Habitats Regulations Assessment and Natura Impact Statement
- Carlingford Ferry -

In accordance with Article 6(3) of Council Directive 92/43/EEC and relevant transposing Regulations in both Northern Ireland and Ireland, RPS has prepared this document to accompany a transboundary planning application and Environmental Statement for proposed development at Greencastle, Co. Down and Greenore, Co. Louth. This document is appended to the Environmental Statement.

RPS has considered whether the project either alone or in combination (and being determined as neither directly connected with or necessary to the management of the site) is likely to have a significant effect on the Natura 2000 sites being considered.

As part of that consideration, RPS has:-

(a) taken into account the mitigation measures contained in the application, along with all legally enforceable obligations designed to avoid environmental effects; and
(b) applied the precautionary approach set out in European Commission Guidance: Managing Natura 2000 Sites and as required by the European Court of Justice in C-127/02 (Waddenzee).

Name of Project or Plan

The project is the proposed Carlingford Ferry

Name and location of Natura 2000 sites

1. Carlingford Lough SPA (UK9020161)
2. Carlingford Lough SPA (IE0004078)
3. Carlingford Shore SAC (IE0002306)

Natura 2000 site features

1. Carlingford Lough SPA (UK9020161)
Carlingford Lough SPA lies between Killowen Point and Soldiers Point on the northern shores of Carlingford Lough. It includes all lands and intertidal areas seawards to the limits of Northern Irish territorial waters. Marine areas below mean low water are not included. Carlingford Lough SPA forms part of an extended cross-border site with Carlingford Lough SPA on the Lough's southern shores, which supports internationally important numbers of overwintering Pale-bellied Brent Geese.

The site qualifies for designation under Article 4.1 of The Birds Directive by supporting populations of the following species listed on Annex I of the Directive during the breeding season:

Sandwich Tern *Sterna sandvicensis*
575 breeding pairs [5yr mean 1993-1997] representing 1.2% of the international population and 13.1% of the Irish population
Common Tern *Sterna Hirundo*
339 breeding pairs [5yr mean 1993-1997] representing 12.6% of the Irish population

The site also qualifies for designation under Article 4.2 of The Birds Directive by supporting populations of European importance of the following migratory species during the wintering season:

Pale-bellied Brent Goose *Branta bernicla hrota*
319 individuals [5yr mean 1991/92-1995/6] representing 1.6% of the international and Irish population

The site has also previously supported nesting Roseate Tern, with two breeding pairs recorded for 1997. Nationally important numbers of Arctic Tern have also bred in the past.

The cross-border site also supports nationally important numbers of Oystercatcher (5yr mean population of 850 birds - 1.7% of the Irish population), Ringed Plover (168 ~1.3%), Grey Plover (58 ~1.5%), Dunlin (1494 ~1.2%) and Redshank (640 ~2.6%).

2. Carlingford Lough SPA (IE0004078)
Carlingford Lough SPA as updated in 2011 comprises the southern shoreline of Carlingford Lough, which extends from the harbour at Carlingford to Ballagan Point. It includes all of the intertidal sand and mud flats to the low tide mark but excludes an area of shoreline at Greenore Port.

The site qualifies for designation under Article 4.1 of The Birds Directive by supporting internationally important populations of the following species:

Pale-bellied Brent Goose *Brant bernicla hrota*
253 wintering individuals [5yr mean peak 1995/96-1999/2000]

The intertidal flats also support a range of other wintering waterfowl species notably Wigeon (107), Oystercatcher (289), Dunlin (392), Bar-tailed Godwit (33), Redshank (108) and Turnstone (29), but all in relatively low numbers. Bar-tailed Godwit is of significant note due to its enlistment on Annex 1 of The Birds Directive. The sub-tidal areas outside the SPA also support a range of wintering species including Great Crested Grebe, Cormorant and Red-throated Diver.

3. Carlingford Shore SAC (IE0002306)
The Carlingford Shore SAC stretches for c.15km along the shoreline to the Low Water Mark from Omeath to Ballagan Point. The underlying rock within the SAC is carboniferous limestone, which outcrops over sections in the form of bedrock shore or reefs. Granite boulders are occasionally found. Intertidal mudflats and sand/gravel banks also occur. The site qualifies for designation by supporting two habitats listed on Annex I of The Habitats Directive namely:

- **Perennial vegetation of stony banks (1220)** and;
- **Annual vegetation of drift lines (1210).**

The presence of the Irish Red Data Book Species oyster plant (*Mertensia maritima*) within the SAC adds to the ecological interest. This species is listed on the Standard Data Form for the site, but it is not a feature of the designation. Oyster plant is protected under the Flora Protection Order 1999.

Relatively extensive expanses of intertidal sand/mud flats occur particularly between Greenore Point and Carlingford Harbour, which correspond to Annex 1 Habitat Mudflats and sandflats not covered by seawater at low tide (1140). The flats in this area are broken by outcropping carboniferous reeds and some shingle deposits and saltmarsh on the higher, drier rocks. These flats are very important feeding grounds for wildfowl and waders. Patches of green algae (filamentous, *Ulva* spp. and *Enteromorpha* spp.) and lugworm casts occur in places, while fucoid seaweeds are common on the more stone flats. Abundant barnacle shells and lichens are also present on many of the rocks. Eelgrass (*Zostera* spp.) beds, which correspond to Annex 1 Habitat Atlantic salt meadows (1330**)** are found on the intertidal flats, the main food source for the internationally importance population of overwintering Pale-bellied Brent Geese at the site. Small tufts of cord-grass (*Spartina* spp.) are also present.

Grey seals (*Halichoerus grypus*) also use the site. Approximately 25-30 haul out on reefs between Greenore and Carlingford. The grey seal is listed in Annex II of The Habitats Directive.

Description of the Project

The project is described in full in the 'Project Description' of the EIS accompanying the planning application. A summary is extracted and reproduced here.

Carlingford Ferries Ltd proposes to construct facilities at both Greenore in Co. Louth and Greencastle in Co. Down to allow operation of a vehicular ferry across the mouth of Carlingford Lough. The proposed works include:

- a reinforced concrete slipway with a narrow jetty along one side to facilitate berthing and tying up of vessels overnight, accessed from a high level concrete pier across the upper beach at Greencastle with a parking and queuing area constructed in the adjacent field.
- a reinforced concrete slipway at Greenore with vertical fender piles on one side to absorb berthing forces from the ferry with a parking and queuing area on land
- floating navigational marks anchored to the bed of the Lough and laid at the edges of the navigable channel to delineate appropriate channel boundaries or to mark shallow rock outcrops and provide for safety of navigation
- upgrade and widening to parts of the Greencastle Pier Road within the existing verges to provide a target width of 5.5m where possible with additional passing bays provided wherever feasible.

Construction works are planned to commence immediately following receipt of consents and licences but subject to any phasing restrictions contained within such consents or licences. The slipways and piling for fendering are marine or intertidal structures and construction will be weather and tidally dependent. It is expected that the works will take approximately 6 months to complete overall. The shore based paving and road works would progress in tandem with the marine works. Given the similar nature of works on each shoreline, it is anticipated that one common contractor would be appointed to construct both facilities – particularly the marine works requiring floating plant.

The proposed ferry vessel shall typically be a Roll-On and Roll-Off vessel (RO-RO) using hydraulically operated ramps at each end that are lowered on to a slipway ashore for boarding and disembarkation, and raised upon departure. Vehicles will drive over one ramp to access the vessel and drive straight through, exiting on the opposite ramp when the crossing is complete.

The vessel is powered by four diesel engines, each driving an omni-directional rudder propeller unit, one near each corner, which provide great maneuverability. The propeller units are shielded within the steel hull of the boat rather than projecting below it, to

avoid potential damage when approaching the slipways. Rubbing strips are provided at the end of the hull and ramps to allow bearing (and slipping) onto the concrete slipway during berthing.

A ferry with a capacity of approx 40 cars will be adopted. Such a ferry would be approximately 60m long, 15m beam and up to 2m laden draught with a top speed of approximately 8-12 knots depending upon specification and prevailing conditions.

The ferry is expected to operate on an hourly basis from each side commencing around 7am and finishing around 9pm but with curtailed hours during the winter season when traffic numbers are reduced. The actual hours of operation will be determined annually depending upon demand.

Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site, and describe any likely direct or indirect effects upon Natura 2000 designation features.

The Carlingford Lough SPAs for Ireland and the UK are jointly considered here.

Carlingford Lough SPAs (UK9020161) and (IE0004078)
The proposed terminals at Greencastle and Greenore are partially located within the Carlingford Lough SPAs. Jointly the Carlingford Lough SPAs qualify for designation by supporting populations of European importance of the following species:

- Sandwich tern;
- Common tern;
- Pale-bellied Brent goose.

The sites have also previously supported nesting Roseate tern and Arctic tern. For the purposes of appropriate assessment all tern species are considered under the SPA designations. In addition to the above selection features the Conservation Objectives for the Carlingford Lough SPAs outline further features of 'Habitat extent' and 'Roost site locations'. Whilst not selection features under which the SPAs are designated, they are more easily treated as if they were. 'Habitat extent' includes all the main inter-tidal habitats and nesting sites (current, past and potential) used by the selection features. At present the SPA boundary and therefore the Conservation Objectives does not include marine areas used by foraging terns. Northern Ireland SPA boundaries where breeding terns are a selection feature are currently being revised to provide for this short-fall. 'Roost sites' are not explicitly listed and are considered both within and outside the SPA boundary, where the SPA selection features are known to use them.

Potential impacts to the Carlingford Lough SPAs as a result of the proposed development can be summarised as followed:

Construction

- *Potential Pollution Impacts*
  Direct pollution impacts to overwintering Pale Brent Geese and nesting Terns during construction
  Indirect pollution impacts to overwintering Pale-bellied Brent Geese and nesting Terns resulting in food resource depletion during construction
- *Potential Disturbance Impacts*
  Direct noise and visual disturbance to overwintering Pale-bellied Brent Geese and nesting Terns during construction
  Indirect disturbance from elevated noise and vibration to nesting Terns due to food resource depletion and re-distribution during construction
  Direct collision impacts on overwintering Pale-bellied Brent Geese and nesting Terns due to presence of construction plant
- *Potential Habitat Loss and Degradation Impacts*
  Direct and permanent loss of overwintering Pale-bellied Brent Geese intertidal foraging habitat
  Change in foraging site integrity of overwintering Pale-bellied Brent Geese and nesting Terns due to sediment disturbance during construction

Operation

- *Potential Pollution Impacts*
  Direct pollution impacts to overwintering Pale-bellied Brent Geese and nesting Terns during operation
  Indirect pollution impacts to overwintering Pale-bellied Brent Geese and nesting Terns resulting in food resource depletion during operation
- *Potential Disturbance Impacts*
  Direct noise and visual disturbance to overwintering Pale-bellied Brent Geese and nesting Terns during operation
  Indirect disturbance from elevated noise, vibration and sediment loading to nesting Terns due to food resource depletion and re-distribution during operation
  Direct collision impacts on overwintering Pale-bellied Brent Geese and nesting terns due to the presence of slipways and vessel
- *Potential Habitat Loss and Degradation Impacts*
  Exacerbated erosion and inundation of Green Island resulting in the loss of nesting Tern habitats and potential Pale-bellied Brent Geese roosting habitat caused by ferry wash and changes in coastal processes from the presence of slipways

Change in overwintering Pale-bellied Brent Geese and nesting Terns foraging habitat integrity due to changes in coastal processes and sediment disturbance

Carlingford Shore SAC (IE0002306)

Potential impacts to the Carlingford Lough SAC as a result of the proposed development can be summarised as followed:
Construction

- Potential Pollution Impacts
  Direct pollution impacts to Annex 1 and Priority Habitats during construction
- *Potential Habitat Loss and Degradation Impacts*
  Potential Habitat Loss Impacts
  Permanent loss of Annex 1 and Priority Habitats
  Habitat degradation due to sediment disturbance during construction

Operation

- Potential Pollution Impacts
  Direct pollution impacts to Annex 1 and Priority Habitats during operation
- *Potential Habitat Loss and Degradation Impacts*
  Potential Habitat Loss Impacts
  Permanent loss of Annex 1 and Priority Habitats
  Habitat loss/degradation due to changes in coastal processes and sediment disturbance

The proposed terminal at Greenore is partially located within the Carlingford Shore SAC and will result in the direct and permanent loss of 0.22ha of the Natura 2000 site. The terrestrial, intertidal and subtidal assessments presented in the ES/EIS have concluded that none of the Annex I habitats listed for Carlingford Shore SAC are recorded within or adjacent to the proposed development at Greenore. The short, steep nature of the shore at the site and it's coarse substrates preclude it's description as a mudflat or sand flat while the construction of coastal defences in the form of rock armour, low walls and steel palisade fencing has foreshortened the upper-shore / terrestrial zone interface thereby excluding the other three habitats listed, which are known from other parts of the SAC.

Describe any potential effects on the Natura 2000 site as a whole in terms of interference with the key relationships that define the structure or function of the site(s)

Carlingford Lough SPAs (UK9020161) and (IE0004078)

Potential Impacts on Overwintering Pale-bellied Brent Geese at Greencastle and Greenore

Habitat Loss and Degradation
Overwintering Pale-bellied Brent Geese in Ireland have historically relied on eel grass (*Zostera* spp.) as a major component of their diet. In the 1930's there was a distinct decline in common eel grass (*Z. marina*) along the North Atlantic coasts due to "wasting disease". Although some sea grass sites recovered by the 1950's, more recent anthropogenic pressures have caused more widespread sustained declines (Dale *et al,* 2007). Pale-bellied Brent geese therefore have a much more diverse diet including green algaes (e.g. *Enteromorpha*), saltmarsh plants (including *Festuca* spp. and *Puccinella* spp.), cereal stubbles, waste crops and agricultural grasses. Eel grass is however, likely to remain an important food plant for Pale-bellied Brent Geese (and Wigeon) in Carlingford Lough, particularly during the early wintering stage (Robinson *et al*., 2004).

Eel grass (*Zostera* spp.) was not found during Marine Ecology surveys at Greencastle and Greenore but is known to be extensive within Mill Bay to the north-west of the proposed Greencastle development, within the intertidal bays to the south west of Greenore Port (adjacent to the Greenore Golf Course) and to the south east of Greenore (Ballynatrasna). Green algae *(Enteromorpha*) were however found at Greencastle and Greenore, but were locally restricted to Greencastle Pier and rocky outcrops to the north-west and south-east of the Greencastle development footprint. At Greenore green algae (*Enteromorpha*) was found extensively over rock amour within the development footprint. The intertidal shoreline within the immediate vicinity of the proposed Greencastle and Greennore terminals is considered to be of limited foraging value for overwintering Pale-bellied Brent Geese. The steep rock amour although supporting a potential food source for Pale-Bellied Brent Geese is not considered a suitable foraging habitat. A peak number of 21 geese were recorded during RPS Wetland Bird Surveys within the Greencastle development area (Count Section 1.2) in January 2012 and a total of 106 geese were recorded within the entire Greencastle survey area between October 2011 and September 2012. In comparison no geese were recorded within the Greenore development and a total of 12 geese were recorded within the entire Greenore survey area between October 2011 and September 2012. Activity is most likely limited by the low abundance of food plants, intertidal exposure (at Greenore), existing human disturbance on both shorelines and additional disturbance from Greenore Port. Geese recorded foraging along the Greencastle shoreline in the vicinity of the proposed development are likely to be foraging on green algae. No high-tide roosts were recorded within either survey area, but some geese

remain to roost within Mill Bay and on un-submerged rocky outcrops towards Carlingford throughout high tide (N. Robinson, *Pers Obvs*).

There is no proposed land take from within the SPA at Greenore and only the combined footprint of the steel tubular piles will constitute the direct loss of land from within the SPA at Greencastle. Approx 20 steel tubular piles of approx 1219mm in diameter are proposed, which constitutes an approx area of approx 24m^2. The proposed development will not result in the direct loss of Pale-bellied Brent Goose roosting habitat but will result in a negligible loss of potentially usable intertidal foraging habitats available within the SPA (780 ha). The shoreline/intertidal habitats to be lost comprise approx 7m^2 of shingle (ES/EIS Chapter 5) and 17m^2 sandy intertidal flats LS.LSa.MoSA.AMSco - Amphipods and *Scolelepis* spp. in littoral medium-fine sand and LS.LSa.FiSa.Po - Polychaetes in littoral fine sand (ES/EIS Chapter 7), which were found to be of limited importance to foraging Pale-bellied Brent Geese (peak count of 21 within the development area). The direct impact as a result of potential foraging habitat loss for Pale-bellied Brent Geese is therefore predicted to be Non-Significant at Greencastle resulting in no significant adverse affect on the integrity of the Natura 2000 site. Similarly the loss of intertidal habitats at Greenore outside of the SPA comprising LS.LCS.Sh - Shingle (Pebble) and Gravel Shores is predicted to be Non-Significant resulting in no significant adverse affect on the integrity of the SPA.

Similarly indirect disturbance through the degradation of potential foraging habitats during the operational phase is also considered to be Non-Significant and will not result in a significant adverse affect on the integrity of the Natura 2000 sites. This is due to the restricted nature of the impact on the sediment transport regime at Greencastle and Greenore predicted. The ES/EIS Chapter 9 'Coastal Processes' predicts that changes in littoral currents and sediment transport as a result of the construction of the proposed slipway at Greencastle will be restricted to within 100m of the project footprint therefore not impacting on any important foraging habitat within Mill Bay. This is due to the open nature of the slipway. At Greenore predicted impact on sediment transport due to the presence of the slipway will be restricted to within 400m to the southeast of the development area along the Greenore to Ballagan shoreline. This would not have any impact on preferred bird intertidal foraging habitats within intertidal bays at Ballynatrasa and adjacent to the Greenore Golf Course. Similarly any potential sediment releases during construction or during operation (due to propeller wash) will be rapidly dispersed by existing tidal currents and would re-settle within the near-field environment (ES/EIS Chapter 7).

Disturbance

The extent to which birds are affected by sources of noise and visual disturbance has been the subject of a wealth of research and monitoring due to the potential long term effects caused by the inhibition of foraging and roosting behaviour, which can lead to decreases in body condition and a reduction in reproductive success and individual survival. In general studies show that most bird species have the ability to habituate to regular noises and visual disturbances (Smit & Visser, 1993, Hockin *et al*., 1992; ABP Research, 2001; Nairn, 2005; Phalan & Nairn, 2007).

During construction piling is likely to create the most significant noise during construction of the Greenore and Greencastle terminals resulting in a series of regular "bangs" whilst steel tubular piles to support the suspended slipways are driven into the seabed. Chapter 11 of the ES/EIS predicts that elevated noise at Greencastle as a result of piling will be in the effect of 87 dB[A] at 10m, 75 dB[a] at 40m, 69 dB[A] at 80m, 63 dB[A] at 160m and 57 dB[A] at 320m from the proposed development site. In addition the overall combined worst-case noise level (based on a combination of construction activities) is predicted to in effect of 93 dB[A] at 10m, 81 dB[a] at 40m, 75 dB[A] at 80m, 69 dB[A] at 160m and 63 dB[A] at 320m from the proposed development site. Piling is also likely to create the most noise disturbance during construction of the Greenore terminal. Chapter 11 predicts that elevated noise at Greenore as a result of piling will be in the effect of 91 dB[A] at 10m, 79 dB[a] at 40m, 73 dB[A] at 80m, 67 dB[A] at 160m and 61 dB[A] at 320m from the proposed development site. In addition the overall combined worst-case noise level (based on a combination of construction activities) will be in the effect of 94 dB[A] at 10m, 82 dB[a] at 40m, 76 dB[A] at 80m, 70 dB[A] at 160m and 64 dB[A] at 320m from the proposed development site. The installation of acoustic screening (as outlined in Chapter 11 of the ES/EIS) would further attenuate elevated noise levels and provide visual screening of construction activities.

Several studies have specifically addressed the affects of piling disturbance on wetland birds. A 1999 study by the Institute of Estuarine Coastal Studies (IECS) found that irregular piling noise (above 70dB) and regular piling noise (below 70dB) typically resulted in a *High to Moderate* and *Moderate* degree of disturbance to wetland birds respectively, whereas construction personnel or third party personnel on intertidal flats typically resulted in a *High* degree of disturbance (ABP Research, 2001). The study found that although piling had an initial impact, rapid habituation was recorded and that third party disturbances (people on intertidal flats) consistently resulted in greater impacts than those of ongoing construction works. Similar studies have also indicated that in general birds habituate to continual noise and visual disturbance as long as there is no large amplitude 'startling' component (Hockin *et al*., 1992; Nairn, 2005; Phalan & Nairn, 2007). Noise and visual disturbance associated with the construction of the Greencastle and Greenore terminal is not predicted to have any significant impact on Pale-bellied Brent Geese due to the low number of birds recorded using the shorelines within or immediately adjacent to the Greencastle and Greenore development areas, the temporary nature of construction works (approx 6 months) and the nature of birds to habituate to regular non-threatening disturbances.

Similarly the operation of the ferry will introduce a more permanent but regular and short noise and visual disturbance source to the Greenore and Greencastle shorelines. As outlined above birds are known to habituate to regular noise and visual disturbances and the proposal is not predicted to elevate pedestrian disturbance on the Greencastle significantly above that which already exists. Birds within preferred foraging habitats adjacent to the Greenore Golf Course and at Ballynatrasna when observed are unphased by

cargo vessels which pass regularly through the Lough. Overall the potential impact of noise and visual disturbance on the SPA Pale-bellied Brent Goose population is predicted to Non-Significant resulting in no significant adverse effect on the integrity of the Natura 2000 sites.

Collision Risk
Collision risks with construction machinery and built structures is highest amongst "heavy wing loading" species such as geese and swans. It is also increased where birds undertake daily migrations during the hours of dusk and dawn to foraging and roosting locations. Potential collision risk impacts to Pale-bellied Brent Geese arise from the temporary presence of construction plant on the Greencastle shoreline and from the constructed pier and slipway. Collision risks with the vehicle ferry are considered unlikely. Large cargo vessels which frequently pass through the Lough at speeds similar to the proposed vehicle ferry (8-12 knots) do not currently pose any collision risk to birds commuting between roosts and foraging habitats.

The potential collision impacts on birds with plant machinery during construction of the Greencastle and Greenore terminals are, predicted to be Non-Significant. The presence of the two built terminals and the operation of the ferry are also unlikely to create significance collision risks. Current obtrusive structures including the Greenore Break Water, cranes within Greenore Port, the Greencastle Pier and moored boats along the Greencastle shoreline do not appear to pose any current collision risk to Pale-bellied Brent Geese. Observations of the key routes taken by Brent Geese commuting from their roost in Dundalk Bay into Mill Bay typically extended beyond 50-100m from the shoreline beyond Green Island and the Greenore Breakwater (N. Robinson, *Pers Obvs*). On occasions where geese commuted within 100m of the shoreline flight heights were typically well above that of the existing Greencastle Pier and Greenore Breakwater.

Overall the potential impact of collision risks to SPA Pale-bellied Brent Goose population is predicted to Non-Significant resulting in no significant adverse effect on the integrity of the Natura 2000 sites.

Pollution
Potential pollution impacts during construction and operation from spills and releases from oils, diesels or chemicals, which may arise from the ferry itself, vehicles using the ferry or any potential contaminants stored within the Greenore or Greencastle terminals have the potential to directly (ingestion causing fatalities) and indirectly (causing food resource depletion) impact on overwintering Pale-bellied Brent Geese. Although possible and difficult to predict pollution impacts are considered highly unlikely provided effective pollution prevention guidelines are adhered to. A Construction Stage Environmental Management Plan (CEMP) will be prepared to assist the main contractor in preventing, managing and/or minimising any significant environmental impacts during the construction phase. In order to achieve this the CEMP will comprehensively incorporate all environmental commitments in this ES and provide a method of compliance with these. The CEMP shall be submitted to the Planning Authorities and relevant Statutory Nature Conservation Bodies (e.g. NIEA and NPWS) for comment and approval prior to the commencement of any works.

Discussion of Impacts on Nesting Terns

Habitat Loss and Degradation
The Carlingford Lough SPA breeding tern population nest almost exclusively on Green Island, with only a small number of pairs occupying the nearshore islands off Greencastle Point. Green Island and the nearshore islands off Greencastle Point are currently managed as an RSPB reserve. Following declines in the nesting tern population and concerns over breeding failures, management is primarily aimed at reducing the predation and disturbance pressures from large gulls. Green Island is also prone to submersion and erosion especially at high tide and during frequent storm events. This is resulting in the loss of Tern nests, eggs and young given the preference of birds to nest on the southern and lowest part of the island. In 2012 the majority (if not all) of the SPA Tern colony nested exclusively on Green Island.

The proposed development will not result in the direct loss of nesting tern habitat but has the potential to result in indirect habitat loss as a result of changes to coastal processes caused by the presence of the proposed slipways and ferry wash during operation. This has the potential to cause the exacerbated erosion and more frequent submersion of the lowest part of Green Island in-combination with existing natural process.

Chapter 9 of the ES/EIS concludes that the presence of the Greencastle or Greenore slipways will not result in any additional erosion or inundation pressures on Green Island, with any predicted changes in tidal current speed and wave height restricted to the immediate vicinity of the slipway (within 100m at Greencastle and within 400m at Greenore). It is important to note that in Chapter 9 wave height was modelled under wave generated due to Force 8 gales from the south-east combined with spring high tides, which are likely to cause the most significant inundation of the low lying parts of Green Island where terns currently choose to nest. Chapter 9 also concludes that across the range of operating conditions (vessel speed and tidal range), the waves generated due to wash will be similar to those already experienced within the Lough due to frequent meteorological conditions. Wave height as a result of the ferry wash will attenuate with distance from the ferry and therefore waves at Green Island, which is a minimum of 200m from the preferred route option and will be within the norm experienced on the shoreline of the island. Indirect habitat loss as a resErosion pressures on Green Island are therefore very unlikely to be exacerbated above their current levels leading to accelerated losses of bird nesting and roosting habitats. The potential impact of direct and indirect habitat loss noise on the SPA Tern population is predicted to be Non-Significant resulting in no significant adverse effect on the integrity of the Northern Irish Natura 2000 site.

All three Tern species were recorded foraging within the vicinity of the Greencastle (and Greenore) development area however, foraging activity is considered to be widespread throughout the Lough (particularly at the mouth of the Lough). The release of sediments during construction and disturbance during operation may potentially directly and indirectly impact on Tern foraging activity. Such potential direct impacts of reduced water clarity from sediment loading inhibiting fishing and indirect impacts resulting from the depletion or re-distribution of finfish prey items are predicted to be Non-Significant. This is due to the restricted nature of sediment re-suspension and settlement within the near-field environment (ES/EIS Chapter 7 and 9). The strong bi-directional nature of the tidal currents at both Greenore and Greencastle are predicted to rapidly disperse any disturbed sediments.

Disturbance
Potential direct noise and visual disturbance to nesting Terns is predicted to be Non-Significant during both the construction of the Greencastle (or Greenore) terminal and during the operation of the ferry. Terns are typically highly tolerant of noise and visual disturbances often nesting within busy commercial shipping ports (e.g. Port of Cork, Ringaskiddy). In the absence of ferry wash the passing of the vehicular ferry is unlikely to cause a significant visual disturbance to nesting Terns on Green Island. Observations of passing cargo vessels which pass frequently within approx 200m of Green Island showed no disturbance to incubating birds (N. Robinson *Pers Obvs*). Disturbance to incubating and roosting birds was generally associated with more discrete sources such as predatory gulls landing on the island, presence of raptors (e.g. Merlin and Peregrine), the approach of small recreational motor boats and storm waves. Following such disturbances bids typically re-settled on Green Island within a few minutes.

Construction activities (particularly piling) at both Greencastle and Greencastle has the potential to impact on Tern finfish prey species as a result of elevated noise and vibrations in the water column. This may result in physiological stress to individual fish and the avoidance of the development area. The spawning of some fish, particularly those which are likely to spawn in the sandy sediments within the development area such as sandeel, may also be disrupted (ES/EIS Chapter 7). Chapter 7 of the ES/EIS predicts that the actual impacts on finfish, particularly migrating salmonid and spawning sandeels, will be moderate and temporary and restricted to the immediate development area. The operation of the ferry also has the potential to impact on Tern finfish and prey species as a result of elevated noise and vibrations in the water column. Whilst larger fast moving vessels have the ability to result in higher levels of noise and vibrations. a car ferry similar to the one that is being proposed has operated across the entrance to Lough Foyle for the last 10-15 years without any potential impacts on fisheries particularly the migration of salmonids. Chapter 7 concludes that the impacts will on finfish and shellfish will be of 'Negligible Significance'.

Overall potential direct and indirect noise and visual disturbance to the SPA nesting Tern population is predicted to be Non-Significant resulting in no significant adverse effect on the integrity of the Northern Irish Natura 2000 site.

Collision Risk
Collision risks with construction machinery and built structures to nesting Terns is considered Non-Significant, resulting in no significant adverse effect on the integrity of the Northern Irish Natura 2000 site, due to the small size and agile flight ability of the species.

Pollution
See discussion for Pale-bellied Brent Geese above.

Carlingford Shore SAC (IE0002306)

Habitat Loss and Degradation
The loss of habitat associated with the berthing structures will be extremely small on the Greencastle side given that the proposed berth will suspended on piles forming an open structure not unlike the existing Greencastle pier in broad design concept. This structure will allow free movement of water and sediment in all directions, with only the combined footprint of the piles constituting the loss of intertidal habitat. On the Greenore side while the structure will be significantly constructed between sheet pile walls, the size of the structure (in terms of footprint) is significantly smaller than the Greencastle structure and the habitats over which it is being built are extremely species poor. The significance of this amount of habitat loss can be described as negligible. The impact of permanent habitat loss from the Carlingford Shore SAC is considered to be insignificant to the conservation objectives, structure and functioning of the SAC.

The construction of the slipway at Greenore will require a temporary working area for access by construction plant on to the beach to the south of the Greenore footprint. This area will be subject to trafficking but given the likely plant loads, it is expected that timber mats may be required to support crawler tracks or vehicle wheels. This will result in the temporary disturbance to a wider area of shingle and gravel banks (CB1) within the SAC outwith the permanent project footprint. Following the removal of construction plant it is anticipated that the shingle beach will recover very quickly given the highly mobile nature of the sediments at this location. This impact is therefore considered temporary and non-significant.

There is potential for pollution incidents as a result of cement use (for pre-cast deck elements and tubular piling), spills or leakages from construction plant or infilling materials. Should an incident occur at the Greenore or Greencastle construction site, pollutants may impact over a wider area if carried by tidal currents. There is potential for pollutants to lead to the degradation of Annex 1

Habitats 1210 and 1220 through the inhibition of plant growth adjacent to the development site, although it is considered very unlikely after mitigation as proposed.

During the operational phase the presence of the Greenore slipway will result in highly localised impacts on sediment transport along the Greenore shoreline. An assessment of littoral currents modelled under severe weather events in Chapter 9 Coastal Processes, concludes that the presence of the slipway at Greenore will result in a change to the littoral current speed (by ± 0.3m/s) extending 400m east along the shoreline. This may result in a small increase in sedimentation but is not considered to significantly impact upon the shoreline shingle and gravel bank (CB1) habitat, which supports Annex 1 Habitats 1210 and 1220 to the south of the Greenore Coastguard Slipway.

Pollution
During the operation of the ferry there may be potential for pollution of Annex I Habitats and their component species from oils, diesels or chemicals, which may arise from the ferry itself, vehicles using the ferry or any potential contaminants stored within the Greenore or Greencastle terminals. It is considered that the likelihood is very low, as there are no records of serious polluting incidents from the existing shipping traffic travelling through the Lough. As above a CEMP will be prepared to assist the main contractor in preventing, managing and/or minimising any significant environmental impacts during the construction phase and shall be submitted to the Planning Authorities and relevant Statutory Nature Conservation Bodies for comment and approval prior to the commencement of any works.

Provide details of any other projects or plans that together with the project or plan being assessed could (directly or indirectly) affect the site. Provide details of any likely in-combination effects and quantify their significance -

The potential impacts above have all been addressed both independently and with regards to any potential cumulative impacts resulting from potential interactions between the construction or operational phases of any ongoing developments, recently approved development and pre-application developments outlined in Chapter 3 of the ES/EIS. Due to the small scale of the proposed Carlingford Ferry development and the distance from other developments outlined in Chapter 3 no cumulative impacts are predicted which may affect the integrity of any of the above listed Natura 2000 site.

Additional project or plans reviewed -

Narrow Water Bridge Project: The Natura Impact Statement for tthat project was reviewed. No likely predicted effects reported for that project were considered to act in-combination with effects predicted for this project to the detriment of any conservation objective of Natura 2000 sites under consideration.

Greenore Port Development: Datasets collected for the purposed of that development were made available for the impact assessment of this project. No likely predicted effects reported for this project are considered to act in-combination with effects predicted for this project to the detriment of any conservation objective of Natura 2000 sites under consideration. This project is not currently being considered for planning.

Is the potential scale or magnitude of any effect likely to be significant?

Alone? Yes☐ No☒
In-combination with other projects of plans? Yes☐ No☒

Disturbance to species and habitat loss through footprint of development are not considered significant. Potential pollution impacts during construction and operation are considered unlikely providing mitigation to prevent contaminant spills into Carlingford Lough and its environs are outlined in an effective Construction stage Environmental Management Plan (CEMP) as outlined below.

List measures to be introduced	**Explain how the measures will avoid the adverse effects on the integrity of the site.**	**Explain how the measures will reduce the adverse effects on the integrity of the site.**	**Provide evidence of how will be implemented and whom.**
(i) Implementation of Pollution Prevention Guidelines (PPGs) including PPG 5 Works in, near or liable to affect watercourses; PPG 6 Working at demolition & construction sites; PPG 21 Pollution Incident Response Planning.	Pollution risk is very low when these guidelines are adhered to by a construction contractor.	These measures will prevent the release of sediments and pollutants into the marine receiving environment.	Specified implementation within a Construction stage Environmental Management Plan (CEMP)

(ii) Implementation of CIRIA Technical Guidance C532: Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors; and C648: Control of Water Pollution from Linear Construction Projects.	Pollution risk is very low when these measures are adhered to by a construction contractor.	These measures will prevent the release of sediments and pollutants into the marine receiving environment.	Specified implementation within a Construction stage Environmental Management Plan (CEMP)
(iii) Stringent management of oils, chemicals and fuels as outlined in ES Sections 7.3.5 and 8.2.4.	Pollution risk is very low when these measures are adhered to by a construction contractor.	These measures will prevent the release of sediments and pollutants into the marine receiving environment.	Specified implementation within a Construction stage Environmental Management Plan (CEMP)

This mitigation will be implemented as outlined in the table overleaf.

List mitigation measures (as above)	Provide evidence of the degree of confidence in their likely success	Provide time-scale, relative to the project, when they will be implemented	Explain the proposed monitoring scheme and how any mitigation failure will be addressed
(i) Implementation of Pollution Prevention Guidelines (PPGs) including PPG 5 Works in, near or liable to affect watercourses; PPG 6 Working at demolition & construction sites; PPG 21 Pollution Incident Response Planning. (ii) Implementation of CIRIA Technical Guidance C532: Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors; and C648: Control of Water Pollution from Linear Construction Projects. (iii) Stringent management of oils, chemicals and fuels as outlined in ES Section 8.2.4.1	These are industry standard principles to be applied to working in sensitive areas. As these measures are not novel, it is anticipated that they can be implemented in full by a competent contractor.	These measures will be introduced at construction stage upon approval of the CEMP by Planning Authorities and relevant Nature Conservation Agencies (e.g NIEA, NPWS, Loughs Agency)	THE CEMP will contain – • an Emergency Response Plan detailing actions to be taken in the event of an accidental spillage of fuel, chemicals or other hazardous material. • the procedures to be followed if there is a breach in any licence conditions or a non compliance. • detailed method statements for construction activities • a Water Quality Management Plan to ensure compliance with the relevant environmental quality standards including a detailed programme of monitoring; • a protocol for regular communication with statutory agencies such as NIEA, NPWS, Loughs Agency and Louth County Council.

Conclusion: Is the proposal likely to have a significant effect on an N2K site?

Yes☐ No☒

IT HAS BEEN DETERMINED THAT THE PROPOSAL WILL NOT HAVE A SIGNIFICANT EFFECT

List of Agencies Consulted: Provide contact name and telephone or email address

Data collected to carry out the assessment

- RPS Wetland Bird Survey Data (October 2011 - September 2012)

Who carried out the assessment?

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Sources of data

- Royal Society for the Protection of Birds (RSPB) Annual Reserve Colony Counts
- British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) Datasets
- Joint Nature Conservation Committee (JNCC) Seabird Monitoring Programme (SMP) Database
- Grenore Port Company - Wetland Bird Survey Data