, 8, 9, and one reading at station 5 show a chlorophyll level above the 5µg/ml target set out in the conservation objectives for lagoons (NPWS, 2013). The turbidity was noted to be highest at stations with higher chlorophyll levels. Station 1 showed a larger variety in substrate similar to as seen in the previous survey.

Figure 6-4: Lough Atalia Station 1. Drop Down Video survey, July 2024.

Figure 6-5: Lough Atalia Station 3. Drop Down Video survey, July 2024.

Figure 6-6: Lough Atalia Station 9. Drop Down Video survey, July 2024.

Figure 6-7: Lough Atalia Station 10. Drop Down Video survey, July 2024

The conservation objectives supporting document for lagoons in Galway Bay SAC (2013) lists the conservation value of Renmore Lough as "Medium", however it was not sampled as part of the conservation status assessment due to access issues. The sweep net and probe survey in Renmore Lough was carried out at 2 stations on either end of the lagoon (see **Figure 6-8, Figure 6-9, Figure 6-10**). The sweep survey showed a similar composition of lagoonal specialist species as those observed in a previous coastal lagoon monitoring survey in 2016 by AQUAFACT carried out for the National Parks and Wildlife Services (NPWS) and the Environmental Protection Agency (EPA) and shared some similarities with the benthic survey for the original NIS. In Table 6-12 the overlap of species can be seen in the most recent survey in 2016 and the current survey in 2024. All four lagoonal specialists (*Palaemon varians, Enochrus bicolor, Ecrobia ventrosa* and *Ruppia* sp.) in the 2016 survey were documented again in the most recent survey and *Ecrobia ventrosa* and *Ruppia* sp. were recorded in all 3 surveys.

The physiochemical water analysis of Renmore Lough (see Appendix D for table) salinity readings of 5.88 – 14.6, are indicatory of brackish water and fall within the same ranges as those noted in the

original survey. Both readings taken at stations 1 and 2 show a chlorophyll level above the 5µg/ml target set out in the conservation objectives for lagoons (NPWS, 2013).

Figure 6-8: Renmore Lough sampling stations.

Table 6-2: Species in Renmore Lough in 2013, 2016 & 2024.
Highlighted cells = reoccurring species * = Lagoon specialist

2013	2016	2024
Heterochaeta costata	*Clava multicornis*	*Gammarus duebeni*
Nitokra spinipes	Ostracoda (indet.)	*Palaemon varians* *
Asellus sp.	*Gammarus duebeni*	*Jaera sp. Female*
Cyprideis torosa	*Palaemon varians* *	Chironomidae
Zygoptera	Chironomidae	*Chironomus sp*
Dytiscidae	*Ephydra riparia*	*Ecrobia ventrosa* *
Ecrobia ventrosa *	*Enochrus bicolor* *	*Lekanesphaera hookeri*
Gasterosteus aculeatus	Acarina indet.	*Ischnura elegans*
Anguilla anguilla	*Ecrobia ventrosa* *	*Enochrus sp. Larva* *
	Gasterosteus aculeatus	
Ruppia sp. *	*Ruppia* sp. *	*Ruppia* sp. *

Figure 6-9: Station 1 at Renmore Lough.

Figure 6-10: Station 2 at Renmore Lough.

6.1.4.2. Comparison

The faunal analyses in the original surveys in 2013 of Lough Atalia returned exceptionally low numbers of taxa and numbers of individuals with only 8 species being recorded at 4 stations. The following 7 species were recorded at Station 1: *Jaera nordmanni*, *Allomelita pellucida*, *Gammarus* sp, *Gammarus salinus,* Oligochaeta, *Pygospio elegans,* and *Polydora ciliata*. Station 3 returned only two specimens of *Melita palmata* and Station 5 and 9 returned only 1 specimen each of *Gammarus salinus*. Stations 2, 4, 6, 7, 8, and 10 had no fauna at all.

The conservation objectives supporting document for lagoons in Galway Bay SAC (2013) state that the conservation status of Lough Atalia was assessed as 'Unfavourable – Bad' with problems of eutrophication and is heavily impacted by industrial and domestic effluent from Galway City. Overall, it was regarded as grossly polluted and of no conservation value. Average readings taken at stations 3, 8, 9, and one reading at station 5 show a chlorophyll level above the 5µg/ml target set out in the conservation objectives for lagoons (NPWS, 2013). The turbidity was noted to be highest at stations with higher chlorophyll levels.

When looking at the sediment analyses for Lough Atalia in the previous surveys carried out by AQUAFACT, station 1 had by far the highest amount of coarse sediment with almost 70% being gravel.

All other stations were characterised by low amounts of coarse sediment and high percentages of fine, very fine and silt clays.

The 2024 drop down video survey documented similar conditions from the stations sampled previously. The condition of many of the stations is indicative of impacted/highly impacted anoxic sediments. Station 1 showed a larger variety in substrate similar to as seen in the previous survey.

The conservation objectives supporting document for lagoons in Galway Bay SAC (2013) lists the conservation value of Renmore Lough as "Medium", however, it was not sampled by NPWS as part of the conservation status assessment due to access issues. The sweep survey at Renmore Lough showed a similar composition of lagoonal specialist species as those observed in a previous coastal lagoon monitoring survey in 2016 by AQUAFACT carried out for the NPWS and the EPA and shared some similarities with the benthic survey for the original NIS submission. All four lagoonal specialists (*Palaemon varians, Enochrus bicolor, Ecrobia ventrosa* and *Ruppia* sp.) in the 2016 survey were documented again in the most recent survey, and *Ecrobia ventrosa* and *Ruppia sp.* was recorded in all 3 surveys.

The water chemistry results showed salinity readings of 5.88 – 14.6, these are indicatory of brackish water and fall within the same ranges as those noted in the original NIS. Both readings taken at stations 1 and 2 show a chlorophyll level above the 5µg/ml target set out in the conservation objectives for lagoons (NPWS, 2013). Overall, the conditions at Renmore Lough were considered to be poor.

6.1.4.3. Conclusion

Following the field survey, it is confirmed that the conclusions in relation to the Lough Atalia and Renmore Lough remain valid as no significant changes to the baseline have occurred since the original 2013 survey. The conclusions reached in the original NIS and subsequent Addendum/Errata remain valid for the purpose of this assessment.

6.1.5. Otter survey

Review of original Natura Impact Statement and Associated Documentation

A thorough review of the original submitted NIS, the Errata, and Addenda response to the request for further information and associated appendices was undertaken in June and July 2024. The methodologies followed, surveys undertaken, results of those surveys, evaluation and conclusions drawn were all reviewed in respect of Otter at the site of the proposed development and in the

surrounding area. Whilst the entire NIS and associated documentation was included within the review, the following sections were of particular relevance to otter:

Natura Impact Statement (1) January 2014

- Section 2.2.7-Mammals
- Section 2.2.9.2-Annex II Species Present
- Section 2.3.-Natura 2000 Site Identification
- Section 3.2- Characteristics of Natura 2000 Sites
- Section 3.3.2.- Potential Impacts on Natura 2000 Sites
- Section 3.5.6-Legacy Issues
- Section 3.6- Assessment of Residual Impacts

Natura Impact Statement Addendum/ Errata (2) October 2014

- Section 3.1.4.6- Legacy Issues
- Section 3.2.7- Mammals
- Section 4.6-Assessment of Residual Impacts

Natura Impact Statement Addendum/ Errata (3) January 2015

- Section 3.2- Mitigation Measures
- Section 3.4- Assessment of Residual Impacts

Natura Impact Statement (4) April 2019

- Section 4.3.4- Assessment

Natura Impact Statement Addendum (5) 2022

- Section 4.6- Assessment of Effect on Natura 2000 Site Integrity

<u>Updates to Surveys Previously undertaken</u>

Given the passage of time since the submission of the application and response to the request for further information, the information contained in the application in respect of otter has been reviewed and the requirement for updated surveys to verify the findings of the surveys that were previously undertaken was identified.

6.1.5.1. Results

Desk Study

Suitably qualified ecologist Pat Roberts B.Sc. (Env.) MCIEEM, undertook a desk study in relation to otter. In the course of this study, no additional information that would affect the findings of the submitted NIS and associated documentation or the level of survey and assessment of otter was identified.

Field Survey

In addition to the desk study, a field assessment was also conducted to determine whether there had been any significant changes to the baseline environment in terms of otter habitat since the submission of the NIS, and associated documentation.

Suitably qualified ecologists Rachel Minogue B.Sc. (Env.) and Tom Peters B.Sc. (Env.) M.Sc. undertook a dedicated otter survey on 4 July 2024. This survey was undertaken in accordance with NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). The site of the proposed development was surveyed along the foreshore of the current harbour park. Areas within the Zone of Potential Influence were also surveyed.

The results of the otter survey found that there have been no significant changes to the otter habitats within the site of the proposed development. During the surveys undertaken, no otter resting or breeding sites were recorded within the proposed development boundary or potential zone of influence.

During the otter surveys undertaken, a burrow was recorded along Dead Mans Beach, outside of the proposed development site boundary. Two trail cameras were deployed at the entrance of the burrow between 5 and 8 July 2024 to establish whether it was being utilised by otter.

Analysis of the footage captured revealed that the burrow is an active fox den, and no evidence of it being utilised by otter was identified.

The baseline otter habitat as previously described in the NIS and associated documentation, remain valid and appropriate to inform the findings of this report.

6.1.5.2. Comparison

Upon comparison of the findings of previous NIS documents and the current Addendum with regard to otter, there are no significant changes in the information available on this species within the

proposed development area. It is well known that the otter is present within Inner Galway Bay and will be taken into account for all stages of construction and operational mitigation for this project.

6.1.5.3. Conclusion

Following the updated desk and field surveys, it is confirmed that the conclusions in relation to otter remain valid as the changes to the baseline that have occurred since the NIS and associated documentation were submitted are not significant in the context of the development.

6.1.6. Bat survey

Review of Chapter and Associated Documentation

A thorough review of the original NIS, the Errata, and Addenda response to the request for further information and associated appendices was undertaken in June and July 2024. The methodologies followed, surveys undertaken, results of those surveys, evaluation and impact assessments were all reviewed in respect of bats. Whilst the entire NIS and associated documentation was included within the review, the following sections were of particular relevance to bats:

Natura Impact Statement (1) January 2014

- Section 2.2.7-Mammals
- Section 2.3.-Natura 2000 Site Identification
- Section 3.2- Characteristics of Natura 2000 Sites

Natura Impact Statement Addendum/ Errata (2) October 2014

No additional information.

Natura Impact Statement Addendum/ Errata (3) January 2015

No additional information.

Natura Impact Statement (4) April 2019

No additional information.

Natura Impact Statement Addendum (5) 2022

No additional information.

Given the passage of time since the submission of the application and response to the request for further information, the information contained in the application in respect of bats has been reviewed and the requirement for updated surveys to verify the findings of the surveys that were previously undertaken was identified.

6.1.6.1. Results

The bat surveys to update the surveys presented in the original NIS were undertaken by MKO ecologists Laura Gránicz (B.Sc.) and Viorel Anitei (B.Sc.). All staff have relevant academic qualifications to complete the necessary surveys and assessments. The report was prepared by Keith Costello (B.Sc.) and was reviewed by Aoife Joyce (B.Sc., M.Sc.) who has over 4 years' experience in ecological impact assessment. The bat report is provided as Appendix E to this document and the main findings are set out below:

The information provided below is based on visits carried out on 8th and 9th August 2022. The surveys were carried out during suitable weather conditions for bats. During the dusk survey, 80 bat passes were recorded, while 4 bat passes were recorded during the dawn survey. Species recorded during these surveys were Soprano pipistrelle, Common pipistrelle and Leisler's bat. Overall activity within the site was low. Bat activity during the dusk and dawn surveys was localised along the south, west and eastern boundaries primarily around scrub habitats. Scrub and individual immature trees lacked features that would support roosting bats including cracks, hazard beams, cankers, rot holes, and fissures in the bark, ivy cover etc., and no evidence of bats or bat use were identified during the inspection. No evidence of roosting bats and no high potential roost features were identified during the walkover and activity surveys. Habitats identified during the walkover were assigned a Low value for commuting and foraging bats with little connectivity to a wider landscape.

The static detectors recorded six species within the vicinity of the site. These included Soprano pipistrelle, Common pipistrelle, Leisler's bat, Myotis spp., Nathusius' pipistrelle and Brown long-eared bat. Overall activity was relatively low.

6.1.6.2. Comparison

It is noted that both the number of species recorded and the level of activity was higher in the 2022 surveys than in those that informed the original NIS. However, the survey methodologies and equipment were also different and have advanced in the intervening decade. One additional species was recorded during the transect surveys (Leisler's Bat) Three additional species (*Myotis* sp., Brown Long Eared and Nathusius pipistrelle) were recorded on static detectors, which were employed in 2022 but not in 2011. Activity levels and analysis of the habitats recorded were similar in that activity was low and the habitats did not offer roosting or high-quality foraging habitat. It is also noted that the 2022 bat report makes some best practice recommendations to safeguard bats, these recommendations follow current best practice but do not contradict the findings and assessments presented in the original NIS and associated documentation as submitted.

6.1.6.3. Conclusion

The 2022 bat report concludes:

In total, six species of bat were recorded across the survey area during the dusk, dawn, and ground level static activity surveys. No bat roosts were identified during the surveys, and the site does not provide significant suitable habitat to support any bat roosts.

The proposed works relate to the extension of the existing Galway Harbour. The surveys and recommendations provided in this report are in accordance with the relevant industry guidance.

Taking into account the lack of significant changes to the baseline environment along with the findings of the updated bat surveys, which were undertaken following a more thorough methodology and using modern equipment and methods such as static detectors but still found the site to be of low value to bat species, it is concluded that the site is of no significance to bats, as reported in the original NIS.

6.1.7. Terrestrial habitat survey

Review of previous documentation.

Natura Impact Statement (1) January 2014

- Section 2.2.2- Terrestrial Habitats
- Section 2.2.9.1-Annex I Habitats Present
- Section 2.3.-Natura 2000 Site Identification
- Section 2.4- Identification and Assessment of Potential Impacts
- Section 3.2- Characteristics of Natura 2000 Sites
- Section 3.3.2.- Potential Impacts on Natura 2000 Sites
- Section 3.5.6-Legacy Issues
- Section 3.6- Assessment of Residual Impacts

Natura Impact Statement Addendum/ Errata (2) October 2014

- Section 3.2.2- Terrestrial Habitats
- Section 4.6-Assessment of Residual Impacts

Natura Impact Statement Addendum/ Errata (3) January 2015

- Section 2.1.2- Terrestrial (non-marine) Habitats
- Section 3.4- Assessment of Residual Impacts

Natura Impact Statement (4) April 2019

- Section 1.2- GHE Compensatory Measures Proposal
- Section 1.3- Additional Environmental Benefits/Nature Reserve
- Section 4.1.1.2- Terrestrial Habitats
- Section 4.1.3.2- Terrestrial Habitats
- Section 4.3- Assessment of Likely Effects

Natura Impact Statement Addendum (5) 2022

- Section 3.1- Compensatory Measures
- Section 3.2- Accompanying Measures
- Section 3.3- Additional Environmental Benefits

  Section 4.1.1.2- Terrestrial Habitats (Mweeloon and Tawin West)**.**

  Section 4.2.1- Identification of relevant Natura 2000 Sites.

  Section 4.3.3- Accompanying Measures.

Section 4.4.2- Terrestrial Habitats.

Section 4.4.4- Galway Bay Complex SAC- Terrestrial Habitats.

Desk Study

Suitably qualified ecologist Pat Roberts B.Sc. (Env.) MCIEEM, undertook a desk study in relation to Terrestrial Habitats both within the site of the proposed development and in the zone of potential influence as identified in the original NIS. In the course of this study, no additional information that would affect the findings of the submitted NIS and associated documentation or the level of survey and assessment of terrestrial habitats was identified.

Field Surveys

In addition to the desk study, a field assessment was also conducted to determine whether there had been any significant changes to the baseline environment in terms of terrestrial habitats and flora since the submission of the original NIS and associated documentation.

Suitably qualified ecologists Rachel Minogue B.Sc. (Env.) and Tom Peters B.Sc. (Env.) M.Sc. undertook ecological multi-disciplinary walkover surveys on the 4th July 2024. These surveys were undertaken in accordance with NRA *Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna* on National Road Schemes (NRA, 2009) and habitats were classified according to Fossitt (2000). The site of the proposed development was surveyed thoroughly, with particular attention was paid to the area around Renmore Lough, where specialist surveys of the shingle bank habitat that forms a barrier between the sea and the Lough were undertaken in response to the request for further information in relation to the proposed development. The surveys around Tawin and Mweelroon were not repeated as the compensatory measures regarding these sites remained valid with no update in the measures that will be undertaken.

6.1.7.1. Results

The results of the multi-disciplinary walkover survey found that there have been no significant changes to the terrestrial habitats either within the site of the proposed development or in the zone of potential influence that would alter the findings of the submitted NIS or associated documentation.

The lands within the site boundary were dominated by habitat classified as Buildings and artificial surfaces (BL3) and Spoil and bare ground (ED2) with small areas of Scrub (WS1), consistent with the findings of the NIS (**Plates 1 and 2**).

Outside of the site boundary, some minor changes to grassland and saltmarsh habitats had occurred.

Changes to the previously mapped terrestrial habitats that were recorded during the updated terrestrial habitat surveys include:

- After reviewing the assessment of the shingle bank as prepared previously by Dr Michelene Sheehy Skeffington (2014) and John Conaghan (2017), it was concluded that no significant changes to areas of previously mapped shingle and gravel banks (CB1) at Renmore Beach had occurred (**Plate 3**). Species recorded along the shingle bank include Sea radish (*Raphanus raphanistrum* subsp. *maritimus*), Sea couch grass (*Elytrigia atherica),* Red fescue (*Festuca rubra* agg.*).,* Sea mayweed (*Tripleurospermum maritimum*), Prickly sow thistle (*Sonchus asper*), Shepard's purse (*Capsella bursa-pastoris*), and Spear leaved oracle (*Atriplex prostrata*). Invasive Blue lettuce (*Lactuca tatarica*) remains locally sub-dominant in parts of the shingle bank.
- A minor change to the shingle which had been previously recorded to have shifted to the south of Renmore Lough by Dr Michelene Sheehy Skeffington is now vegetated with species of Sea radish (*Raphanus raphanistrum* subsp. *maritimus*), Sea mayweed (*Tripleurospermum maritimum*), and Spear leaved oracle (*Atriplex prostrata*) **(Plate 4).** Shingle banks are dynamic habitats and are subject to disturbance via storm events. As such, this minor change is not considered significant, and the findings are consistent with those detailed in the previously submitted NIS. The full stony bank report can be found in Appendix F.
- Areas previously mapped as Dry Meadows and Grassy Verges (GS2) were recorded as transitioning to Scrub (WS1) via natural succession along the eastern extent of Lough Atalia, outside of the site boundary (**Plate 5**). Species recorded include Bramble (*Rubus fruticosus*), Ivy (*Hedera hibernica*), Sea radish (*Raphanus raphanistrum* subsp*. maritimus*), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Sycamore (*Acer pseudoplatanus*), Elder (*Sambucus nigra*), Silver weed (*Potentilla anserina*), False oat-grass (*Arrhenatherum elatius*), Sea milkwort (*Lysimachia maritima*), Cleavers (*Galium aparine*), Sea couch (*Elytrigia atherica*), Sea mayweed (*Tripleurospermum maritimum*), Sow thistle (*Sonchus arvensis*), Creeping thistle (*Cirsium arvense*), Curly dock (*Rumex crispus* ssp. *crispus*), Yorkshire fog (*Holcus lanatus*), Rough meadow grass (*Poa trivialis*), and Red fescue (*Festuca rubra* agg.).
- A small area previously mapped as Dry Meadows and Grassy Verges (GS2) within the proposed development site, along the banks of the railway line at the northern boundary of the site, has developed into Scrub (WS1) via natural succession **(Plate-6).** Species recorded include Bramble (*Rubus fruticosus*), Ivy (*Hedera hibernica*), Sea radish (*Raphanus*

raphanistrum subsp. *maritimus*), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus Spinosa*), Cleavers (*Galium aparine*), Basket Willow (*Salix viminalis*), Ash (*Fraxinus excelsior*), Fuchsia (*Fuchsia magellanica*), Irish Whitebeam (*Sorbus hibernica*), Common nettle (*Urtica dioica),* Norway maple (*Acer platanoides),* and invasive species Japanese Knotweed (*Fallopia japonica*) and Butterfly-bush (*Buddleja davidii*), which is not listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) (S.I. 477 of 2011). The invasive species Japanese Knotweed (*Fallopia japonica*), a third schedule Invasive Species, listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) (S.I. 477 of 2011) was recorded within the proposed development site, to the northern boundary along the railway line.

- Previously mapped Amenity Grassland (GA2) at the northern extent of Lough Atalia and outside the site boundary now transitioning to Dry Meadows and Grassy Verges (GS2) as a result of reduced mowing. **(Plate-7).** Species recorded include Silver weed (*Potentilla anserina*), Yorkshire fog (*Holcus lanatus*), Rough meadow grass (*Poa trivialis*), Meadow Buttercup (*Ranunculus acris*), Knapweed (*Centaurea nigra*), Selfheal (*Prunella vulgaris*), Red fescue (*Festuca rubra* agg.), Yellow rattle (*Rhinanthus minor*), Sweet vernal grass (*Anthoxanthum odoratum),* Meadow vetch (*Lathyrus pratensis*), Red clover (*Trifolium pratense*), Centaury (*Centaurium erythraea*), Hard rush (*Juncus inflexus*), Tufted vetch (*Vicia cracca*), and Cowslip (*Primula veris*).

- Previously unmapped Reed and Large Sedge Swamp (FS1) habitat dominated by Common Reed Grass (*Phragmites australis*) developing on areas of Upper and Lower Saltmarsh (CM1/ CM2) along the eastern extent of Lough Atalia, and to the western margin of Renmore Lagoon, outside of the site boundary **(Plate-8).**

- Previously mapped Dry Meadows and Grassy Verges (GS2)/ Improved Agricultural Grassland (GA1) transitioning to Saltmarsh (CM1/CM2) habitat within the southeast parcel of Lough Atalia, outside the site boundary **(Plate-9).** Species recorded include Sweet vernal grass (*Anthoxanthum odoratum),* Common scurvygrass (*Cochlearia officinalis*), Sea club rush (*Bolboschoenus maritimus*), Sea rush (*Juncus maritimus*), Sea aster (*Tripolium pannonicum*), Creeping bent grass (*Agrostis stolonifera*), Common Orache (*Atriplex patula*), Sea milkwort (*Lysimachia maritima*), Red fescue (*Festuca rubra* agg.), Sea arrowgrass (*Triglochin maritima*), Sea plantain (*Plantago maritima*), Thrift (*Armeria maritima*), Sea sandwort (*Honckenya peploides*), and Sand couch (*Elytrigia juncea*).

During the surveys, the invasive species Japanese knotweed, which is listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) (S.I. 477 of 2011) was however recorded within the proposed development site, close to the railway track to the northern margin of the study area. This species was not recorded during the surveys undertaken to inform the original NIS or associated documentation. An Invasive Species Management Plan has been prepared and is included in Appendix G. The plan includes mitigation measures for the control and treatment of Japanese knotweed and ensures that there will be no spread of this species during the construction or operation of the proposed development.

The above changes to the terrestrial habitats are not considered significant.

The baseline terrestrial habitats as previously described in the NIS and associated documentation, remain valid and accurate to inform the Appropriate Assessment. Representative examples of the Terrestrial Habitats recorded during the 2024 site visit are provided in Plates 1 to 9 below.

Plate 1 Buildings and Artificial Surfaces (BL3) recorded within the proposed development boundary

Plate 2 Spoil and Bare Ground (ED2) recorded within the proposed development boundary.

Plate 3 Shingle and gravel banks (CB1) recorded along Dead Man's Beach, outside of the proposed development boundary.

Plate 4 Vegetated shingle shifted to the south of Renmore Lough, outside of the proposed development boundary

Plate 5 Dry Meadows and Grassy Verges (GS2) transitioning to Scrub (WS1) via natural succession along the eastern parcel of Lough Atalia, outside of the proposed site boundary.

Plate-6 Dry Meadows and Grassy Verges (GS2) transitioning to Scrub (WS1) via natural succession, located within the proposed development boundary

Plate 7 Amenity Grassland (GA2) transitioning to Dry Meadows and Grassy Verges (GS2) via reduced mowing at the northern extent of Lough Atalia, outside of the site boundary.

Plate 8 Reed and Large Sedge Swamps (FS1) dominated by Common Reed Grass (*Phragmites australis*) developing on areas of Upper and Lower Saltmarsh (CM1/ CM2) along the eastern extent of Lough Atalia, and to the western margin of Renmore Lagoon, outside of the site boundary.

Plate-9 Dry Meadows and Grassy Verges (GS2)/ Improved Agricultural Grassland (GA1) transitioning to Saltmarsh (CM1/CM2) habitat to the southeast parcel of Lough Atalia, outside the site boundary.

6.1.7.2. Comparison

No significant changes to the baseline have occurred since the original NIS, and associated documentation were submitted.

6.1.7.3. Conclusion

Japanese knotweed (*Reynoutria japonica*) was recorded along the northern boundary of the site and an Invasive Species Management Plan has been prepared to treat the species with appropriate mitigation in place to ensure there will be no spread of the invasive species; it can be found in Appendix G.

Following the updated desk and field surveys, it is confirmed that the conclusions previously drawn in relation to terrestrial habitats both on the site of the proposed development and in the Zone of Potential Influence (including Renmore Lough) to inform the Appropriate Assessment, and the related mitigation proposed for the development remain valid.

6.1.8. Bird survey

Review of previous documentation.

Natura Impact Statement (1st) January 2014

- Section 2.2.8- Birds
- Section 2.2.9.3- Special Conservation Interest Bird Species Present
- Section 2.3.-Natura 2000 Site Identification
- Section 2.4- Identification and Assessment of Potential Impacts
- Section 3.2- Characteristics of Natura 2000 Sites
- Section 3.3.2.- Potential Impacts on Natura 2000 Sites
- Section 3.4- Mitigation Measures
- Section 3.5.6-Legacy Issues
- Section 3.6- Assessment of Residual Impacts

Natura Impact Statement Addendum/ Errata (2nd) October 2014

- Section 3.2.8- Birds
- Section 3.2.9- Summary of Findings
- Section 4.3.2- Potential Impacts on Natura 2000 Sites
- Section 4.6- Assessment of Residual Impacts

Natura Impact Statement Addendum/ Errata (3rd) January 2015

- Section 3.4- Assessment of Residual Impacts

Natura Impact Statement (4th) April 2019

- Section 4.1.2- Galway Bay SPA
- Section 4.3- Assessment of Likely Effects

Natura Impact Statement Addendum (5th) 2022

Section 4.2.1- Identification of relevant Natura 2000 Sites

Updates to Surveys Previously undertaken

Given the passage of time since the submission of the application and response to the request for further information, the information contained in the application in respect of birds has been reviewed and the requirement for updated surveys to verify the findings of the surveys that were previously undertaken have been carried out. In addition, a reassessment of the conclusions of the

Appropriate Assessment on the basis of any new information has been conducted to verify or amend the findings in question.

Updated Surveys

Updates to the previously submitted bird surveys and associated analysis were undertaken by Tom Gittings and David Miley between October 2022 and March 2023.

Tom Gittings holds a BSc (Hons) in Ecology from the University of East Anglia and a PhD in Ecology from University College Cork. Tom is a member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). David Miley has a BSc in Marine Science, and a MSc in Applied Environmental Science.

6.1.8.1. Results

The full report and data associated with the updated surveys are provided in Appendix H. The executive summary from the report is provided below:

"This report presents the results of the waterbird surveys that were carried out for the Galway Harbour Extension project in the winter of 2022/23 and compares these results with previous surveys that were carried out between 2011 and 2014.

Monthly tidal cycle counts and vantage point watches were carried out between October 2022 and March 2023. The vantage point watches covered the same area as the 2011-2014 surveys: the shoreline and subtidal habitat of the proposed Galway Harbour Extension project area (the GHE count area), as well as adjacent intertidal areas at Renmore Beach and the eastern end of South Park Shore. The tidal cycle counts covered the wider area between the Mutton Island causeway and Ballyloughane Beach.

The results of the waterbird surveys show that, as in the previous survey period, the GHE count area usually supports very low numbers of waterbirds. More significant numbers of several species were recorded in the tidal cycle counts. However, the numbers that occurred in the sectors adjacent to the GHE count area were relatively low.

The only frequently used high tide roosting area was exposed intertidal rocks at the western end of South Park Shore. A flock of 76 Ringed Plovers were recorded roosting on a gravel area within the Galway Harbour Extension area on one date. A raft of 6 Great Northern Divers was observed in the GHE count area at dusk on one of the survey days; this was probably a pre-roost group assembling to swim to a nocturnal roost.

Turnstones occurred less frequently and in lower numbers in the GHE count area during the 2022/23 waterbird surveys, compared to the waterbird surveys carried out in 2011-2014. This is in line with the decreases in the national population of this species. Apart from Turnstone, there do not appear to have been major changes in waterbird usage of the GHE count area and adjacent areas since the 2011-2014 surveys.

The density of waterbirds in the subtidal zone in the GHE count area decreased with distance from the shoreline, it seems likely that, at least for some species, the decrease in density with distance from the shoreline is due to lower detection rates of more distant birds.

The most frequently recorded disturbance impacts to waterbirds were from pedestrian and dog activity. Only 20% of observations of powered watercraft activity, and none of the observations of non-powered watercraft activity, resulted in observed disturbance impact to waterbirds. There were no observations of watercraft activity causing disturbance impacts to Great Northern Divers.

In conclusion, the results of the 2022/23 waterbird surveys are not likely to significantly change the previous assessment of the potential impact of the Galway Harbour Extension project."

6.1.8.2. Comparison

The 2022/23 assessment of waterbirds in Galway Harbour provided a more detailed assessment on the distribution patterns of waterbirds within and around the project area. As reported in the previous survey, the 2022/23 survey showed that the GHE count area typically supports a low number of water birds, with no species of national importance present. Excluding a single count of 76 Ringed Plover, the peak counts for all the waterbird species were low compared to their Inner Galway Bay populations.

6.1.8.3. Conclusion

The full conclusion of the Galway Harbour Extension Waterbird Survey, Winter 2022/23 is provided below:

"In conclusion, the results of the 2022/23 waterbird surveys are not likely to significantly change my previous assessment of the potential impact of the Galway Harbour Extension project (Gittings, 2014). However, they provide more detail about the distribution patterns of waterbirds within, and around, the project area. This will help to support any future re-assessment and will improve the scope of baseline data available for monitoring the impact of the project."

Having reviewed the results of the surveys and analysis presented in the previous NIS reports and those detailed in the bird report prepared by Tom Gittings, available in Appendix H, it can be confirmed

that there has been no significant changes in the bird populations utilising the study area that would be likely to alter the conclusions presented in the previous NIS reports. It can be concluded that there has been no significant changes to the locally, nationally, or internationally important populations of birds in the study area from those previously recorded and detailed. Taking into account the lack of significant changes to the baseline environment along with the findings of the updated bird surveys, it is concluded that the findings of the previous NIS and associated documentation remain valid.

6.2. European sites- Conservation Objectives/ Site Synopsis

Results

European (Natura 2000) Site Identification

The original NIS submitted as part of this planning location, in addition to the NIS Addenda/Errata in 2014, 2015, 2019, 2022 identified a number of European Sites (also referred to as "Natura 2000 Sites") that could potentially be affected by the proposed development. The precautionary principle was applied in identifying these sites, and all European sites within a 15km buffer were considered and included for further assessment in line with best practice guidance at that time. This range was extended to consider potential impacts on highly mobile species such as bird and cetacean species.

In line with current guidelines and legislation, all European Sites that could potentially be affected were identified using a source-pathway-receptor model and to provide context for this assessment, European Sites surrounding the development site are shown on Figure 6-11 & Figure 6-12. European Sites that were further away from the proposed development were also considered and, if a source-pathway-receptor model was identified, included for further assessment. 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. Where potential pathways for likely significant effects were identified, the site was included in the Likely Zone of Impact and further assessment is required in the NIS. Updated maps indicating the locations of SAC's and SPA's are provided below.

Special Areas of Conservation (SAC)

Upon revision of the previously identified SAC's within the Likely Zone of Impact described in the original NIS and NIS Addenda/Errata Documents (2014, 2015, & 2019), it has been identified that certain SAC's have since been revised in relation to the addition of QI's to them. The QI's may be listed in the associated Conservation Objectives document or Site Synopsis document for the site, and the most recent versions of these documents have been used to determine any change in the QI's since

the time of the original NIS submission. Table 6-3 shows the SAC's that have had QI's added since the time of the original submission:

Table 6-3: Special Area of Conservation (SAC) with updated Qualifying Interests (QI's) since the original NIS submission.

Special Area of Conservation (SAC)	Additional Qualifying Interest (QI)
Galway Bay Complex SAC 000268	• [8240] Limestone pavements • [1230] Vegetated Sea Cliffs of Atlantic and Baltic coasts
Duvillaun Island SAC 000495	• [1349] Common Bottlenose Dolphin *Tursiops truncatus*
Lough Corrib SAC 000297	• [3130] Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletalia uniflora and/or Isoeto-Nanojuncetea • [6216] Slender Green feather-moss *Hamatocaulis vernicosus* • [3260] Floating river vegetation
West Connacht Coast SAC 002998	• Harbour Porpoise (*Phocoena phocoena*)
Slieve Tooey / Tormore Island / Loughros Beg Bay SAC 000190	• [1410] Mediterranean Salt Meadows • [2130] Fixed Dunes (Grey Dunes)* • [2170] Dunes with Creeping Willow • [2190] Humid dune slacks
Slyne Head islands SAC 000328	• [1349] Bottlenose dolphin (*Tursiops truncatus*)
East Burren Complex SAC 001926	• [6130] Calamarian grasslands of the Violetalia calaminariae
Connemara Bog Complex SAC 002034	• [3130] Oligotrophic to Mesotrophic standing waters
Kilkieran Bay and Islands SAC 002111	• [3130] Oligotrophic to Mesotrophic standing waters • [1351] Harbour porpoise *Phocoena phocoena*

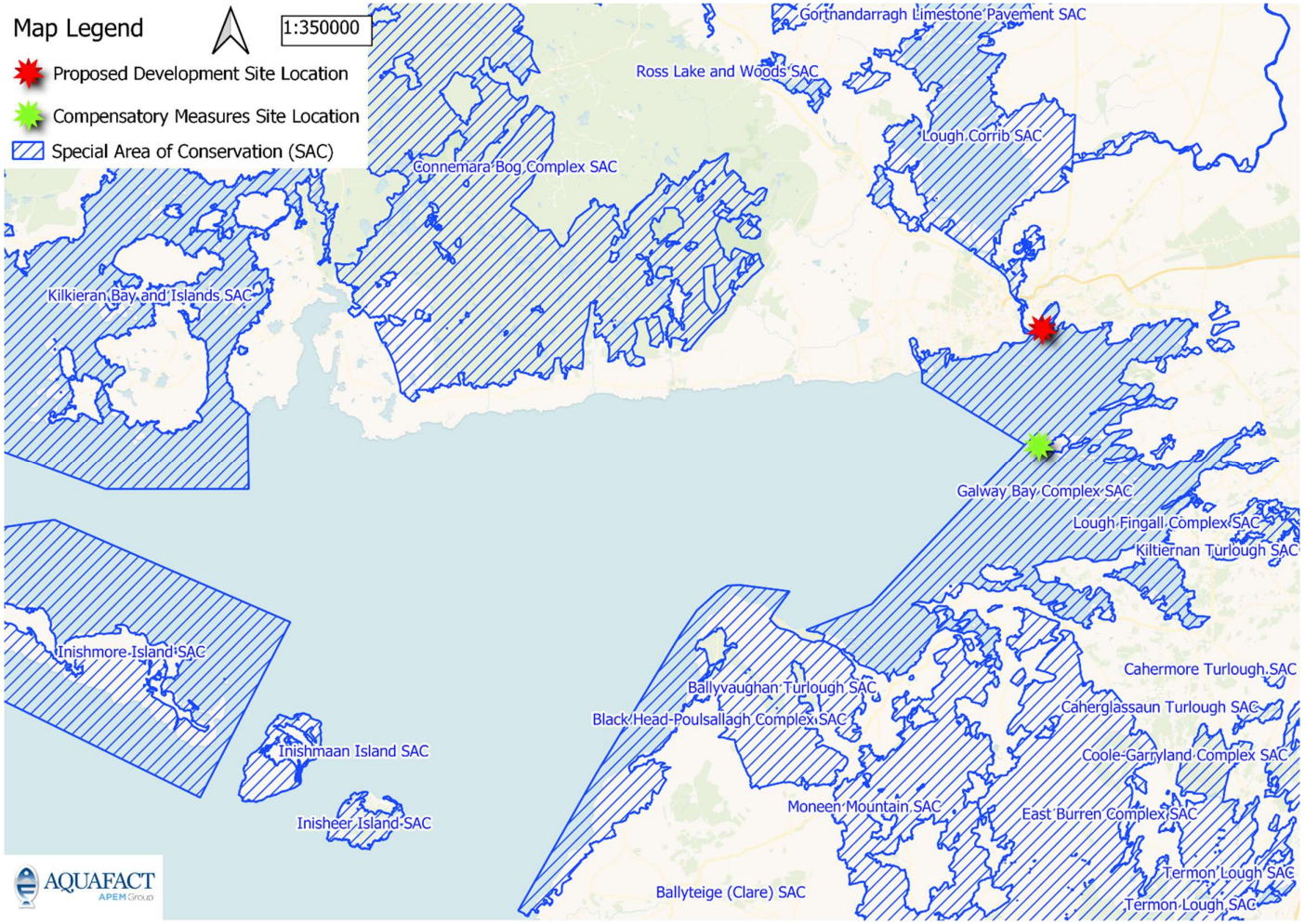

Figure 6-11: Special Areas of Conservation in the vicinity of the Proposed Development Area.

Special Protection Areas (SPA)

No additional information.

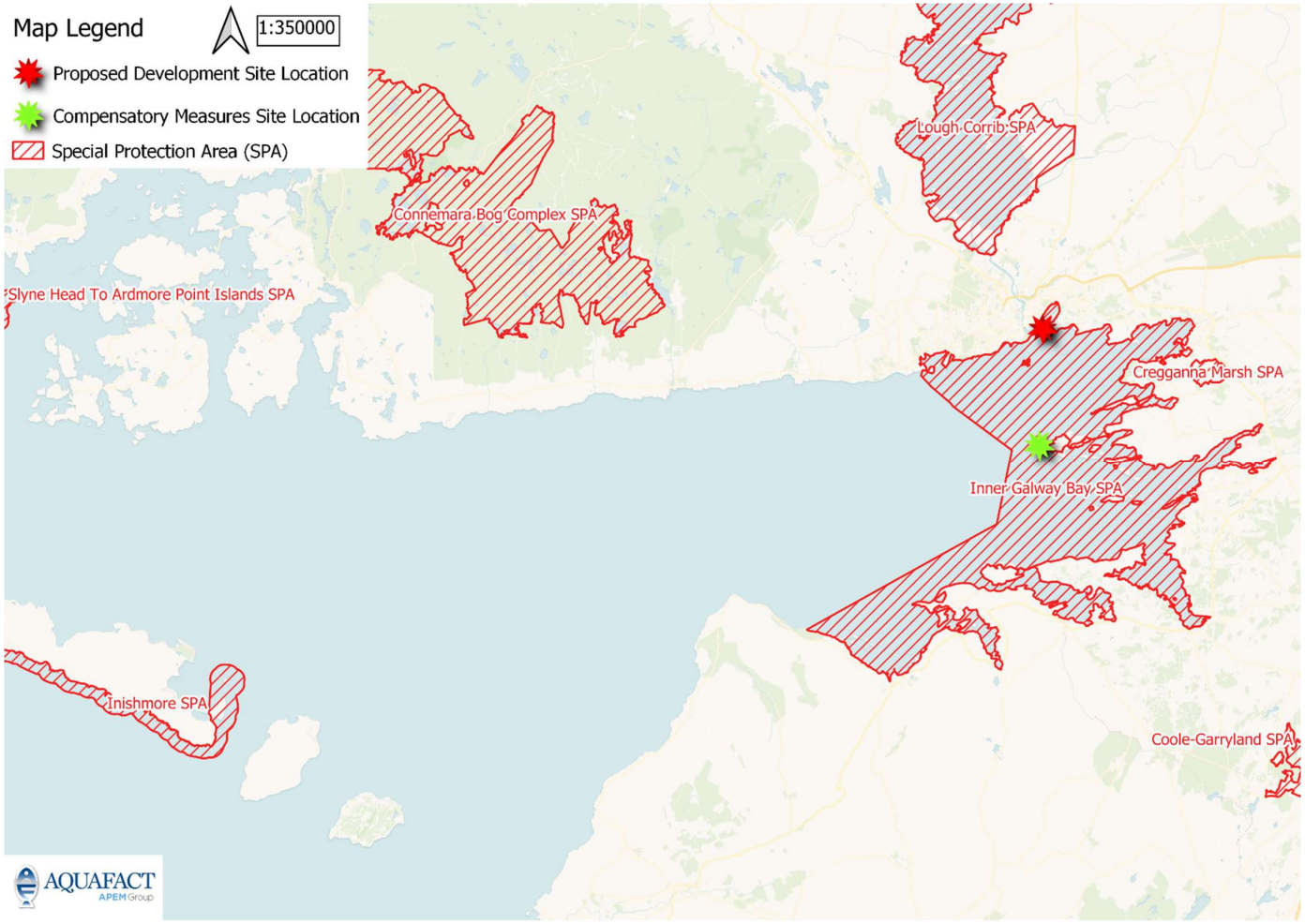

Figure 6-12: Special Protection Areas in the vicinity of the Proposed Development Area.

6.3. Potential Impacts on Natura 2000 Sites

European sites located further than 15km have been assessed as part of this Addendum. No additional sites were identified that have the potential to be affected by the Proposed Development.

The conclusions of the Natura Impact Statement(s) remain valid for the purpose of this assessment. No additional information is required.

6.4. Characteristics of the Natura 2000 Sites

Proposed Development Area

The conservation objectives for the relevant Qualifying Interests (QI's) of each SAC (previously referred to as cSAC) and the relevant Special Conservation Interests (SCI's) for each SPA were set out with context provided on the designated European Site the QI/SCI were located in.

Since the original NIS, and subsequent Addendum and Errata documents, certain European Designated Sites have been re-assessed and revised Conservation Objective documents and Site Synopsis documents have been published. Certain Qualifying Interests (QI's) and Special Conservation Interests (SCI's) can have large foraging and commuting ranges, such as bottlenose dolphin (*Tursiops truncatus*), and are considered fully as part of this assessment. The following sub-sections detail revised conservation objectives and site descriptions for European Sites that have been re-assessed since the original NIS and subsequent Addenda/Errata have been submitted:

Slieve Tooey/ Tormore Island/ Loughros Beg Bay SAC (000190)

This large and scenic site covers the northern half of the Slieve League peninsula in Co. Donegal, stretching from Ardara in the east towards Glencolmbkille and Glen Bay in the west. Along its northern side, the site is fringed by a range of coastal habitats, including sea cliffs, stacks, islets, caves, sand dunes, the Loughros Beg Bay estuary and salt marshes.

The associated targets and attributes for QI's with the potential to be impacted by the Proposed Development are shown below (NPWS, 2015[2]).

[2]NPWS (2015) Conservation Objectives: Slieve Tooey/Tormore Island/Loughros Beg Bay SAC 000190. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Table 6-4: Conservation Objectives for Grey seal *Halichoerus grypus* within Slieve Tooey/Tormore Island/Loughros Beg Bay SAC [000190]

Conservation Objectives for : Slieve Tooey/Tormore Island/Loughros Beg Bay SAC [000190]			
1364	**Grey Seal *Halichoerus grypus***		
To maintain the favourable conservation condition of Grey Seal in Slieve Tooey/Tormore Island/Loughros Beg Bay SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the SAC should not be restricted by artificial barriers to site use. See map 7	See marine supporting document for further details
Breeding behaviour	Breeding sites	Conserve the breeding sites in a natural condition. See map 7 for known sites	Attribute and target based on background knowledge of Irish breeding populations, a preliminary survey in 2003 (Cronin and Ó Cadhla, 2004; Cronin et al., 2007), comprehensive breeding surveys in 2005 (Ó Cadhla et al., 2008) and 2012 (Ó Cadhla et al., 2013) and unpublished NPWS records including those reported by Summers (1983) and Lyons (2004). See marine supporting document for further details
Moulting behaviour	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition. See map 7 for known sites	Attribute and target based on background knowledge of Irish populations, on review of data from Kiely (1998) and Lyons (2004), a national moult survey (Ó Cadhla & Strong, 2007) and unpublished NPWS records. See marine supporting document for further details
Resting behaviour	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition. See map 7 for known sites	Attribute and target based on review data from Lyons (2004), Cronin et al. (2004), Duck and Morris (2013) and unpublished NPWS records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the SAC	See marine supporting document for further details

Inishbofin and Inishshark SAC (000278)

The site is of considerable conservation significance for the presence of an excellent example of a lagoon, a habitat listed with priority status on Annex I of the E.U. Habitats Directive, and for the good examples of heath, sea cliff, hay meadow, and other vegetation communities typical of exposed western islands that it supports. The presence of a breeding colony of Grey Seal, a species that is listed on Annex II of the E.U. Habitats Directive, as well as populations of rare Red Data Book plant species and of important bird populations adds significantly to the importance of the site.

The associated targets and attributes for QI's with the potential to be impacted by the Proposed Development are shown below (NPWS, 2015[3]).

[3] NPWS (2015) Conservation Objectives: Inishbofin and Inishshark SAC 000278. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Table 6-5: Conservation Objectives for: Grey seal *Halichoerus grypus* within Inishbofin and Inishshark SAC [000278]

Conservation Objectives for : Inishbofin and Inishshark SAC [000278]			
1364	**Grey Seal *Halichoerus grypus***		
To maintain the favourable conservation condition of Grey Seal in Inishbofin and Inishshark SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the SAC should not be restricted by artificial barriers to site use. See map 5	See marine supporting document for further details
Breeding behaviour	Breeding sites	Conserve the breeding sites in a natural condition. See map 5	Attribute and target based on background knowledge of Irish breeding populations, comprehensive breeding surveys in 1995 (Kiely, 1998; Kiely and Myers, 1998), 1998 and 1999 (BIM, 2001), 2002 (Ó Cadhla and Strong, 2003) and 2005 (Ó Cadhla et al, 2008) and unpublished NPWS records, including those reported by Lyons (2004). See marine supporting document for further details
Moulting behaviour	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition. See map 5	Attribute and target based on background knowledge of Irish populations, on review of data from Kiely (1998) and Lyons (2004), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished NPWS records. See marine supporting document for further details
Resting behaviour	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition. See map 5	Attribute and target based on review of data from Kiely (1998), BIM (2001), Lyons (2004), Cronin et al., (2004), Ó Cadhla et al, (2008) and unpublished NPWS records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site	See marine supporting document for further details

Galway Bay Complex SAC (000268)

No additional information.

Lough Corrib SAC (000297)

Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland, with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south, and a larger, deeper basin, underlain by more acidic granite, schists, shales, and sandstones to the north. The surrounding lands to the south and east are mostly pastoral farmland, while bog and heath predominate to the west and north. A number of rivers are included within the SAC as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan, and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen, and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest including raised bog, woodland, grassland, and limestone pavement have been incorporated into the site.

The associated targets and attributes for QI's with the potential to be impacted by the Proposed Development are shown below (NPWS, 2017[4]).

Table 6-6: Conservation Objectives for Sea Lamprey *Petromyzon marinus* within Lough Corrib SAC [000297]

Conservation Objectives for : Lough Corrib SAC [000297]			
1095	**Sea Lamprey *Petromyzon marinus***		
To restore the favourable conservation condition of Sea Lamprey in Lough Corrib SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Distribution: extent of anadromy	Percentage of river accessible	Greater than 75% of main stem length of rivers accessible from estuary	Sea lamprey (*Petromyzon marinus*) traditionally congregate and build spawning nests in the River Corrib in Galway city, both up- and downstream of the Salmon Weir Bridge. Their further upstream passage is impeded by the regulating weir immediately upstream. The combination of barriers to passage and low flows can impede further upstream passage in Irish catchments and prevent or reduce penetration and extensive colonisation (Gargan et al., 2011; Rooney et al., 2015). Sea lamprey have been recorded passing through the denil fish passage facility at the regulating weir. However, no quantitative assessment has been made, nor has any annual record been maintained. Sea lamprey have also been observed using their sucker mouths to project themselves up the damp concrete faces of the weir structure at low water levels (J. King, Inland Fisheries Ireland (IFI), pers. comm.)
Population structure of juveniles	Number of age/size groups	At least three age/size groups present	Attribute and target based on Harvey and Cowx (2003) and O'Connor (2007)
Juvenile density in fine sediment	Juveniles/m²	Mean catchment juvenile density at least 1/m²	Juveniles burrow in areas of fine sediment in still water. Attribute and target based on Harvey and Cowx (2003). No sites surveyed in 2006 (O'Connor, 2007) or 2013 (IFI, unpublished data) were positive for sea lamprey ammocoetes
Extent and distribution of spawning habitat	m² and occurrence	No decline in extent and distribution of spawning beds	Attribute and target based on spawning bed habitat mapping by Inland Fisheries Ireland (IFI). Lampreys spawn in clean gravels. Artificial barriers can prevent lampreys from accessing suitable spawning habitat. As mentioned above, artificial barriers are currently preventing lamprey from accessing suitable spawning habitat above the regulating weir in the River Corrib
Availability of juvenile habitat	Number of positive sites in 3rd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive, with a minimum of four positive sites in a catchment, which are at least 5km apart	Artificial barriers can prevent juvenile lampreys from accessing the full extent of suitable habitat. Silting habitat is essential for larval lamprey and they can be severely impacted by sediment removal. Recovery can be rapid and newly-created habitat can be rapidly colonised (King et al., 2015). However, it is vital that such sedimenting habitats are retained

[4] NPWS (2017) Conservation Objectives: Lough Corrib SAC 000297. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

Table 6-7: Conservation Objectives for Otter *Lutra lutra* within Lough Corrib SAC [000297]

Conservation Objectives for : Lough Corrib SAC [000297]

1355 Otter *Lutra lutra*

To maintain the favourable conservation condition of Otter in Lough Corrib SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. Favourable Conservation Status (FCS) target, based on 1980/81 survey findings, is 88% in SACs. Current range is estimated at 93.6% (Reid et al., 2013)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 1,054ha along river banks/ lake shoreline/around ponds	No field survey. Areas mapped to include 10m terrestrial buffer along shoreline and river banks identified as critical for otters (NPWS, 2007)
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 314.2km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 4,178ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk and Moorhouse, 1991; Kruuk, 2006)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford, 2006; Reid et al., 2013)
Barriers to connectivity	Number	No significant increase. For guidance, see map 12	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed

Table 6-8: Conservation Objectives for Salmon *Salmo salar* within Lough Corrib SAC [000297]

Conservation Objectives for : Lough Corrib SAC [000297]			
1106	**Salmon *Salmo salar***		
To maintain the favourable conservation condition of Atlantic Salmon in Lough Corrib SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Distribution: extent of anadromy	Percentage of river accessible	100% of river channels down to second order accessible from estuary	There are no barriers to migration of salmon (*Salmo salar*) in Lough Corrib SAC. Salmon spawn in the headwaters of Lough Corrib tributaries. There is an artificial canal joining Lough Corrib and Lough Mask where salmon did not have access historically and does not constistute a limit on the distribution of salmon in Lough Corrib SAC
Adult spawning fish	Number	Conservation limit (CL) for each system consistently exceeded	A conservation limit (CL) is defined by the North Atlantic Salmon Conservation Organisation (NASCO) as "the spawning stock level that produces long-term average maximum sustainable yield as derived from the adult to adult stock and recruitment relationship". The target is based on the Standing Scientific Committee on Salmon (SSCS) annual model output of CL attainment levels. See SSCS (2016). Attainment of CL estimates are derived from direct counts of adults (rod catch, fish counter) or indirectly by fry abundance counts. The Corrib catchment is currently exceeding its CL
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling	The target is the threshold value for rivers currently exceeding their conservation limit (CL)
Out-migrating smolt abundance	Number	No significant decline	Smolt abundance can be negatively affected by a number of impacts such as estuarine pollution, predation and sea lice (*Lepeophtheirus salmonis*)
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes	Salmon spawn in clean gravels. The habitat for salmon is good and habitat rehabilitation programmes have been undertaken throughout the Corrib catchment to restore drained channels and repair habitat damaged by overgrazing
Water quality	EPA Q value	At least Q4 at all sites sampled by EPA	Q values based on triennial water quality surveys carried out by the Environmental Protection Agency (EPA)

Slyne Head Islands SAC (000328)

This site is an important example of exposed low-lying western islands with good examples of reefs, a significant breeding grey seal population, and important colonies of breeding birds. The QI's with the potential to be impacted by the Proposed Development include grey seal (*Halichoerus grypus*) which was previously described in the original NIS document, and common bottlenose dolphin (*Tursiops truncatus*) which has been added as a qualifying interest to this SAC since the original NIS submission. The conservation objectives for grey seal *Halichoerus grypus* and associated targets and attributes for the species within Slyne Head Islands SAC were previously described in the original NIS.

There are no site-specific conservation objectives listed yet for Bottlenose dolphin within Slyne Head Islands SAC, as a result, the general conservation objective 'To maintain the favourable conservation condition of common bottlenose dolphin in Slyne Head Islands SAC' will be used. The attributes and targets measures for bottlenose dolphin within West Coast Connacht SAC 002998, another SAC considered in Stage 2, will be adapted for the purpose of this assessment and are shown below. The

attributes and target measures for bottlenose dolphin below reference to Map 3 refers to Map 3 of the relevant Conservation Objectives document.

Table 6-9: Attributes and Targets for Bottlenose Dolphin *Tursiops truncatus* within Slyne Head Islands SAC.

Attribute	Measure	Target
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use. See map 3
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site

Duvillaun Islands SAC (000495)

The Duvillaun Islands form part of a larger group of islands, together with the Inishkeas, Inishkeeragh, and Inishglora, which hold an important breeding population of Grey Seal. The breeding population is estimated at 648-833 individuals (in 2005). Waters around the Duvillaun Islands support groups of Bottlenose Dolphin (*Tursiops truncatus*) that are part of a population inhabiting the west and north coasts of Connacht and which numbers at least 177-337 dolphins. This species is also listed on Annex II of the Habitats Directive. Group sizes of 2-20 individual dolphins, including calves, have been recorded around these islands. So far, all dolphin records within the site have occurred in the month of April. Bottlenose Dolphin records from adjacent coastal waters of the Mullet Peninsula and Inishkea island group have occurred in all seasons. The conservation objectives for grey seal *Halichoerus grypus* and associated targets and attributes for the species within Duvillaun Islands SAC were previously described in the original NIS.

There are no site-specific conservation objectives listed yet for Bottlenose dolphin within Duvillaun Islands SAC, as a result, the general conservation objective 'To maintain the favourable conservation condition of common bottlenose dolphin in Duvillaun Islands SAC' will be used. The attributes and targets measures for bottlenose dolphin within West Coast Connacht SAC 002998, another SAC considered in Stage 2, will be adapted for the purpose of this assessment and are shown below.

Table 6-10: Attributes and Targets for Bottlenose Dolphin *Tursiops truncatus* within Duvillaun Islands SAC.

Attribute	Measure	Target
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use. See map 3
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site

Inishkea Islands SAC (000507)

No additional information.

Maumturk Mountains SAC (002008)

No additional information.

Connemara Bog Complex SAC (002034)

No additional information.

Kilkieran Bay and Islands SAC (002111)

Kilkieran Bay and Islands SAC is located just north of Galway Bay and extends from Keeraun Point, south of Carraroe, westwards to Mace Head, west of Carna, all in Co. Galway. The site contains a large area of open marine water, many islands and rocky islets, and the coastline is much indented with a series of bays (notably the interconnected Kilkieran Bay and Greatman's Bay), channels, and inlets. The entrances of the bays face the prevailing south-westerly winds and they are subject to strong tidal streams as the sea funnels between islands and through channels. A number of streams, lakes, and lagoons drain into the bays. The bedrock of the site is igneous, composed of granite, felsite, and other intrusive rocks rich in silica. Generally, the site has a rocky shoreline which in most places gives way to mud in shallow water. The surrounding land is dominated by lowland blanket bog, with rock outcrops, and small hills to the north.

The conservation objectives for harbour seal *Phoca vitulina* and associated targets and attributes for the species within Kilkieran Bay and Islands SAC were previously described in the original NIS.

There are no site-specific conservation objectives listed yet for Harbour porpoise (*Phocoena phocoena*) within Duvillaun Islands SAC, as a result, the general conservation objective 'To maintain

the favourable conservation condition of harbour porpoise in Kilkieran Bay and Islands SAC' will be used. The attributes and targets measures for harbour porpoise within the Blasket Islands SAC 002998, another SAC considered in Stage 2, will be adapted for the purpose of this assessment and are shown below. The attributes and target measures for harbour porpoise below reference to Map 8 refers to Map 8 of the relevant Conservation Objectives document.

Table 6-11: Attributes and Targets for Harbour porpoise *Phocoena phocoena* within the Blasket Islands SAC.

Attribute	Measure	Target
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use. See map 8
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site

Lower River Shannon SAC (002165)

No additional information.

Blasket islands SAC (002172)

No additional information.

West Coast Connacht SAC (002998)

This site consists of a substantial area of marine waters lying off the coasts of Counties Mayo and Galway in the west of Ireland. Comprising two parts, in its northern component the site extends from the coastal waters off Erris Head westwards beyond Eagle Island and the Mullet Peninsula in Co. Mayo. From there it extends southwards immediately off the coast as far as the entrance to Blacksod Bay. In its southern component, the site stretches from Clare Island and the outer reaches of Clew Bay at Old Head and continues southwards off the Mayo coast to the Connemara coast near Clifden and Ballyconneely, Co Galway. Predominantly coastal in nature, the site extends westwards into Atlantic continental shelf waters up to approximately 7-11 km from the mainland, although in its southern component it remains mostly inshore of the main islands: Clare Island, Inishturk, Inishbofin, and Inishshark. Its area contains subtidal waters fringing these and other islands, as well as islets and rocky skerries off the Co. Mayo and Co. Galway coasts.

The conservation objectives for bottlenose dolphin *Tursiops truncatus* and associated targets and attributes for the species within West Coast Connacht SAC were previously described in the original NIS.

There are no site-specific conservation objectives listed yet for Harbour porpoise (*Phocoena phocoena*) within West Coast Connacht SAC, as a result, the general conservation objective 'To maintain the favourable conservation condition of harbour porpoise in West Coast Connacht SAC' will be used. The attributes and targets measures for harbour porpoise within the Blasket Islands SAC 002998, another SAC considered in Stage 2, will be adapted for the purpose of this assessment and are shown below. The attributes and target measures for harbour porpoise below reference to Map 8 refers to Map 8 of the relevant Conservation Objectives document.

Table 6-12: Attributes and targets for Harbour porpoise *Phocoena phocoena* within the Blasket Islands SAC.

Attribute	Measure	Target
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use. See map 8
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site

Inner Galway Bay SPA (004031)

No additional information.

Lough Corrib SPA (004042)

No additional information.

6.5. Proposed Compensatory Measures, Accompanying Measures and Additional Environmental Benefits

The proposed Compensatory measures outlined remain valid for the purpose of this assessment and can be found in Appendix I. No further information is required.

6.6. Assessment of Potential Adverse Effects and Associated Mitigation

6.6.1. Pre-Construction Works

Identification of Potential Impact

The potential for negative effect on the QI'S of Galway Bay SAC and SCI's of Inner Galway Bay SPA has been identified through the proposed site investigation works to be carried out at the proposed development site.

The potential impacts previously assessed for remain valid with the addition of the following:

- 2D Seismic Survey: The proposed 2D seismic survey has the potential to cause a negative affect marine mammals which are in the vicinity of the proposed development site during pre-construction through noise disturbance caused by the air gun.
- Extended number of boreholes and coreholes can result in a loss of habitat for intertidal and subtidal species and a loss of foraging habitat for bird species.

Additional Proposed Mitigation

To address the potential for effect to marine life as a result of the 2D seismic survey, an Environmental Mitigation Plan will be implemented. Typical mitigation measures will include restricting the works to a certain time of the year, if necessary, as required by the local requirements, carrying out several lighter, less "noisy" test airgun shots prior to commencing the survey to encourage any nearby mammals to avoid this area, and specifying a Marine Mammal Observer ("MMO") during the works to determine if any mammals are nearby. The works would be ceased as necessary to ensure the health and safety of the marine life.

Additionally, Southall *et al*. (2019) has reported updated exclusion buffers for temporary threshold shift (*i.e.* Temporary hearing effects). While most species previously assessed are unchanged regarding the exclusion buffers associated with them, Harbour Porpoise (*Phocoena phocoena*) is now considered under the 'Very High Frequency Group', previously called the 'Mid Frequency Cetacean Group'. This means that the previously reported exclusion zones (Southall *et al.,* 2007) are now updated to the following:

- Impact piling: 1900 m
- Blasting: 1500 m
- Dredging: 1700 m

No significant changes in the potential impacts as listed previously taken these adjustments into account is noted.

Assessment of Adverse Effects

Due to the previously prescribed mitigation in relation to pre-construction impacts, and the appointment of a Marine Mammal Observer for the duration of the works, there will be no significant adverse effect on the QI's or SCI's of any Natura 2000 site due to the updated pre-construction work.

6.6.2. Construction

Identification of Potential Impact

An Invasive Species Management Plan for the identified Third Schedule species, Japanese knotweed (*Reynoutria japonica*), has been prepared by MKO, and the management for this species will be followed through the construction phase to ensure the integrity of Galway Bay SAC is not compromised through the spread of the species.

Additional Proposed Mitigation

The full detail of the management plan and proposed mitigation can be found within Appendix H. The proposed mitigation includes:

- A pre-commencement survey for invasive species including Japanese knotweed by a fully qualified ecologist to determine the locations and the extent of the species within the development site,
- The implementation of a spraying schedule to reduce the above ground biomass and amount of contaminated material to be managed,
- Setting up exclusion areas around the identified stands – leaving enough room to store any excavated spoil temporarily whilst construction is ongoing,
- Digging down to formation level in exclusion zones and storing excavated material immediately adjacent in temporary bunds,
- Laying a root barrier membrane at formation level and constructing on top using non-contaminated material, following construction, using the contaminated material as landscaping at the edges of the rail line and continuing treatment.

The management plan includes an annual post-treatment monitoring plan. The treated areas will be re-surveyed annually and if necessary, retreated until no growth is recorded for two consecutive years.

Assessment of Adverse Effects

Through the application of the management plan as detailed in Appendix H, there will be no spread of Japanese Knotweed (*Reynoutria japonica*) into any Natura 2000 site, therefore there will be no significant adverse effect on any Natura 2000 site due to proposed development this invasive species.

6.6.3. Operational

No further information required.

6.7. Assessment of Residual Adverse Effects

The updated pre-construction and construction mitigation ensures in view of the best scientific knowledge and based on objective information, that the proposed development will not adversely affect any QI or SCI species of any Natura 2000 sites than those previously identified in previous NIS reports associated with this project. The compensatory measures previously proposed to account for the loss of QI habitats associated with Galway Bay Complex SAC remain appropriate as compensation for the loss, and there will be no further significant adverse effect as a result of this proposed development.

6.8. Potential In-Combination Effects & Assessment

This section identifies updates to potential cumulative impacts from the GHE project and associated Compensatory measures in combination with other developments in the surrounding area which have been granted, or are ongoing, within the last 5 years.

6.8.1. Planning Applications (Granted)

The EPA defines a cumulative effect as:

"*The addition of any minor or insignificant effects, including effects of other projects, to create larger more significant effects*."

The project team provided a list of projects within the Galway City area which could be considered for cumulative assessment. The boundary for this cumulative assessment was subjective to the assessment undertaken and with respect to the terrestrial fauna, birds and marine mammals identified as QI's within Natura 2000 sites in the vicinity of the proposed development, a review of the regular foraging ranges of the relevant species was undertaken. This took the form of a literature review to determine, where available, the distance at which a particular species regularly travels to forage and therefore may be affected by a plan or project.

Following this review, areas of suitable habitat, including open coastal and marine habitats, that were within the core foraging range of a particular species were considered as part of the cumulative assessment. In the case of terrestrial species, the plans and projects considered were relatively proximal to the site of the proposed development and within the area covered in respect of habitats and potential effects on the aquatic environment.

In respect of marine bird species and marine mammals, the foraging range was sometimes much larger; up to approx. 30km for the Cormorant (*Phalacrocorax carbo*), approx. 40km for the Black-headed Gull (*Chroicocephalus ridibundus*), approx. 50km for the Common Gull (*Larus canus*), and approx. 54km for the Sandwich Tern (*Sterna sandvicensis*) (Thaxter *et al.,* 2012). In these cases, plans and projects that are located in suitable habitat for the individual species within the relevant foraging range, were considered. **Table 6-13** lists the projects that were considered and assessed in this Cumulative Impact Assessment. The projects in the list were sourced from the National Planning Authority Database & An Bord Pleanála.

Table 6-13: List of projects considered as part of the cumulative assessment.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
19372	18/09/20	Planning permission for the development of 1 no. 3G pitch and 1 no. grassed GAA/soccer pitch plus all ancillary infrastructure, ball stop fencing, floodlighting, drainage, an enhanced biodiversity area and all associated site development works. The proposed development also seeks permission for temporary changing room facilities and a shared access lane for emergency/maintenance vehicles and pedestrians during the construction phase of the proposed N6 Galway City Ring Road.	This project was reviewed fully to assess its potential to result in additional or cumulative impacts with the proposed development. This project is accompanied by a Natura Impact Statement, which was reviewed as part of this assessment. The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
20539	21/12/20	Retention of A) dwellinghouse on revised site boundaries, B) Retain existing garage, C) Retain elevation changes to dwellinghouse. Gross floor space of work to be retained: 139.50 sqm (Dwelling), 38.34 sqm (Garage)	This project is located in the vicinity of the proposed compensatory measure's location (Tawin/Mweelroon), however the proposals involved in this project are minimal and confined to the location of an existing development. It is not predicted there will be any cumulative or in-combination effects from this project and the proposed development.	No potential significant cumulative or in combination effects.
22196	02/11/22	for a proposed new wedding venue (c. 1,016 sqm), including a 300-seater function room, bar, ancillary service and utility rooms, 8 no. staff car parking spaces, and all associated site and drainage works. This application includes a Natura Impact Statement (NIS). Gross floor space of proposed works: 1016 sqm	This project was reviewed fully to assess its potential to result in additional or cumulative impacts with the proposed development. This project is accompanied by a Natura Impact Statement, which was reviewed as part of this assessment. The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
2360159	01/08/24	Permission for development which consists of the demolition of a substandard boat house and the construction of a replacement two storey boat house building accommodating a repair / working dry dock inlet at the ground floor and a club house meeting room, kitchenette, W.C. and changing areas at the first floor, a cantilevered quayside boardwalk with floating pontoons at ground level and viewing deck to the waterfront at first floor and all associated site works	This project was reviewed fully to assess its potential to result in additional or cumulative impacts with the proposed development. This project is accompanied by a Natura Impact Statement, which was reviewed as part of this assessment. The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
22180		Permission for development which will consist of the construction of a new water sport facility. Full details available on planning website.	This project was reviewed fully to assess its potential to result in additional or cumulative impacts with the proposed development. This project is accompanied by a Natura Impact Statement, which was reviewed as part of this assessment. The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
19355/ 22256	20/06/23	Permission for development which consists of the provision of 69 No. new car park spaces, associated access roads, paths, site lighting, drainage and landscaping within the grounds of the government offices, and new gated pedestrian entrance with path	This project carried out a Stage 1 Appropriate Assessment which concluded the development would not give rise to a significant effect individually or in combination with other plans or projects on any European Site and was not subject to Stage 2 Appropriate Assessment (and for the submission of an NIS). There is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
23104		Permission for development consisting of the demolition of 5 no. existing buildings on the proposed site, including No. 14 Distillery Road, Block T, the Storage Facility, the former Pharmacology building and the adjacent car parking area with associated boundary walls and ancillary structures: to facilitate the development of a new Learning Commons facility on a site extending to 0.4396 ha. The proposed site is located immediately west of Protected Structure Ref 8501 (rivers & waterways), circa 40 meters north-west of Protected Structure Ref 7003 (Arts Science Building) and circa 155 metres north-west of Protected Structure 7001 (James Hardiman Library).	This project was reviewed fully to assess its potential to result in additional or cumulative impacts with the proposed development. This project is accompanied by a Natura Impact Statement, which was reviewed as part of this assessment. The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
22101	19/12/22	Permission for development at Liam Mellows GAA club which will consist of (a) above-ground water storage tank (b) switch room (c) machinery/maintenance shed (d) services control room/container (e) palisade fencing and all associated site works	This project carried out a Stage 1 Appropriate Assessment which concluded the development would not give rise to a significant effect individually or in combination with other plans or projects on any European Site and was not subject to Stage 2 Appropriate Assessment (and for the submission of an NIS). There is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
2460783	21/08/24	Ground mounted solar panels facing south, covering a total area of approx. 520m^2. The height of the panels will range from 1.5m to 3.0m at an angle of 15-30 degrees. Carport canopy solar panels mounted to a new carport canopy facing north-east and south-west with a total area of approx. 1,540m^2 and a maximum height of 3.8m located over the existing car park. Cabling and all other ancillary development to connect the solar panels to the existing Marine Institute building. This application is accompanied by a Natura Impact Statement (NIS)	This project was reviewed fully to assess its potential to result in additional or cumulative impacts with the proposed development. This project is accompanied by a Natura Impact Statement, which was reviewed as part of this assessment. The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
21614/246011 2 ABP - 311630	26/03/24	Large development of Sports Centre at Rinville West. Full details in application file	This project is located in the vicinity of the Galway Bay Complex SAC and Inner Galway Bay SPA. The description of the project was reviewed fully as part of this assessment and was assessed as offering a positive effect due to the creation of amenity grassland, which will create foraging habitat for the SCI species of Inner Galway Bay SPA. The proposed wastewater treatment, toilet block, and site drainage is appropriately mitigated against to ensure there is no significant effect to any European Site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.
22992	08/05/23	for the following at the existing Glenlo Abbey Hotel (Protected Structures no. 3441 and 3952). Demolition of the existing driving range building and associated 22 No. driving range bays. Construction of new single storey Golf Academy to include 30 No. covered Driving Range Bays, Pro Golf Shop, Changing Facilities, High Performance Golf Training Facility, Restaurant, Retail Store, Kitchens, along with Hotel Administration Offices, Staff Canteen and Ancillary Accommodation, together with all associated services and ancillary site works, including alteration and extension of the adjacent carpark. A Natura Impact Statement (NIS) will be submitted to the planning authority with this application. Gross floor space of proposed works: 1102 sqm	This project was considered for further assessment due to its close proximity to Lough Corrib SAC and the potential for the River Corrib to transport polluting materials downstream into Galway Bay Complex SAC. Upon review of the Natura Impact Statement associated with this project, and the proposed mitigation for this project, it can be established that The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
2287	26/05/22	Permission for development which will consist of changes to previously approved planning permission ref no. 14/18 (extended under 19/175). Ceannt Railway Station is a protected structure (RPS 10001). The changes include: 1. Partial removal of three no. internal walls in the northern buildings to increase visibility and thus assist with both passenger flow and wayfinding and accessibility. 2. The partial removal of some of the existing concrete floor on the eastern side of the station building and the subsequent lowering of same by approx. 180 mm to be at the same level throughout and thus assist with passenger accessibility	The current Proposed Development includes the provision to establish a freight rail link to enable freight and cargo to be efficiently transported to and from the harbour to allow positive road traffic and environmental benefits. This will not impact project 2287 or the previously granted 14/18 and will provide a positive impact to the wider community by permitting greater access to and from the city. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.
2047	24/05/21	Permission for the development of a mixed-use urban regeneration project with an overall gross floor area of approximately 128,080 sq.m (approximately 101, 327sq.m) excluding the multi-storey carpark and single level service yard basement with access ramp) on a site of approx. 3.46 Ha.	Upon review of the relevant documentation, appropriate mitigation is in place to ensure there is no significant adverse or residual effect on this project on any Natura 2000 site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.
23104	20/06/23	Permission for development which consists of the demolition of 5 no. existing buildings on the proposed site, including No. 14 Distillery Road, Block T, the Storage Facility, the former Pharmacology building and the adjacent car parking area together with associated boundary walls and ancillary structures: to facilitate the development of a new Learning Commons facility on a site extending to 0.4396 ha. The planning application is supported by a Natura Impact Statement. Full development description on planning website	This project was considered for further assessment as it is located in close proximity to the River Corrib, which could lead to the River Corrib transporting polluting materials downstream into Galway Bay Complex SAC. Upon review of the Natura Impact Statement associated with this project, and the proposed mitigation for this project, it can be established that the mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
APB-308431	15/02/21	Demolition of existing outbuildings, construction of 121 no. residential units (comprising of 52 no. houses and 69 no. apartments), childcare facility and all other associated site works.	This project was subject to a full EIAR which analysed the potential for effect on the surrounding environment and included appropriate mitigation to mitigate against that affect, if any. Upon review of the EIAR and NIS associated with this project, and the proposed mitigation for this project, it can be established that the mitigation proposed ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
ABP-304345	02/08/19	101 no. residential units (46 no. houses, 55 no. apartments), childcare facility and associated site works	This project was not subject to a full EIAR, an Ecological Impact Assessment (EcIA) and NIS were prepared for this submission and reviewed as part of this development. The An Bord Pleanála Inspector's report for this project acknowledged the conclusions of no significant impact on any designated site as a result of the development, and that there will only be a limited loss of habitat as stated in the EcIA, were acceptable. It can be established that there will be no residual adverse effect as part of the development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
ABP-313286	01/11/22	240 no. student bedspace student accommodation and associated site works	This project carried out a Stage 1 Appropriate Assessment which concluded the development would not give rise to a significant effect individually or in combination with other plans or projects on any European Site and was not subject to Stage 2 Appropriate Assessment (and for the submission of an NIS). There is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
ABP-312191	13/04/22	Demolition of buildings, construction of 111 no. residential units (73 no. houses, 38 no. apartments), creche and associated site works.	The inspectors report for to this project was reviewed for the purpose of this assessment. The inspectors report detailed the project would have no effect on any European Site and no mitigation was necessary to protect any European Site, as the European Sites either located within the same groundwater catchment or located downstream are so far removed from the subject lands and when combined with the interplay of a dilution affect such potential impacts would be insignificant. There is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
306403	16/06/20	255 no. student bedspaces and associated site works	The inspectors report for this project was reviewed for the purpose of this assessment. The inspectors report detailed the project would not be likely to have a significant effect on the above European Sites or on any other European Site in view of the sites' conservation objectives, either individually or in combination with any other plan or project, and that a Stage 2 Appropriate Assessment was not required. There is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
303846	11/06/19	674 no. bedspaces with commercial/retail space	The Natura Impact Statement published for this project was reviewed as part of the assessment. It concluded that there would be no significant effect on any Natura 2000 site. There is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
304203	02/08/19	212 no. residential units, creche facility and associated site works	Upon review of the Natura Impact Statement associated with this project, and the proposed mitigation for this project, in particular the proposed best practice construction methods, it can be established that the mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
			different (new) impacts resulting from the combination of this project in association with the proposed development.	
304726	14/10/19	Demolition of existing house and associated outbuildings, construction of 238 no. residential units (113 no. houses, 125 no. apartments), childcare facility and associated site works.	Upon review of the Natura Impact Statement associated with this project, and the proposed mitigation for this project, in particular the proposed best practice construction methods,, it can be established that the mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development	No potential significant cumulative or in combination effects.
307344	06/10/20	Demolition of building, removal of fifth storey of main building, extension of main building to provide 920 no. student bedspace accommodation and associated site works	Upon review of the relevant documentation, appropriate mitigation is in place to ensure there is no significant adverse or residual effect on this project on any Natura 2000 site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.
310348	13/09/21	345 no. Build to Rent apartments and associated site works	Upon review of the relevant documentation, appropriate mitigation is in place to ensure there is no significant adverse or residual effect on this project on any Natura 2000 site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.
310797	28/10/21	Demolition of existing silage concrete apron, construction of 102 no. residential units (35 no. apartments, 67 no. houses), creche and associated site works.	Upon review of the relevant documentation, appropriate mitigation is in place to ensure there is no significant adverse or residual effect on this project on any Natura 2000 site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
310575	07/10/21	Demolition of 4 no. dwellings with associated outbuildings, construction of 102 no. residential units (13 no. houses and 89 no. apartments), childcare facilities and associated site works.	Upon review of the relevant documentation, appropriate mitigation is in place to ensure there is no significant adverse or residual effect on this project on any Natura 2000 site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.
306222	21/04/20	102 no. residential units (24 no. houses, 78 no. apartments), childcare facility and associated site works.	Upon review of the relevant documentation, appropriate mitigation is in place to ensure there is no significant adverse or residual effect on this project on any Natura 2000 site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.
19372 ABP - 308412	18/09/20	Development of 1, 3G pitch and 1 GAA/soccer Pitch plus all ancillary infrastructure, ball stop fencing, floodlighting, drainage, an enhanced biodiversity area and all associated site development works. The proposed development also seeks permission for temporary changing room facilities and a shared access lane for emergency/maintenance vehicles and pedestrians during the construction phase of the proposed N6 Galway City Ring Road.	Upon review of the relevant documentation, appropriate mitigation is in place to ensure there is no significant adverse or residual effect on this project on any Natura 2000 site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.
23218	11/07/23	Permission for development at Rossaveel Fishery Harbour Centre in Rossaveel, Co. Galway. The development will consist of a deep water quay which will provide 200 metres of outside berthing frontage at Rossaveel Harbour. A reclamation area will also be constructed directly behind the deep-water quay which will provide a hard surfaced link to the existing onshore. The development will also include low concrete sea walls, a rock armour revetment, access road, lighting, drainage infrastructure and other ancillary site works. An Environmental Impact Statement has been prepared	This project is a granted extension of duration to a previously granted planning application with the project description as stated. There will be no cumulative effect from the extension of duration of this project when in combination with the proposed development site as there is abundant suitable foraging habitat for SCI bird and QI species to forage in within the intervening area, therefore there will be no impact on any Natura 2000 site.	No potential significant cumulative or in combination effects.

File Ref no.	Date Granted	Development description	Assessment of Potential Cumulative or In combination Effects	Conclusion
		for this development and is included with the planning application. Gross floor area 66800		
21300	29/11/21	Permission for a new small craft harbour, reclamation of foreshore and dredging of a new small craft harbour basin at Rossaveel Fishery Harbour Centre, Rossaveel, Co. Galway.	Due to the significant intervening distance between the proposed development and this project, and the habitats existing in that intervening period providing foraging and commuting availability to SCI and QI species, there is no potential for cumulative effect when considered in combination with the proposed development.	No potential significant cumulative or in combination effects.
20295	20/01/21	Permission for development which will consist of revisions, extensions and enhancements to existing service station on an enlarged site. Full description of project can be accessed on planning website.	This project carried out a Stage 1 Appropriate Assessment which concluded the development would not give rise to a significant effect individually or in combination with other plans or projects on any European Site and was not subject to Stage 2 Appropriate Assessment (and for the submission of an NIS). There is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
19107	24/01/20	Permission for development which comprises of a new raw water intake works located on the east bank of the River Corrib, 100m downstream of Quincentenary Bridge; associated pipework to transfer raw water from the new intake works to the existing intakes works , which in turn supplies Terryland Water Treatment Plant (WTP); and a new treated water rising main extending between Terryland WTP and existing rising main on the east bank of the River Corrib. A full description of the development can be accessed on the planning website. A Natura Impact Statement has been submitted.	Upon review of the relevant documentation, appropriate mitigation is in place to ensure there is no significant adverse or residual effect on this project on any Natura 2000 site. Using the mitigation proposed in combination with the measures outlined for the Proposed Development, it is not predicted there will be any cumulative or in-combination effects from the proposed development.	No potential significant cumulative or in combination effects.

6.8.2. Planning Applications (Ongoing)

- HA61.314597- BusConnects Galway Cross-City Link Scheme- consists of a proposed BusConnects Galway (Cross City Link- University Road to Dublin Road) Scheme consisting of the alteration of existing road layouts including junction layouts, footpaths, signalling, pedestrian crossings, drainage and associated works.
- HA07.318220- N6 Galway City Ring Road- consists of approximately 18km of road infrastructure from new junction with the R336 at the western side of Bearna to tie-in to the existing N6 to the east of Galway City at Coolagh, Briarhill.
- OC07.317409- Sceirde Rocks, Offshore Wind Farm- Proposed development of an offshore wind farm and associated infrastructure for Sceirde Rocks.
- It is noted that development at Rossaveel Fishery Harbour Centre was permitted under Pl. Ref. 17/967 and extended under Pl. Ref. 23/218. The development consents for Rossaveel were subject to a Judicial Review challenge by Wild Ireland Defence CLG (High Court Record Number 2023 1007 JR). It is understood that Galway County Council have subsequently conceded this challenge. A review of the ePlanning system was undertaken on 30 August 2024 and there is no evidence that a new application in relation to the development has been submitted.

All projects listed have localised impacts with their own mitigation measures similar to the proposed development. Where available, EIAR and NIS documents associated with each project were reviewed, and the mitigation measures in each assessed. Through the implementation of the mitigation measures in combination with the mitigation measures outlined for the proposed development, there will be no additional impact or significant cumulative effect on any Natura 2000 site.

6.8.3. Wastewater

The current Wastewater Treatment Plant (WWTP) serving the Galway City area and Oranmore is located on Mutton Island. The 2022 Annual Environmental Report for Mutton Island WWTP noted it '*compliant with the ELV's set in the Wastewater Discharge Licence'* and '*The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status*'.

Additional Wastewater Treatment Plants in the wider Galway County Area include:

- Kinvara WWTP

- Claregalway WWTP
- Moycullen WWTP

There are no significant cumulative effects predicted in combination with wastewater treatment in the Galway area on Natura 2000 sites.

6.8.4. Flood Relief Schemes

Galway Flood Relief Scheme – Corrib go Cósta

This project is still at feasibility and design stage and a proposed scheme has not been fully developed. It is understood that the likely solution to coastal flooding will be shoreline defences in the form of walls, rock armouring, embankments and possibly demountable defences. The proposed New Harbour will not obstruct any potential defence locations, nor will it compromise the potential flood risk or required defence heights in such areas which included the Galway Docks, Claddagh Basin, Southpark, and Salthill promenade. The New Harbour development meets the flood risk management standards and will not represent a development requiring protection from the Flood relief scheme.

Gort Low lands Flood relief scheme

This scheme is at feasibility and design stage and potentially will involve turlough overflows that eventually will discharge into Kinvarra Bay near Dungory Castle. Such a scheme will through the conveyance of floodwaters into inner Kinvarra Bay will potentially increase surges of freshwater into the Bay giving rise to potential changes in the salinity. The Harbour development on the north shoreline of inner Galway Bay is sufficiently remote as not to influence or be influenced by the hydrodynamics in Kinvarra Bay.

6.8.5. Aquaculture, Foreshore and MARA Licensing and Fisheries Orders

This section identifies updates to potential cumulative impacts from the GHE project and associated Compensatory measures in combination with proposed or granted aquaculture, foreshore and MARA licensing and fisheries orders. The Maritime Area Regulatory Authority, or MARA, is a new state agency that was established on 17th July 2023. MARA's functions are set out in the Maritime Area Planning Acts 2021 and 2022. For applications below the high tide before this date the website for the Department of Housing, Local Government and Heritage (DHLGH) was searched and for applications after this date the MARA website was searched. Aquaculture sites and fisheries orders were searched on the Aquaculture Information Management System (AQUAMIS) website. The results are presented in the table below.

Table 6-14: Foreshore, MARA and Aquaculture licensing.

Website	Project Details	File Reference	Licensee Name	Type of Aquaculture/Project	Assessment of Potential Cumulative or In combination Effects	Conclusion
DHLGH – Foreshore Applications	Foreshore Applications	FS007246	Farice ehf	Main lay and construction works for the installation of the IRIS sub-sea fibre optic cable system from a landfall in Galway to a landfall in Iceland, providing high speed strategic international telecommunications connectivity from Galway on the west coast of Ireland to the capital city of Iceland, Reykjavik.	This project was reviewed fully to assess its potential to result in additional or cumulative impacts with the proposed development. This project is accompanied by a Natura Impact Statement, which was reviewed as part of this assessment. The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the combination of this project in association with the proposed development.	No potential significant cumulative or in combination effects.
		FS007161	Fuinneamh Sceirde Teoranta	Sceirde Rocks Offshore Wind Farm is a fixed bottom offshore wind farm off the West Coast of Ireland and under the Transitional Protocol is recognised as a Relevant or Phase One project. Sceirde Rocks Offshore Wind Farm will be targeting an accelerated delivery programme for this offshore project to meet government renewable energy targets pre-2030. This application specifically relates to a foreshore license for	This project was reviewed fully to assess its potential to result in additional or cumulative impacts with the proposed development. This project is accompanied by an EIAR and an NIS, which was reviewed as part of this assessment. The mitigation proposed as part of the NIS ensures there will be no residual adverse effect as part of the development, and when combined with the mitigation and compensatory measures proposed as part of this proposed development, there is no potential for any different (new) impacts resulting from the	No potential significant cumulative or in combination effects.

Website	Project Details	File Reference	Licensee Name	Type of Aquaculture/Project	Assessment of Potential Cumulative or In combination Effects	Conclusion
				site investigation activities in the wind farm array area only.	combination of this project in association with the proposed development.	
		FS007543	Fuinneamh Sceirde Teoranta	The Foreshore Licence Area measures 922 km2 and covers the potential export cable corridors of the Sceirde Rocks OWF project (a 450MW potential offshore wind farm project). At this stage, a large survey area is required in order to fully investigate a range of potential cable corridor options. The data collected through the surveys included in this foreshore licence application will facilitate decision making on engineering, cable route optioneering and cable installation methodology leading to the refinement of the export cable corridor. The objective of the proposed Sceirde Rocks export cable corridor site investigations is to determine geotechnical, geophysical and benthic characteristics within the Foreshore Licence Area. Further details of the proposed activity are outlined in the application form and associated documents.	An NIS was prepared as part of the application process for the foreshore licence and identified mitigation measures have been included as licence conditions. Strict adherence to these measures is considered appropriate mitigation to avoid significant effects on conservation objectives of any European site. It is therefore determined that the proposed project, either alone or in-combination with other projects, will not adversely affect the integrity of any European Site. A Risk Assessment for Annex IV species likely to occur in Irish waters was carried out by the applicant. The report states that all marine surveys will be carried out in accordance with the mitigation and guidelines provided in the 'Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters' (DAHG, 2014). The report concludes that the proposed site investigation activities will not have an adverse effect on the conservation status of the identified Annex IV species throughout their natural range.	No potential significant cumulative or in combination effects.
		FS006566	Marine Institute	Foreshore Lease application for the testing of prototype wind, wave and tidal energy devices.	This application carried out a Stage 1 AA which concluded the development would not give rise to a significant effect individually or in combination with other plans or projects on any European Site and	No potential significant cumulative or in combination effects.

Website	Project Details	File Reference	Licensee Name	Type of Aquaculture/Project	Assessment of Potential Cumulative or In combination Effects	Conclusion
					was not subject to Stage 2 AA (submission of an NIS).	
MARA – MUL & MAC Applications		2022-MAC-007	Fuinneamh Sceirde Teoranta	Large-scale offshore windfarm	A Marine Area Consent has been granted to Fuinneamh Sceirde Teoranta for development of a large-scale offshore windfarm. Any further works not covered under pre-existing foreshore licensing will be subject to a Marine Usage Licence application and the appropriate environmental reports.	No potential significant cumulative or in combination effects.
AQUAMIS & Irelands Marine Atlas	Aquaculture sites	T09-520A	Galway Gourmet Oysters Ltd	Pacific Oyster	An updated review of licensed aquaculture sites and fisheries orders within Galway Bay was conducted. The review reached the same updated conclusion as previously recorded in the 2015 NIS addendum that as the GHE development is not considered likely to have measurable impacts on foraging resources for the Sandwich Tern colony, there is no potential for cumulative impacts in-combination with impacts from mussel bottom culture for this species or other QI or SCI species examined.	No additional potential significant cumulative or in combination effects.
		T09-500A	Thomas Connolly	Pacific Oyster		
		T09-241	Rainer Krause	Blue Mussel		
		T08-063	Pouldoody Aquaculture Ltd	Pacific Oyster		
		T09-020	Rainer Krause	Blue Mussel		
		T08-112A	Eamonn Chesser	Blue Mussel		
		T09-501A	Thomas Connolly	Pacific Oyster		
		T09-424	Rainer Krause	Blue Mussel		
		T08-016	Feargal Langley	Pacific Oyster		
		T09-470A	Patrick J Martyn	Pacific Oyster		
		T09-503A	Galway Gourmet Oysters Ltd	Pacific Oyster		
		T09-387	Beobio Teoranta	Blue Mussel		
		T09-376E	Keanes Seafood Ltd	Pacific Oyster		
		T09-393	Mattie Joe Larkin	Pacific Oyster		
		T09-375A	De Burca Oysters Ltd	Pacific Oyster		
		T08-114A	Cartron Point Shellfish Ltd	Brown Seaweeds, Red Seaweeds		
		T09-453A	Eugene Dillon	Pacific Oyster		
		T09-482A	James Linnane	Pacific Oyster		

Website	Project Details	File Reference	Licensee Name	Type of Aquaculture/Project	Assessment of Potential Cumulative or In combination Effects	Conclusion
		T09-376D	Keanes Seafood Ltd	Pacific Oyster		
		T09-504A	Michael Irwin	Pacific Oyster		
		T09-065	William Moran	European Flat Oyster		
		T09-376B	Keanes Seafood Ltd	Pacific Oyster		
		T08-084B	Dolphin Seafarms Ltd	Pacific Oyster		
		T09-332	Brian Martyn	Pacific Oyster		
		T09-376A	Keanes Seafood Ltd	Pacific Oyster		
		T09-377A	Galway Gourmet Oysters Ltd	Pacific Oyster		
		T09-374B	Michael Irwin	Pacific Oyster		
		T09-309	Daniel Krause	Pacific Oyster		
		T09-374A	Michael Irwin	European Flat Oyster		
		T09-375C	De Burca Oysters Ltd	Pacific Oyster		
		T08-074	Clareaqua Ltd.	Pacific Oyster		
		T09-463A	Mattie Larkin	Pacific Oyster		
		T09-346	David Krause	Pacific Oyster		
		T09-377B	Galway Gourmet Oysters Ltd	European Flat Oyster		
		T09-373B	Declan Ashe	Pacific Oyster		
		T09-376C	Keanes Seafood Ltd	Pacific Oyster		
		T09-373C	Declan Ashe	Pacific Oyster		
		T08-111A	Eamonn Chesser	Blue Mussel		
		T09-512A	Dara Vaughan	Blue Mussel, Great Atlantic Scallop, Brown Seaweeds		
		T09-373A	Declan Ashe	Pacific Oyster		
	Fisheries orders	T09-005A	St George Fishery Co-Op	European Flat Oyster		
		T09-007AOFO	Oyster Fishery Company	European Flat Oyster		
		T09-018	Crushoa Oyster Rights	European Flat Oyster		
		T08-002OFO	Irish Oyster Aqua Ltd	European Flat Oyster		

6.8.6. Plans

Table 6-15 details the following plans which have been reviewed and taken into consideration as part of this assessment:

- Galway County Development Plan 2022-2028
- Galway City Development Plan 2023-2029
- 4th National Biodiversity Action Plan 2023-2027

Table 6-15: Review of Relevant Policies & Objectives

Plan	Key Policies/Issues and/or Objectives associated with Natura 2000 Sites, Biodiversity and Sustainable Development	Assessment
Galway County Development Plan 2022-2028	**NHB 1 - Natural Heritage and Biodiversity of Designated Sites, Habitats and Species** Protect and where possible enhance the natural heritage sites designated under EU Legislation and National Legislation (Habitats Directive, Birds Directive, European Communities (Birds and Natural Habitats) Regulations 2011 and Wildlife Acts) and extend to any additions or alterations to sites that may occur during the lifetime of this plan. Protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (Habitats and Birds Directive) and protected under national Legislation (European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), Wildlife Acts 1976-2010 and the Flora Protection Order (SI 94 of 1999). Support the protection, conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of European sites, that form part of the Natura 2000 network, the protection of Natural	The Proposed Development has been designed to limit any harm to surrounding Natura 2000 sites, and their QI's and SCI's. It has been noted that this development, should it proceed, will compromise the conservation objectives of QI's related to Galway Bay Complex SAC, however there is a Compensatory Measures Plan in place following consultation from the NPWS that fully compensates and leaves a significant positive impact on the environment of Galway Bay Complex SAC. Throughout this assessment, no further additional adverse or cumulative effects have been noted for any additional European Site.

	Heritage Areas, proposed Natural Heritage Areas, Ramsar Sites, Nature Reserves, Wild Fowl Sanctuaries (and other designated sites including any future designations) and the promotion of the development of a green/ ecological network. **NHB 2- European Sites and Appropriate Assessment** To implement Article 6 of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s). All assessments must be in compliance with the European Communities (Birds and Natural Habitats) Regulations 2011. All such projects and plans will also be required to comply with statutory Environmental Impact Assessment requirements where relevant. **NHB 3- Protection of European Sites** No plans, programmes, or projects etc. giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or	

	scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans, programmes, etc. or projects.* **NHB 4- Ecological Appraisal of Biodiversity** Ensure, where appropriate, the protection and conservation of areas, sites, species and ecological/networks of biodiversity value outside designated sites. Where appropriate require an ecological appraisal, for development not directly connected with or necessary to the management of European Sites, or a proposed European Site and which are likely to have significant effects on that site either individually or cumulatively. **NHB 10- NPWS & Integrated management Plans** Article 6(1) of the Habitats Directive requires that Member States establish the necessary conservation measures for European sites involving, if need be,	

	appropriate management plans specifically designed for the sites or integrated into other development plans. The NPWS's current priority is to identify site specific conservation objectives; management plans may be considered after this is done. Where Integrated Management Plans are being prepared by the NPWS for European sites (or parts thereof), the NPWS shall be engaged with in order to ensure that plans are fully integrated with the Plan and other plans and programmes, with the intention that such plans are practical, achievable and sustainable and have regard to all relevant ecological, cultural, social and economic considerations, including those of local communities. **P1- Protection of Peatlands** Ensure that peatland areas which are designated (or proposed for designation) as NHAs, SACs or SPAs are conserved for their ecological, climate regulation, education and culture, archaeological potential including any ancient walkways (toghers) through bogs. **IW 1- Inland Waterways**	

	(a) Protect and conserve the quality, character and features of inland waterways by controlling developments close to navigable and non-navigable waterways in accordance with best practice guidelines. (b) Preserve, protect and enhance Galway's inland lakes and waterways for their amenity and recreational resource amenity. (c) Protect the riparian zones of watercourse systems throughout the County, recognising the benefits they provide in relation to flood risk management and their protection of the ecological integrity of watercourse systems and ensure they are considered in the land use zoning in Local Area Plans. (d) The Council will support in principle the development and upgrading of the Inland Waterways and their associated facilities in accordance with legislation, best practice and relevant management strategies, key stakeholders and bodies including Waterways Ireland. (e) Ensure all abstractions of water will be subject to assessment for compliance with the	

	requirements of Article 6 of the Habitats Directive. (f) Seek to provide additional accesses to lake shores and rivers for public rights of way, parking and layby facilities, where appropriate. (g) Developments shall ensure that adequate soil protection measures are undertaken, where appropriate, including investigations into the nature and extent of any soil/groundwater contamination	
Galway City Development Plan 2023-2029	**Policy 5.2.** Protect European Sites that form part of the Natura 2000 network (including Special Protection Areas and Special Areas of Conservation) in accordance with the requirements in the EU Habitats Directive (92/43/EC) and associated national legislation. Ensure that all plans or projects within the Plan area will only be authorised and/or supported after the competent authority has ascertained based on scientific evidence, screening for appropriate assessment and/or a Habitats Directive Assessment.	The Proposed Development has been designed to limit any harm to surrounding Natura 2000 sites, and their QI's and SCI's. It has been noted that this development, should it proceed, will compromise the conservation objectives of QI's related to Galway Bay Complex SAC, however there is a Compensatory Measures Plan in place following consultation from the NPWS that fully compensates and leaves a significant positive impact on the environment of Galway Bay SAC. Throughout this assessment, no further additional adverse or cumulative effects have been noted for any additional European Site.

	• The plan or project will not give rise to an adverse direct, indirect or secondary effect on the integrity of any European Site (either individually or in combination with other plans or projects) or; • The plan or project will have an adverse effect on the integrity of any European Site (that hosts a natural habitat type and/or priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree to undertake all compensatory measures necessary to ensure the protection of the overall coherence if Natura 2000 or; • The plan or project will have an adverse effect on the integrity of any European Site (that	The *'Inner Harbour Regeneration Project'* relates to the potential development of 17 acres of land situated at the Inner Harbour Lands surrounding the existing gated Galway Docks and to the East towards Lough Atalia Bridge and Lough Atalia Channel. A vision document has been prepared in relation to this project and was released to the public in May 2021. The vision is underpinned by a planning framework. The Inner Harbour Regeneration Site is referenced in Section 10.6 of the Galway City Development Plan 2023 - 2029 and a Masterplan is pending for the entire site. The Land Development Agency ("LDA") and Galway Harbour Company are also working on a more detailed Masterplan for an initial phase of the overall site.

	hosts a natural habitat type and/or priority species but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in the legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000. Protect, conserve and support the development of an ecological network throughout the city which will improve the ecological coherence or the Natura 2000 network in accordance with Article 10 of the Habitats Directive. Protect and conserve rare and threatened habitats and their key habitats, (wherever they occur) listed on Annex I and Annex IV of the EU Habitats Directive	

	(92/43EEC) and listed for protection under the Wildlife Acts 1976-2000. Ensure that plans and projects with the potential to have a significant impact on European Sites (SACs and SPAs) whether directly, or indirectly, or in combination with other plans or projects are subject to Appropriate Assessment under Article 6 of the Habitats Directive (92/43EEC) and associated legislation and guidelines, to inform decision making. Support and implement measures to control and manage alien/invasive species, where appropriate. Protect the ecological integrity of statutory Nature Reserves, refuges for fauna and Annex I Habitats.	
4th National Biodiversity Action plan 2023-2027	**Outcome 2A:** The protection of existing designated areas and protected species is strengthened and conservation and restoration within the existing protected area network are enhanced. **Outcome 2B**: Biodiversity and ecosystem services in the wider countryside are conserved and restored-agriculture and forestry. **Outcome 2C:** Biodiversity and ecosystem services in the wider countryside are conserved and restored peatland and climate action.	The 4th National Biodiversity Action plan 2023-2027 provides a framework for the conservation of biodiversity at a national level and aims to ensure that national targets for biodiversity and conservation can be achieved. As shown in this report, the proposed development has been designed to ensure the least harm on the surrounding environment, and where potential for residual adverse effect has been noted, appropriate compensatory measures and additional mitigation has been set out. Invasive species have

	Outcome 2D: Biodiversity and ecosystem services in the marine and freshwater environment are conserved and restored. **Outcome 2E:** Genetic diversity of wild and domesticated species is safeguarded. **Outcome 2F:** A National Restoration Plan is in place to contribute to the ambition of the EU Biodiversity Strategy 2030 and global restoration targets. **Outcome 2H:** Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment.	been identified and a robust Invasive Species Management Plan (ISMP) has been prepared to ensure no spread of the species occurs.

6.9. Assessment of Effect on Natura 2000 Site Integrity

Taking into consideration the updated pre-construction and construction details within this Addendum, and the updated projects and plans within the cumulative assessment, the assessment of effect on Natura 2000 site integrity remains valid- all compensatory measures previously proposed will provide a significant positive effect on Galway Bay Complex SAC and Inner Galway Bay SPA and its associated QI's and SCI's.

7. Conclusion

The description of the development has not changed and the methods proposed, site layout, design and the proposed operations all remain the same. Updated surveys carried out to inform this updated assessment and to be in line with best practice and current guidance illustrate there has been minimal change to the baseline of the proposed development site. Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been appropriately mitigated against, and where such mitigation is not possible, appropriate and extensive compensatory measures have been outlined to ensure the loss of valuable QI habitat is replaced and an overall biodiversity net gain is established as a result.

Additional mitigation proposed as part of this updated assessment, include the provision of a Marine Mammal Observer (MMO) during all proposed site investigation works and a full treatment and management plan for the Third Schedule invasive species Japanese Knotweed (*Reynoutria japonica*) which was recorded along the northern boundary of the proposed development site. Additionally, Southall *et al*. (2019) has reported updated exclusion buffers for temporary threshold shift (*i.e.* Temporary hearing effects), and the updated exclusion buffers in relation to Harbour porpoise (*Phocoena phocoena*) will be fully adhered to throughout the construction of the proposed development along with all relevant updated guidance regarding noise as further discussed in Chapter 10.

Following the incorporation of these mitigations in addition to all previously proposed mitigation and Compensatory Measures, it can be concluded that there will be no additional significant impact to Galway Bay SAC or Inner Galway Bay SPA.

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