Haventus Limited

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# Ardersier Port – Deeper Dredge
# Habitat Regulations Appraisal

## December 2023

# CONTROL SHEET

Client: Haventus Ltd
Project Title: Ardersier Port – Deeper Dredge
Report Title: Habitat Regulations Appraisal
Document number: 13679
Project number: 676693

**Issue Record**

| Issue | Status | Author | Reviewer | Approver | Issue Date |
|---|---|---|---|---|---|
| 1 | Final | GN | MS | CCAS | 15/9/2023 |
| 2 | Draft for Comment V2 | GN | CCAS | CCAS | 06/10/2023 |
| 3 | Final | GN | CCAS | CCAS | 13/10/2023 |
| 4 | Final | GN | CCAS | CCAS | 13/12/2023 |

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# EXECUTIVE SUMMARY

EnviroCentre was commissioned by Haventus Ltd to undertake a Habitat Regulation Appraisal (HRA) of the proposed amendments to dredging being conducted under marine licence MS-00009936, to inform a variation application, requested by Marine Scotland.

The variation to the existing consented dredge activity is provided in ARUP Drawing 294067-ARUP-XX-XX-DR-CG-002001 P01, where the proposed increase to the dredge is as follows:

i. Increase the dredge depth from the approved -6.5m CD to -12.9m CD; and
ii. Increase the associated dredging volume from the approved quantity of 4,600,000 wet tonnes (wt) (comprising 4,000,000 wt for beneficial reuse and 600,000 wt to form the permanent dredge spoil storage bund) to 8,600,000 wet tonnes (increasing the volume identified for beneficial reuse by 4,000,000 wt to 8,000,000 wt).
iii. Formal request for the removal of condition 3.3.13 in the current licence which states that no dredging is to take place in the dark, so that dredging can be undertaken on a 24 hour per day basis.

The proposed dredging of Ardersier Port is in the proximity of European designated sites, therefore a Habitats Regulations Appraisal (HRA) is required to determine the effects of the proposed deeper dredge works on the qualifying features of the designated sites.

Likely Significant Effects (LSE) of the following designated features could not be scoped out during the screening stage and where therefore taken through to Appropriate Assessment (AA):

- Inner Moray Firth SPA (Common Tern, Red Breasted Merganser, Waterfowl assemblages)
- Moray Firth SAC (Bottlenose dolphin)
- Dornoch Firth and Morrich More SAC (Harbour seal)
- Cromarty Firth SPA (Common Tern)

During the AA process it was possible to rule out adverse effects from impacts to the assessed designated sites. Mitigation to be enacted includes:

- Adherence to the site-specific Marine Mammal Protection Plan.
- Adherence to the site specific Construction Environmental Management Document (CEMD) detailing pollution prevention measures.
- The following good practice guidelines will be adhered to and incorporated into the CEMD:
    - GGP5: Works and maintenance in or near water;
    - PPG 6: Working at construction and demolition sites;
    - PPG 7: Safe Storage – The safe operation of refuelling facilities;
    - GPP21: Pollution and incident response planning; and
    - PPG22: Incident response – dealing with spills.
- An Ecological Clerk of Works (ECoW) will be employed throughout the construction phase to audit adherence to the mitigation outlined in the CEMD.
- The existing Habitat Management Plan which sets out compensatory and enhancement actions for the site should be updated to reflect the loss of bird nesting and roosting habitat on the spit.

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# 1 INTRODUCTION

## 1.1 Terms of Reference

EnviroCentre was commissioned by Haventus Ltd to undertake a Habitat Regulation Appraisal (HRA) of the proposed amendments to dredging being conducted under marine licence MS-00009936, to inform a variation application, requested by Marine Scotland.

The variation to the existing consented dredge activity is provided in ARUP Drawing 294067-ARUP-XX-XX-DR-CG-002001 P01, where the proposed increase to the dredge is as follows:

i. Increase the dredge depth from the approved -6.5m CD to -12.9m CD; and
ii. Increase the associated dredging volume from the approved quantity of 4,600,000 wet tonnes (wt) (comprising 4,000,000 wt for beneficial reuse and 600,000 wt to form the permanent dredge spoil storage bund) to 8,600,000 wet tonnes (increasing the volume identified for beneficial reuse by 4,000,000 wt to 8,000,000 wt).

A HRA is required to assess whether the deeper dredging work, alone or in combination with other projects, will have an adverse impact on the integrity of the European designated site. It is the responsibility of the competent authority to conduct the HRA. This document aims to provide the information necessary for them to carry out the HRA assessment by:

- Providing a description of the proposed works;
- Identifying those European designated sites which are connected to and/or could potentially be affected by the proposed works;
- Identifying how the proposed works may impact on the qualifying features of the designated site(s);
- Considering other projects which may have “in combination” effects on the European designated sites; and
- Recommending the designated sites which need to be taken forward for further assessment if impacts on their qualifying features cannot be ruled out.

## 1.2 Report Usage

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# 2 METHODOLOGY

## 2.1 The Habitats Regulations Appraisal Process

The HRA is a four-stage process. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. The stages are summarised in Table 2-1. It is stated within the EU guidelines that "where, without any detailed assessment at the screening stage, it can be assumed (because of the size or scale of the project or the characteristics of the national site network) that significant effects are likely, it will be sufficient to move directly to the appropriate assessment (Stage Two) rather than complete the screening assessments explained below."

**Table 2-1 Key Stages in the HRA Process**

| | |
|---|---|
| **Stage 1** | |
| **Screening for Likely Significant Effect (LSE)** | - Identify international sites in and around the project area.<br>- Examine conservation objectives of the interest feature(s) (where available).<br>- Review plan policies and proposals and consider potential effects on UK sites (magnitude, duration, location, extent).<br>- Examine other plans and programmes that could contribute to 'in combination' effects. |
| | - If no effects likely – report no likely significant effect.<br>- If effects are judged likely or uncertainty exists – the precautionary principle applies, proceed to Stage 2.<br>- If following screening the project is reviewed and includes integral mitigation which will ensure no likely significant effects, then no further Appropriate Assessment needed. |
| **Stage 2** | |
| **Appropriate Assessment (AA)** | - Complete additional scoping work including the collation of further information on sites as necessary to evaluate impact in light of conservation objectives.<br>- Agree scope and method of AA with the competent authority.<br>- Consider how the project 'in combination' with other projects will interact when implemented (the Appropriate Assessment).<br>- Consider how effects on integrity of the site could be avoided by changes to the project and the consideration of alternatives.<br>- Develop mitigation measures (including timescale and mechanisms).<br>- Report outcomes of AA including mitigation measures. |
| | - If the project will not adversely affect European site integrity proceed with plan.<br>- If effects or uncertainty remain following the consideration of alternatives and development of mitigation proceed to Stage 3. |
| **Stage 3** | |
| **Alternative Solutions** | - Consider alternative solutions, delete from project or modify.<br>- Consider if priority species/habitats affected - identify 'imperative reasons of overriding public interest' (IROPI), economic, social, environmental, human health, public safety (only applicable in highly exceptional circumstances). |
| **Stage 4** | |
| **Imperative Reasons of Overriding Public Interest (IROPI)** | - Stage 4 is the main derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a UK site to proceed in cases where it has been established that no less damaging alternative solution exists.<br>- The extra protection measures for Annex I priority habitats come into effect when making the IROPI case. Compensatory measures must be proposed and assessed. The Commission must be informed of the compensatory measures. |

| | |
|---|---|
| | Compensatory measures must be practical, implementable, likely to succeed, proportionate and enforceable, and they must be approved by the Minister. |

## 2.2 Screening

Screening determines whether or not the project is likely to (or potentially could) have significant effects on the national site network. A list of all SACs, cSACs, SPAs and potential SPAs (pSPAs) that are within proximity to the site, or sites designated for mobile species which have the potential to be affected by the proposed development, was compiled and the qualifying interest features noted. Following this, the key environmental conditions (conservation objectives) needed to support site integrity were detailed for each site.

With reference to the NatureScot guidance[1]the screening stage determines whether Appropriate Assessment is required, by:

- Determining whether a project (or plan) is directly connected with or necessary to the conservation management of any European sites;
- Describing the details of the project (or plan) proposals and other projects that may cumulatively affect any European sites;
- Describing the characteristics of relevant European sites; and
- Appraising likely significant effects of the proposed project on relevant European sites.

The guidance gives the following definition of LSE:

*"The test of significance is where a plan or project could undermine the site's conservation objectives. The assessment of that risk (of 'significance') must be made in the light, amongst other things, of the characteristics and specific environmental conditions of the site concerned."*

*"A likely effect is one that cannot be ruled out on the basis of objective information. The test is a 'likelihood' of effects rather than a 'certainty' of effects. Although some dictionary definitions define 'likely' as 'probable' or 'well might happen', in the Waddenzee case the European Court of Justice ruled that a project should be subject to Appropriate Assessment "**if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site, either individually or in combination with other plans and projects**". Therefore, 'likely', in this context, should not simply be interpreted as 'probable' or 'more likely than not', but rather whether a significant effect can objectively be ruled out."*

## 2.3 Appropriate Assessment

The Appropriate Assessment establishes whether or not a project's LSE identified during the screening stage will have an adverse effect on the integrity of the affected site with regard to its conservation objectives. Based on the guidance provided by NatureScot guidance the effects of the proposal on the designated sites' qualifying features will be determined by:

- Gathering information required to assess impacts (from site documents, scientific literature, EU and UK guidance on impact assessment and impact assessments from similar projects);
- Predicting the type and nature of impacts e.g. direct or indirect, short or long term;
- Assessing whether there will be adverse effects on the integrity of the site as defined by the conservation objectives and the status of the site. The precautionary principle must be applied

[1]NatureScot, formerly SNH guidance available at : https://www.nature.scot/sites/default/files/2019-07/Habitats%20Regulations%20Appraisal%20of%20Plans%20-%20plan-making%20bodies%20in%20Scotland%20-%20Jan%202015.pdf (Accesses 20/12/2022)

at this stage. If it cannot be demonstrated with supporting evidence that there will be no adverse effects, then adverse effects will be assumed; and

- Ascertaining if it is possible to mitigate adverse effects.

## 2.4 In-Combination Effects

Under Regulation 43(1)(a) of the Habitats Regulations 1995 (as amended) it is necessary to consider whether a plan or project is likely to have a significant effect on a national site network site "either alone or in combination with other plans or projects."

These should include:

- Approved but as yet uncompleted plans or projects;
- Plans and projects for which an application has been made and which are currently under consideration but not yet approved by the competent authorities; and
- Permitted ongoing activities such as discharge consents, abstraction licences or consecutive/simultaneous maintenance activities.

# 3 PROJECT AND PROPOSED WORKS DESCRIPTION

## 3.1 Site Location and Project Background

Ardersier Port is within the Inner Moray Firth Special Protection Area ("SPA"), Moray Firth SPA, and Whiteness Head Site of Special Scientific Interest ("SSSI"). Ardersier Port was originally developed to service the offshore oil and gas industry in 1972. Initial construction of the yard area saw the formation of the navigation channel and harbour with the dredged material being pumped ashore for land reclamation purposes to create the main yard area. Subsequent maintenance dredging operations were carried out at typically 18-24 month intervals up until 2001.

A dredging licence was consented as part of plans to re-open Ardersier Port in 2014, which included a navigation channel width of 120 m and a dredge to -8.5 mCD. The planned dredging did not take place at that time and a subsequent dredging licence was consented in 2018 which included a navigation channel width of 120 m and a dredge to -6.5 mCD. Dredging of the harbour and navigation channel commenced under this consent in 2022.

## 3.2 Proposed Dredge Activity

The variation to the existing consented dredge activity is provided in ARUP Drawing 294067-ARUP-XX-XX-DR-CG-002001 P01, where the proposed increase to the dredge is as follows:

i. Increase the dredge depth from the approved -6.5m CD to -12.9m CD; and
ii. Increase the associated dredging volume from the approved quantity of 4,600,000 wet tonnes (wt) (comprising 4,000,000 wt for beneficial reuse and 600,000 wt to form the permanent dredge spoil storage bund) to 8,600,000 wet tonnes (increasing the volume identified for beneficial reuse by 4,000,000 wt to 8,000,000 wt).

The proposal increases the presently consented dredge depth in 2018 by 6.4 m within the eastern extent and the previously consented dredge depth in 2014 by 4.4 m. The navigation channel width now varies (130 – 150 m at the outer approach, 150 – 278 in the mid-channel and 102 – 168 m in the inner harbour approach), compared to the previously consented 120 m width. The dredge profiles have a slope of 1v:6h to maintain a 25m buffer between the dredging and the edge of the spit (dimensions from ARUP Drawing 294067-ARUP-XX-XX-DR-CG-002001 P01). It is anticipated the western end of the spit will be removed, although a small predator free island will be retained. A cutter suction dredger will be used to minimise sediment suspension for all dredging.

The key difference in the proposed dredging amendment and the existing dredge plan is that the footprint of the dredge area will be larger (additional 20.74 ha). The footprint of the revised dredge compared to the original application is depicted in figure 3-1 below 676693-GIS002 in Appendix A.

# 4 SCREENING FOR LIKELY SIGNIFICANT EFFECT

## 4.1 Likely Significant Effect

For significant effects to arise, there must be a risk enabled by having a 'source' (e.g. construction works at a proposed development site), a 'receptor' (e.g. a European site or its qualifying interests), and a pathway between the source and the receptor (e.g. mobile marine species travelling between the proposed development site and the designated site). The identification of a pathway does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. duration of construction works), the characteristics of the pathway (e.g. what species and the number of individuals travelling between the two sites) and the characteristics of the receptor (e.g. the sensitivities of the European site and its qualifying interests).

NatureScot (2015) guidance states that sites with mobile species should be considered within the screening process where there is a significant ecological link between the designated site and the proposed development site. It also states that for developments which could increase recreational pressures on designated sites, all sites within reasonable travel distance of the development should be considered for screening. It is also necessary to consider sites which are part of the same coastal ecosystem, where the proposed development may affect coastal processes.

## 4.1 Relevant European Sites

The following sites have been scoped in for assessment due to them being within proximity to the site and/ or considered connected to the site via dispersal of designated mobile species:

The sites are listed in Table 4-1, along with their screening assessment The location of the designated sites in relation to the proposed development is shown in Appendix A.

## 4.2 In- Combination Effects

No significant cumulative impacts were identified within the original EIA and given the highly localised nature of the additional impacts identified for the proposed dredge amendments, it is considered that this is still likely to be the case.

**Table 4-1: List of European Designated Sites within proximity to the site along with their Qualifying Features and Screening Assessment for Likely Significant Effects**

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| Moray Firth proposed SPA (within the site boundary) | To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species.<br><br>This contribution will be achieved through delivering the following objectives for each of the site's qualifying features:<br><br>a) Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term;<br><br>b) maintain the habitats and food resources of the qualifying features in favourable condition. | Common eider (*Somateria mollissima*)<br><br>Common goldeneye (*Bucephala clangula*)<br><br>Common scoter (*Melanitta nigra*)<br><br>Great northern diver (*Gavia immer*)<br><br>Greater scaup (*Aythya marila*)<br><br>Long-tailed duck (*Clangula hyemalis*)<br><br>Red-breasted merganser (*Mergus serrator*)<br><br>Red-throated diver (*Gavia stellate*)<br><br>Slavonian grebe (*Podiceps auritus*) | Pathway for LSE identified.<br><br>All of the qualifying species can be found in the adjacent open water of the Moray Firth. They are wintering populations and do not breed on site.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging grounds.<br><br>These impacts could result in disturbance, injury or death to foraging birds and reduced availability of suitable foraging habitat.<br><br>Overwintering surveys in 2019/2020 highlighted very few numbers of these qualifying species within or in the vicinity of the dredge site, with the majority present in Dornoch Firth. With the works having a very limited zone of influence, and the qualifying species found some distance away in their preferred marine foraging habitat, any impact is considered unlikely. | Screened out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | Velvet scoter (*Melanitta fusca*) | | |
| | | European shag (*Phalacrocorax aristotelis*) | Pathway for LSE identified.<br><br>European shag could make use of both the sand habitat within the site and the open water, or exclusively open water. They are present year round within the pSPA as well as over-wintering. They could be impacted directly by habitat loss or deterioration during the dredging.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. Increased habitat removal, alteration or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in disturbance, injury or death to foraging birds and reduced availability of suitable foraging habitat.<br><br>During breeding bird surveys in 2018 and overwintering survey in 2019/20, very small numbers of Shags were present within or in the vicinity of the dredge area (a peak count of 3 birds), indicating that this area is not a main foraging area for this species. With the works having a very limited zone of influence, any impact is considered unlikely. | Screened out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| Inner Moray Firth SPA (within the site boundary) | To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and<br><br>To ensure for the qualifying species that the following are maintained in the long term:<br><br>• Population of the species as a viable component of the site<br>• Distribution of the species within the site<br>• Distribution and extent of habitats supporting the species<br>• Structure, function and supporting processes of habitats supporting the species<br><br>No significant disturbance of the species | Common tern (*Sterna hirundo)* | Pathway for LSE identified.<br><br>Common Tern use the coast for foraging and roosting opportunities. They could be impacted directly by habitat loss or deterioration during the dredging works.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. Increased habitat removal, alteration or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in injury or death of individuals as well as reduced prey availability. And possibly failed nest attempts. | **Scoped in** |
| | | Osprey (*Pandion haliaetus*) | Pathway for LSE identified.<br><br>Osprey may utilise the channel and the shallow coastal waters to forage during the breeding season and on passage.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. Increased habitat removal, alteration or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | | These impacts could result in injury or death of individuals as well as reduced prey availability.<br><br>However there is no suitable breeding locations around the dredge area, and they are rarely recorded in the vicinity compared to their preferred foraging grounds along the Moray Coast.<br><br>No LSE is predicted. | |
| | | Bar-tailed godwit (*Limosa lapponica)* | Pathway for LSE identified.<br><br>Bar-tailed Godwit overwinter in the SPA. They could make use of the sand habitat within the site.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. Increased habitat removal, alteration or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in disturbance, injury or death to foraging birds and reduced availability of suitable foraging habitat.<br><br>There has been a shift in foraging and roost locations in recent years, with numbers declining from Whiteness Head. further west to Whiteness Sands, approximately 500m away. | Screened out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | | This distance is considered to be outside the distance for disturbance for this species[2]. | |
| | | Greylag goose (*Anser anser*) | Pathway for LSE identified.<br><br>Greylag Goose may be present in the open water within the Inner Moray Firth during the winter months (September – April). The distance between the site and suitable agricultural foraging grounds is approximately 10km, but it is unlikely that the site or surrounding area will be used for roosting as roost sites are typically on inland freshwater bodies, and Greylag geese are not known to frequent the area around Whiteness Sands.<br><br>The geese could be impacted directly in the short term if pollutants are released into the water during the dredging phase of the development. These pollutants could impact birds in the open water or potentially at roost sites if they are carried there through dispersal.<br><br>These impacts could result in injury or death of individuals but given the scope of works and the typical location of congregating geese, any LSE is considered unlikely.<br><br>No LSE is predicted. | Screened Out |
| | | Red-breasted merganser | Pathway for LSE identified. | **Screened in** |

[2] Disturbance Distances in selected Scottish Bird Species – NatureScot Guidance | NatureScot (Accessed 12/10/23)

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | | There is potential for red-breasted merganser to utilise the open water habitat within the site for foraging whilst they are present over-winter.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during deeper dredging or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in injury or death of individuals as well as reduced prey availability. | |
| | | Redshank (*Tringa totanus*) | Pathway for LSE identified.<br><br>Redshank may use the surrounding sand habitats and rocky shores for foraging and roosting over-winter.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. Increased habitat removal, alteration or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in injury or death of individuals as well as reduced prey availability. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | | Overwintering surveys in 2019/2020 show that Redshank almost exclusively forage and roost within he Delnies saltmarsh habitat, considered to be outside the distance of disturbance for non- breeding redshank (200m)[3].<br><br>No LSE identified. | |
| | | Scaup | Pathway for LSE identified.<br><br>Scaup may be present in the open water within the Inner Moray Firth during the winter months (September – April). They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. Increased habitat removal, alteration or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in injury or death of individuals as well as reduced prey availability.<br><br>The great rafts of overwintering Scaup are found in the Cromarty Firth, or in the Inner Moray Firth between Castle Stuart and the Kessock Bridge in Inverness and are very rarely seen around Whiteness.<br><br>No LSE identified. | Screened Out |

[3] Disturbance Distances in selected Scottish Bird Species – NatureScot Guidance | NatureScot (Accessed 14/09/2023)

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | Waterfowl assemblage<br>Qualifying species additionally include: curlew (*Numenius arquata),* goosander (*Mergus merganser),* goldeneye (*Bucephala clangula),* teal (*Anas crecca),* wigeon (*Anas Penelope),* cormorant (*Phalacrocorax carbo).* | Pathway for LSE identified.<br><br>Species in this assemblage are predominantly found foraging on Whiteness Sands <500m west of the site, and away from any dredging activity, or in the Moray Firth. This distance is considered to be mostly outside the distance for disturbance for non-breeding aggregates of these species.<br>However, +100 curlew have been recorded on site during monitoring surveys and all species could make use of the sand habitat within the site.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. Increased habitat removal, alteration or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in injury or death of individuals as well as reduced prey availability. | **Screened in** |
| Moray Firth SAC (within site boundary) | To avoid deterioration of the habitats of bottlenose dolphin or significant disturbance to this species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to | Bottlenose dolphin (*Tursiops truncates*) | LSE pathway identified.<br><br>Bottlenose dolphin may be subject to increased underwater noise from the deeper dredging. High levels of underwater noise have the potential to cause injury to marine mammals via temporary or permanent threshold shifts (TTS or PTS) in hearing. In extreme circumstances, loud noises generated in close proximity to individuals can cause death due to pressure | **Screened in** |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | achieving favourable conservation status; and<br><br>To ensure that the following are established then maintained in the long term:<br><br>• Population of the species as a viable component of the site<br>• Distribution of the species within the site<br>• Distribution and extent of habitats supporting the species<br>• Structure, function and supporting processes of habitats supporting the species<br>• No significant disturbance of the species | | changes. In lower levels, noise can cause disturbance and changes in behaviour through masking (where man-made noise drowns out natural noises, affecting communication between individuals, ability to hunt and/or navigate) or displacement from habitats.<br><br>During the dredging pollutants may be released into the water or through increased noise and machinery movement during dredging could have temporary impacts on bottlenose dolphin either directly, or indirectly, if prey items are affected. Toxic pollutants could result in habitat avoidance, injury or death of individuals and/or reduced prey availability leading to loss of condition. Prolonged vessel use as a result of deeper dredging could increase the risk of collision, resulting in death or injury to individuals. | |
| | To avoid deterioration of the qualifying habitat thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and | Subtidal sandbanks | Pathway for LSE identified.<br><br>Subtidal sandbanks will not be directly affected by the prosed deeper dredge.<br><br>It is possible that pollutants released during dredging could reach the habitats within the designated site through dispersion. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | To ensure for the qualifying habitat that the following are maintained in the long term:<br><br>• Extent of the habitat on site<br>• Distribution of the habitat within site<br>• Structure and function of the habitat<br>• Processes supporting the habitat<br>• Distribution of typical species of the habitat<br>• Viability of typical species as components of the habitat<br>• No significant disturbance of typical species of the habitat | | However, as the proposed deeper dredge works has a very limited zone of influence from the approved. Therefore, no LSE are predicted. | |
| River Moriston SAC (55km south-west) | To avoid deterioration of the habitats of the qualifying species or<br>significant disturbance to the qualifying species, thus ensuring that the integrity of<br>the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and | Atlantic Salmon (*Salmo salar)* | Pathway for LSE identified.<br><br>Atlantic salmon returning to the river Moriston from the sea will have to pass through the Moray Firth. As Atlantic salmon enter the Firth they tend to follow the coastline and could be present within the water near the dredge area. However, it is likely that numbers of fish migrating/emigrating past the development site will do so in areas of deeper water i.e. along the contours of the navigation channel, and where tidal flows, local currents and sediment movement, will be unaffected by the development. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | To ensure for the qualifying species that the following are maintained in the long term:<br><br>• Population of the species, including range of genetic types for salmon, as<br>• a viable component of the site;<br>• Distribution of the species within site;<br>• Distribution and extent of habitats supporting the species;<br>• Structure, function and supporting processes of habitats supporting the<br>• species;<br>• No significant disturbance of the species;<br>• Distribution and viability of freshwater pearl mussel host species;<br>• Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species. | | Disturbance-related impacts (noise/ sediments) during dredging has the potential to result in the displacement of fauna from using habitats. These impacts could result in disturbance, injury or in extreme circumstances death to individuals.<br><br>However, as the proposed deeper dredge works has a very limited zone of influence from the approved. Therefore, no LSE are predicted. | |
| | | Freshwater pearl mussel (*Margaritifera margaritifera*) | No LSE identified.<br><br>The site is located c. 55km form the proposed dredge works. Given the very limited and localised zone of influence of the dredge works, no LSE are predicted. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| Dornoch Firth and Morrich More SAC (24km north) | To avoid deterioration of the qualifying habitat thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and<br><br>To ensure for the qualifying habitat that the following are maintained in the long term:<br><br>• Extent of the habitat on site;<br>• Distribution of the habitat within site;<br>• Structure and function of the habitat;<br>• Processes supporting the habitat;<br>• Distribution of typical species of the habitat;<br>• Viability of typical species as components of the habitat; and<br>• No significant disturbance of typical species of the habitat. | • Coastal dune heathland<br>• Atlantic salt meadows<br>• Dunes with juniper thickets<br>• Lime-deficient dune heathland with crowberry<br>• Shifting dunes<br>• Estuaries<br>• Dune grassland<br>• Humid dune slacks<br>• Intertidal mudflats and sandflats<br>• Reefs<br>• Glasswort and other annuals colonising mud and sand<br>• Subtidal sandbanks Maintained<br>• Shifting dunes with marram | Pathway for LSE identified.<br><br>The distance between the dredge site and Dornoch Firth and Morrich More SAC is c.24km and the proposed deeper dredge works has a very limited zone of influence from the approved. Therefore, no LSE are predicted.<br>any materials reaching the designated site would be dilute and the effects on the habitats would be negligible. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and<br><br>To ensure for the qualifying species that the following are maintained in the long term:<br><br>• Population of the species a viable component of the site<br>• Distribution of the species within site<br>• Distribution and extent of habitats supporting the species<br>• Structure, function and supporting processes of habitats supporting the species<br>• No significant disturbance of the species | Otter (*Lutra lutra)* | LSE pathway identified.<br><br>Otters are mobile animals and can range over 50km (Chanin, 2003). It is feasible that otters within the SAC could utilise the habitats within and adjacent to the dredge area for foraging and commuting and the spit area for resting.<br><br>During the dredging otter could be impacted temporarily by noise and vehicle movements. This could result in displacement and a temporary reduction in the availability of habitat outside of the SAC.<br><br>Pollutants/ sediments released into the water during dredging could have temporary impacts on otter either directly, or indirectly, if prey items are affected. Toxic pollutants could result in avoidance of supporting habitat out with the SAC, injury or death of individuals and/or reduced prey availability outside of the SAC, leading to loss of condition.<br><br>No impacts on the structure, function or supporting processes of habitats within the SAC are predicted due to the distance between the proposed development and the designated site. Otter are highly mobile and there is extensive suitable foraging, commuting and resting habitat in the local landscape. Therefore, no LSE from deeper dredge activities is predicted. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | Harbour seal (*Phoca vitulina*) | Pathway for LSE identified.<br><br>Harbour seal is a mobile species which will travel in order to find prey and move between haul out sites. Seals from the Dornoch Firth and Morrich More SAC could be present within the water near the proposed development and at the designated haulout site at Whiteness sands.<br><br>During the dredging works otter could be impacted temporarily by noise and vessel movements. This could result in displacement and a temporary reduction in the availability of habitat outside of the SAC.<br><br>Harbour seal could be impacted directly in the short term if any pollutants are released into the water. They could be impacted indirectly if pollutants affect their food source (mainly small fish). Any pollutants dispersing to the site would be dilute and have insignificant effects on the seals and their prey.<br><br>These impacts could result in disturbance, injury or in extreme circumstances death to individuals. According to NatureScot (2018) harbour seals are found throughout the wider Moray Firth and may range widely in search of prey (up to 50km). However, they have high fidelity to their favoured haul out sites and they tend to remain close to the sites. There is a designated haulout site in close proximity to the proposed development site, at Whiteness Sands, west of the dredge area. | **Screened In** |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | | The proposed deeper dredge works has a very limited zone of influence from the approved. Therefore, no LSE are predicted. | |
| Cromarty Firth SPA (9km north) | To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and<br>To ensure for the qualifying species that the following are maintained in the long term:<br>• Population of the species as a viable component of the site<br>• Distribution of the species within site<br>• Distribution and extent of habitats supporting the species | Common tern | Pathway for LSE identified.<br><br>Common Tern use the coast for foraging and roosting opportunities. They could be impacted directly by habitat loss or deterioration during the dredging works.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. Increased habitat removal, alteration or increased noise and machinery movement during deeper dredging leading to loss, disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in injury or death of individuals as well as reduced prey availability. And possibly failed nest attempts. | **Screened in** |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | • Structure, function and supporting processes of habitats supporting the species<br>• No significant disturbance of the species | Osprey | Pathway for LSE identified.<br><br>Osprey may utilise the channel and the shallow coastal waters to forage during the breeding season and on passage.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water or through increased noise and machinery movement during dredging leading to disturbance or displacement from their preferred foraging or roosting grounds.<br><br>These impacts could result in injury or death of individuals as well as reduced prey availability.<br><br>However there is no suitable breeding locations around the dredge area, and they are rarely recorded in the vicinity compared to their preferred foraging grounds along the Moray Coast.<br><br>No LSE is predicted. | Screened Out |
| | | Bar-tailed godwit<br>Whooper swan<br>Greylag goose<br>Waterfowl | Pathway for LSE identified.<br><br>Bar-tailed godwit, whooper swan and greylag goose overwinter within the SPA but do not breed.<br><br>They could be impacted directly in the short term if pollutants are released into the water during dredging and through increased noise and machinery movement leading to disturbance or displacement from their preferred foraging or roosting grounds. They could be impacted indirectly during | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | | dredging if pollutants affect their food source within the intertidal mud habitat.<br><br>These impacts could result in disturbance, injury or death to foraging birds and reduced availability of suitable foraging habitat.<br><br>Bar -tailed Godwit predominantly feed on Whiteness Sands, to the west of the site. Whooper swan and greylag goose are rarely recorded in the vicinity, although both may forage on Whiteness Sands, or use the lagoon in the west of the site occasionally on passage or during the winter.<br><br>The deeper dredge has a very limited zone of influence from the approved, therefore no LSE is predicted. | |
| Moray and Nairn Coast SPA (9km east) | To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and<br>To ensure for the qualifying species that the following are maintained in the long term: | Osprey | Pathway for LSE identified.<br><br>Osprey may utilise the channel and the shallow coastal waters to forage during the breeding season and on passage.<br><br>They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during the dredging or through increased noise and lighting during dredging leading to disturbance or displacement from their preferred foraging or roosting grounds. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | • Population of the species as a viable component of the site<br>• Distribution of the species within site<br>• Distribution and extent of habitats supporting the species<br>• Structure, function and supporting processes of habitats supporting the species<br>• No significant disturbance of the species | | These impacts could result in injury or death of individuals as well as reduced prey availability.<br><br>However there is no suitable breeding locations around the dredge area, and they are rarely recorded in the vicinity compared to their preferred foraging grounds along the Moray Coast.<br><br>No LSE is predicted. | |
| | | Bar-tailed godwit<br>Greylag goose<br>Pink-footed goose<br>Redshank<br>Waterfowl | Pathway for LSE identified.<br><br>Bar-tailed godwit, waterfowl and geese overwinter within the Moray Firth but do not breed.<br><br>They could be impacted directly in the short term if pollutants are released into the water or through increased noise and machinery movement during dredging leading to disturbance or displacement from their preferred foraging or roosting grounds. They could be impacted indirectly during dredging if pollutants affect their food source within the intertidal mud habitat.<br><br>These impacts could result in disturbance, injury or death to foraging birds and reduced availability of suitable foraging habitat.<br>Godwit predominantly feed on Whiteness Sands, to the west of the site. Geese are rarely recorded in the vicinity, although may forage on Whiteness Sands, or use the lagoon or adjacent fields occasionally on passage or during the winter. The waterfowl assemblage is predominantly found on the | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | | | Moray Firth. Bird accumulations around Whiteness Head are not as rich as those within the Moray and Nairn Coast designation which includes Findhorn Bay, Lossie Estuary and Spey Bay.<br><br>The deeper dredge has a very limited zone of influence from the approved, therefore no LSE is predicted.<br><br>No LSE identified. | |
| Loch Flemington (6km south) | To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and<br><br>To ensure for the qualifying species that the following are maintained in the long term:<br><br>• Population of the species as a viable component of the site<br>• Distribution of the species within site<br>• Distribution and extent of habitats supporting the species<br>• Structure, function and supporting processes of | Slavonian grebe | Pathway for LSE identified.<br><br>Slavonian grebe breeds at Loch Flemington. They are likely to mainly remain at the loch but may forage in the open waters by the proposed development.<br><br>They could be impacted directly in the short term if pollutants are released into the water or through increased noise and machinery movement during dredging leading to disturbance or displacement from their preferred foraging grounds. They may also be impacted by pollutants indirectly, if prey species (mainly fish) are affected.<br><br>The structure and function of their habitat at Loch Flemington will not be affected by the development and there will be no significant disturbance to the species, which is occasionally recorded offshore from Whiteness in winter.<br><br>The deeper dredge has a very limited zone of influence from the approved, therefore no LSE is predicted. | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | habitats supporting the species<br>• No significant disturbance of the species | | | |
| Culbin Bar SAC (9km east) | To avoid deterioration of the qualifying habitats (listed below) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and<br><br>To ensure for the qualifying habitats that the following are maintained in the long term:<br><br>• Extent of the habitat on site<br>• Distribution of the habitat within site<br>• Structure and function of the habitat<br>• Processes supporting the habitat<br>• Distribution of typical species of the habitat<br>• Viability of typical species as components of the habitat | Perennial vegetation of stony banks<br>Atlantic salt meadows<br>Embryonic shifting dunes | Pathway for LSE identified.<br><br>The distance between the proposed development site and Culbin Bar SAC is c.24km and the deeper dredge has a very limited zone of influence from the approved.<br>Any materials reaching the designated site would be dilute and the effects on the habitats would be negligible.<br>No LSE is identified | Screened Out |

| Site Name and Distance to Proposed Development | Conservation Objectives | Qualifying Features | Likely Significant Effect (LSE) | Screening Assessment |
|---|---|---|---|---|
| | • No significant disturbance of typical species of the habitat | | | |

## 4.3 Screening Conclusion

The outcome of screening for appropriate assessment is to reach one of the following determinations:

a) A stage 2 AA of the proposed development is required if it is concluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.
b) A stage two AA of the proposed development is not required if it can be concluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will not have a significant effect on a European site.

Following an examination, analysis and evaluation of the relevant information including, in particular, the nature of the proposed development and the likelihood of significant effects on scoped in designated sites

- Inner Moray Firth SPA
    - Common Tern
    - Red Breasted Merganser
    - Waterfowl assemblages
- Moray Firth SAC
    - Bottlenose dolphin
- Dornoch Firth and Morrich More SAC
    - Harbour seal
- Cromarty Firth SPA
    - Common Tern

# 5 APPROPRIATE ASSESSMENT INNER MORAY FIRTH SPA

**Conservation Objectives:**

To ensure for the qualifying species that the following are maintained in the long term:

1. Population of the species as a viable component of the site
2. Distribution of the species within the site
3. Distribution and extent of habitats supporting the species
4. Structure, function and supporting processes of habitats supporting the species

## 5.1 Common Tern

The Inner Moray Firth SPA qualifies under Article 4.1 by regularly supporting populations of European importance of Common Tern (310 pairs, 2% of the GB population).

At Ardersier/Whiteness Head, Common Terns no longer breed, but post-breeding tern flocks (including Common Tern) do roost at Whiteness Head during late summer (July-August).

### 5.1.1 Assessment of Potential Impacts on Conservation Objectives

They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. A suction cutter dredger is to be used to limit suspended sediments in the water during dredging. It is predicted that the risk of such an event occurring is minimal if the mitigation and relevant Guidance for Pollution Prevention (GPP), detailed in section 9 of this report, are adhered to.

Permanent loss of roosting habitat and temporary disturbance during dredging is also a potential impact. It is considered that the birds have access to alternative roosting and feeding habitat and the loss of the habitat proposed during the deeper dredge will not impact on the conservation status of the wider population. There will be an overall reduction of habitat available for roosting within the development area and so the effects will be significant at a site level. It is considered that the existing Habitat Management Plan which sets out compensatory and enhancement actions for the site will be updated to reflect the loss of habitat within the spit/ island.

The population and distribution of the species should be maintained, and the overall distribution and function of supporting habitat should not be adversely impacted.

## 5.2 Red-breasted Merganser

The Inner Moray Firth SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory (1992/93 to 1996/97 winter peak means) red-breasted merganser (1,184 individuals, 1% of the NW & Central Europe biogeographic population).

Surveys undertaken at Ardersier/Whiteness Head indicate that occasionally larger numbers of this species are present, with a peak count of 92 in August 2021 and 47 in February 2020. The peak count of 92 represents nearly 8% of the SPA population.

### 5.2.1 Assessment of Potential Impacts on Conservation Objectives

Red-breasted Merganser could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. A suction cutter dredger is to be used to limit suspended sediments in the water during dredging. It is predicted that the risk of such an event occurring is minimal if the mitigation and relevant Guidance for Pollution Prevention (GPP), detailed in section 9 of this report, are adhered to.

Temporary disturbance during dredging is also a potential impact. It is considered that the birds have access to alternative foraging habitat within the Inner Moray Firth itself. Disturbance effects will not result in barriers to movement, so there would be no significant energy expenditure and possible reduction in body condition required for survival and subsequent migration. Therefore, there will not be an impact on the conservation status of the wider population.

The population and distribution of the species should be maintained, and the overall distribution and function of supporting habitat should not be adversely impacted.

## 5.3 Waterfowl Assemblages

The Inner Moray Firth SPA qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual waterfowl. Between 1992/93 to 1996/97 a winter peak mean of 26,800 individual waterfowl comprising 16,800 wildfowl and 10,000 waders including nationally important populations of the following species: scaup (118 individuals, 1% of the GB population); curlew Numenius arquata (1,262 individuals, 1% of the GB population); goosander (325 individuals, 4% of the GB population); goldeneye (218 individuals, 1% of the GB population); teal (2,066 individuals, 1% of the GB population); wigeon (7,310 individuals, 3% of the GB population); cormorant (409 individuals, 3% of the GB population); redshank (1,621 individuals, 1% of the GB population); red-breasted merganser (1,184 individuals, 12% of the GB population); greylag goose (2,651 individuals, 3% of the GB population) and bar-tailed godwit (1,090 individuals). In the five-year period 1991/92 to 1995/96, a winter peak mean of 33,148 individual waterfowl was recorded with the assemblage additionally including a nationally important population, greater than 2,000 individuals, of oystercatcher (3,063 individuals, 0.9% of the GB population).

### 5.3.1 Assessment of Potential Impacts on Conservation Objectives

Waterfowl assemblages could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. A suction cutter dredger is to be used to limit suspended sediments in the water during dredging. It is predicted that the risk of such an event occurring is minimal if the mitigation and relevant Guidance for Pollution Prevention (GPP), detailed in section 9 of this report, are adhered to.

Permanent loss of roosting habitat and temporary disturbance during dredging is also a potential impact. It is considered that the birds have access to alternative roosting and feeding habitat and the loss of the habitat proposed during the deeper dredge will not impact on the conservation status of the wider population. There will be an overall reduction of habitat available for roosting within the development area and so the effects will be significant at a site level. It is considered that the existing Habitat Management Plan which sets out compensatory and enhancement actions for the site will be updated to reflect the loss of some habitat within the spit/ island.

The population and distribution of the species should be maintained, and the overall distribution and function of supporting habitat should not be adversely impacted.

## 5.4 Appropriate Assessment Conclusion

Assuming GPP are in place and the site Habitat Management Plan is implemented then no adverse effects on the integrity of the Inner Moray Firth SPA are predicted in relation to the conservation objectives for Common Tern, Red-breasted Merganser and Waterfowl assemblages.

# 6 APPROPRIATE ASSESSMENT FOR THE MORAY FIRTH SAC

**Conservation Objectives:**

1. To maintain site integrity and ensure the site continues to make a contribution to bottlenose dolphin remaining at favourable conservation status in UK waters.
2. To ensure for the qualifying species that the following is maintained in the long term; population of the species as a viable component of the site.
3. To ensure for the qualifying species that the following is maintained in the long term; distribution of the species within the site.
4. To ensure for the qualifying species that the following is maintained in the long term; distribution and extent of habitats supporting the species.
5. To ensure for the qualifying species that the following is maintained in the long term; structure, function and supporting processes of habitats supporting the species.
6. To ensure for the qualifying species that the following is maintained in the long term; no significant disturbance of the species.

## 6.1 Bottlenose Dolphin

Bottlenose dolphin live predominantly in inshore coastal water within 10km of land but may range further. They usually live in small groups of up to 20 individuals and can live for 20 to 50 years. Calves can be born any time of year but typically between March and September. They eat a wide range of fish species including cod, saithe, whiting, salmon and haddock (Santos et al., 2001) as well as squid, crabs and shrimp. They are present in the Moray Firth SAC all year round.

The Moray Firth supports the only known resident population of bottlenose dolphin in the North Sea and is one of only two UK sites designated for the species as a primary qualifying feature. The northeast of Scotland population is estimated to comprise approximately 195 individuals. Between 1990 and 2013, annual estimates of the number of dolphins using the SAC ranged between 43 and 134. The main sensitivities bottlenose dolphin as identified in the site designation consultation document (SNH, 2018) are as follows:

- Removal of non-target and target species (i.e. entanglement of bottlenose dolphin in fishing gear and removal of their prey species);
- Contaminants (e.g. through effects on water quality and bioaccumulation of contaminants that in turn affect the survival and productivity rates of bottlenose dolphin);
- Underwater noise from vessels (recreational and commercial);
- Underwater noise from development activity (e.g. piling, blasting, dredging, seismic survey and general engine noise); and
- Death or injury by collision (predominantly in relation to collision with various types of fast-moving vessels from commercial shipping to personal leisure craft and potentially from tidal turbines).

Due to recognised declines and threats to the species all bottlenose dolphins are European Protected Species (EPS), protected under the Conservation (Natural Habitats, &c.) Regulations 1994.

### 6.1.1 Assessment of Potential Impacts on Conservation Objectives

The proposed works will occur within The Moray Firth SAC boundary. There is the potential for bottlenose dolphin to be disturbed, injured or, in extreme circumstances, killed as a result of equipment movements underwater noise or pollution generated during dredging.

The main impact predicted to arise from the current and proposed dredging, in relation to marine mammals, is the generation of underwater noise. Underwater noise modelling undertaken to inform the 2018 EIA included modelling of noise which would be generated by dredging using a cutter suction dredger. The proposed dredge amendments won't alter the parameters of the modelling (e.g. noise generated by the vessel will not be different) Figure 3-1 below shows the results of the modelling with regards to distances for Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) thresholds for different hearing groups. It is assumed that marine mammals will swim away from any noises which are causing them disturbance or are harmful, the shorter exposure periods for the modelling are therefore the most likely to be experienced.

Assuming that animals will flee as soon as they hear the noise from the dredging, the PTS range for any species is a maximum of 3m from the source of the noise. The TTS limits are all within 230m (within 2m for all species when excluding harbour porpoise) when assuming animals will flee from the noise source. The expected disturbance is therefore highly localised to the dredge site, with individuals present within the wider Moray Firth unlikely to be impacted. There is only considered to be a risk to marine mammals if they are in close proximity to the dredge vessel when dredging is commencing. The modelling also shows that there is no difference to the TTS and PTS threshold distances regardless of if the activity continues for 8 hours or 24 (as long as they do not remain stationary). In order to avoid and minimise the risk of injury and disturbance to marine mammals, a Marine Mammal Protection Plan (MMPP) is in place and key mitigation is outlined in section 9 of this report.

In terms of habitat loss it is considered that there is sufficient alternative foraging habitat for bottlenose dolphin such that there would be no loss in individual condition, breeding success or long-term population viability as a result of displacement.

During dredging works there is the potential for pollutants to be released into the water. This could have temporary impacts on the function and supporting processes of bottlenose dolphin foraging habitat, which could lead to reduced prey availability in the short term. A suction cutter dredger is to be used to limit suspended sediments in the water during dredging. It is predicted that the risk of such an event occurring is minimal if the mitigation and relevant Guidance for Pollution Prevention (GPP), detailed in section 9 of this report, are adhered to.

No changes to the distribution or extent of habitats supporting bottlenose dolphin within or out with the SAC are predicted as a result of the deeper dredging. No impacts to the structure, function and processes of habitats supporting bottlenose dolphin are predicted within the designated site. Disturbance will be temporary and the favourable conservation status of bottlenose dolphin in UK waters will not be impacted by the dredging works.

## 6.2 Appropriate Assessment Conclusion

If the mitigation presented in the MMPP and section 9 of this report are adhered to then no significant effects on the integrity of The Moray Firth SAC are predicted in relation to the conservation objectives for bottlenose dolphin.

# 7 APPROPRIATE ASSESSMENT FOR THE DORNOCH FIRTH AND MORRICH MORE SAC

**Conservation Objectives**

To ensure for the qualifying species that the following is maintained in the long term; population of the species as a viable component of the site:

1. To ensure for the qualifying species that the following is maintained in the long term; distribution of the species within the site.
2. To ensure for the qualifying species that the following is maintained in the long term; distribution and extent of habitats supporting the species.
3. To ensure for the qualifying species that the following is maintained in the long term; structure, function and supporting processes of habitats supporting the species.
4. To ensure for the qualifying species that the following is maintained in the long term; no significant disturbance of the species.

## 7.1 Harbour Seal

The harbour or common seal (*Phoca vitulina*) occurs in the North Atlantic and North Pacific. There are about 83,000 harbour seals in Europe. About 35% of this population is found in UK waters, and 83% of these in Scottish waters. Harbour seals prefer more sheltered waters and have a more restricted range than grey seals. Harbour seals are found throughout the wider Moray Firth and may range widely in search of prey (up to 50km).

Harbour seals are typically found hauled out on sandbars and shores at the mouth of the estuary which are used habitually as favoured locations by the same groups of individuals. Notable haul-out sites include the intertidal sandflats of Dornoch and Whiteness Sands and the intertidal sand bars of the Gizzen Briggs which consistently support around 600 seals. These areas are also used as breeding sites, including locations which are inundated by the tide as pups can swim within an hour after birth with pupping typically occurring in early to mid-June/July. Adult seals undergo an annual moult between August and September during which they spend extended period out of the water.

Harbour seals are present within the Dornoch Firth year-round. The harbour seal breeding season is from June to August inclusive.

The main sensitivities for harbour seal as identified in the site designation consultation document (NatureScot, 2018) are as follows:

- underwater noise from vessels (recreational and commercial);
- development activity (e.g. piling, blasting, dredging, seismic survey and general engine noise);
- recreational disturbance – particularly at haul out sites;
- potential persecution from fisheries;
- marine pollution;
- capture in fishing nets; and potentially tidal turbines.

### 7.1.1 Assessment of Potential Impacts on Conservation Objectives

The proposed works are approximately 24km outside Dornoch Firth and Morrich More SAC boundary. The majority of the potential impacts listed in Table 4.1 are therefore not expected to impact on harbour seal nor the habitat supporting them within the designated site.

During dredging there is the potential for pollutants to be released into the water. This could have temporary impacts on the function and supporting processes of a harbour seal foraging habitat out with the SAC which could lead to reduced prey availability in the short term. It is predicted that the risk of such an event occurring will be minimal if the mitigation and relevant GPP, detailed in section 9 of this report, is adhered to.

There is also the potential for harbour seal utilising the habitats within and adjacent to the proposed dredge site to experience disturbance during dredging. There is a designated seal haulout site[4] at Whiteness Sands, <500m west of the proposed development site. The location has also been used for pupping. Seals that are on land are usually resting to conserve energy or may be nursing young. Disturbing seals into the water costs them energy, creates stress and can lead to impacts on health[5]. Stampeding adults can also injure pups. The disturbance arising from the deeper dredge will be temporary and therefore will not result in long term disturbance. Disturbance during construction will be minimised by adherence to the mitigation outlined in the MMPP and section 9 of this report.

The dredge works are not predicated to affect the integrity of the site or its contribution to maintaining the favourable conservation status of harbour seal in UK waters. No processes of habitats supporting the species or alterations to the long-term distribution of the species within the site are therefore anticipated.

## 7.2 Appropriate Assessment Conclusion

If the mitigation presented in the MMPP and section 9 of this report are adhered to then no significant effects on the integrity of Dornoch Firth and Morrich More SAC are predicted in relation to the conservation objectives for harbour seal.

[4] MF001 - Ardersier: Intertidal sandbanks west of Whiteness Head and north of Kirkton within the MoD Danger Area.
[5] Scottish Natural Heritage: A Guide to Best Practice for Watching Marine Wildlife available online at: https://www.nature.scot/sites/default/files/2017-06/Publication%202017%20-%20A%20Guide%20to%20Best%20Practice%20for%20Watching%20Marine%20Wildlife%20SMWWC%20-%20Part%202%20-%20April%202017%20%28A2263517%29.pdf last accessed 13/06/2018

# 8 APPROPRIATE ASSESSMENT CROMARTY FIRTH SPA

**Conservation Objectives:**

To ensure for the qualifying species that the following are maintained in the long term:

1. Population of the species as a viable component of the site
2. Distribution of the species within site
3. Distribution and extent of habitats supporting the species
4. Structure, function and supporting processes of habitats supporting the species

## 8.1 Common Tern

Cromarty Firth SPA qualifies under Article 4.1 by regularly supporting populations of European importance of the species Common Tern (1989 to 1993 mean of 294 pairs; 2% of the GB population).

At Ardersier/Whiteness Head, Common Terns no longer breed, but post-breeding tern flocks (including Common Tern) do roost at Whiteness Head during late summer (July-August).

### 8.1.1 Assessment of Potential Impacts on Conservation Objectives

They could be impacted directly, or indirectly via pollution of food source in the short term if pollutants are released into the water during dredging. A suction cutter dredger is to be used to limit suspended sediments in the water during dredging. It is predicted that the risk of such an event occurring is minimal if the mitigation and relevant Guidance for Pollution Prevention (GPP), detailed in section 9 of this report, are adhered to.

Permanent loss of roosting habitat and temporary disturbance during dredging is also a potential impact. It is considered that the birds have access to alternative roosting and feeding habitat and the loss of the habitat proposed during the deeper dredge will not impact on the conservation status of the wider population. There will be an overall reduction of habitat available for roosting within the development area and so the effects will be significant at a site level. It is considered that the existing Habitat Management Plan which sets out compensatory and enhancement actions for the site will be updated to reflect the loss of habitat within the spit/ island.

The population and distribution of the species should be maintained, and the overall distribution and function of supporting habitat should not be adversely impacted.

## 8.2 Appropriate Assessment Conclusion

Assuming GPP are in place and the site Habitat Management Plan is implemented then no adverse effects on the integrity of the Cromarty Firth SPA are predicted in relation to the conservation objectives for Common Tern.

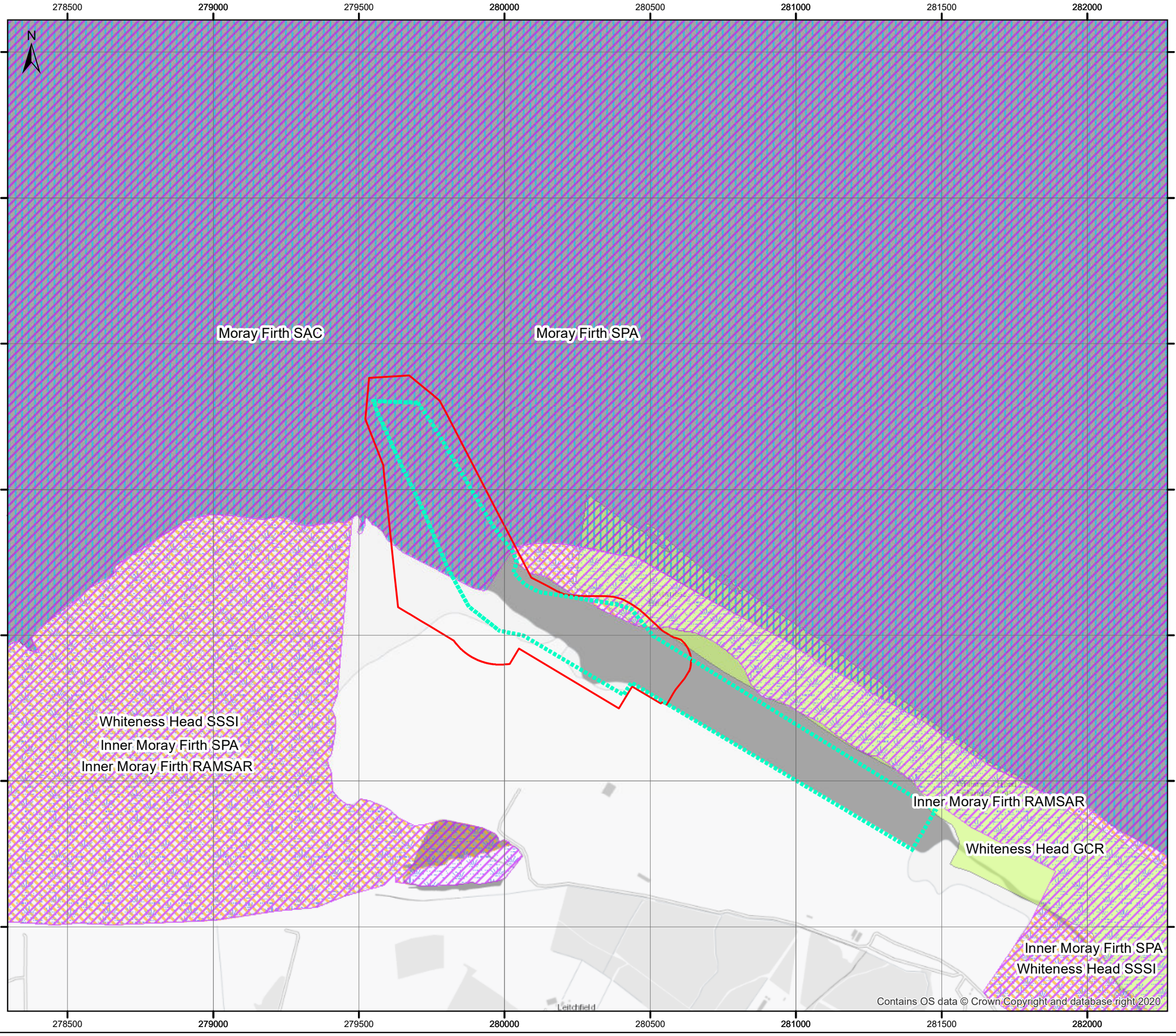
# 9 MITIGATION.

The following mitigation will be employed to avoid and minimise any impacts occurring both during the dredging works:

- Adherence to the site-specific Marine Mammal Protect Plan (MMPP);
- Adherence to the site-specific Construction Environmental Management Document (CEMD) detailing pollution prevention measures.
- The following good practice guidelines will be adhered to and incorporated into the CEMD:
    - GGP5: Works and maintenance in or near water;
    - PPG 6: Working at construction and demolition sites;
    - PPG 7: Safe Storage – The safe operation of refuelling facilities;
    - GPP21: Pollution and incident response planning; and
    - PPG22: Incident response – dealing with spills.
- An Ecological Clerk of Works (ECoW) will be employed throughout the construction phase to audit adherence to the mitigation outlined in the CEMD.
- The existing Habitat Management Plan which sets out compensatory and enhancement actions for the site should be updated to reflect the loss of bird nesting and roosting habitat on the spit.

# APPENDICES

# A THE LOCATION OF DESIGNATED SITES IN RELATION TO THE PROPOSED DEVELOPMENT




**Legend**

- Dredge Boundary 2018
- Revised Dredge Boundary (Eastern Extent) 2023

Designation

- GCR
- RAMSAR
- SAC
- SPA
- SSSI

Do not scale this map

**Client**
Ardersier Port (Scotland) Ltd

**Project**
Ardersier Port

**Title**
Dredge Extent and Designated Sites

**Status**
FINAL

| Drawing No. | Revision | Date |
|---|---|---|
| 676693-GIS002 | - | 12 Oct 2023 |
| **Drawn** | **Checked** | **Approved** |
| MN | EC | CCAS |

**Scale**
1:12,500 @A3
0 62.5 125 250 375 Metres

| Rev | Date | Amendment | Initials |
|---|---|---|---|
| - | - | - | - |

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