

## **Orkney Logistics Base (Hatston) Habitats Regulations Appraisal**



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# CONTROL SHEET

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## EXECUTIVE SUMMARY

Envirocentre Limited has been commissioned by Orkney Island Council Harbour Authority to undertake a Habitats Regulation Appraisal (HRA) to determine whether the proposed expansion of Hatston Pier and Harbour works will have any adverse impact on the integrity of any European designated sites.

The potential effects of the proposal on the designated features of the European designated sites were considered as part of a Habitats Regulations Assessment. Likely Significant Effects (LSE) on the North Orkney Special Protection Area (SPA), Orkney Mainland Moors SPA, Scapa Flow SPA, Faray and Holm of Faray Special Area of Conservation (SAC) and Sanday SACs could not be ruled out during the screening stage of the assessment; and so an Appropriate Assessment (AA) has been conducted to ascertain whether the proposed works will adversely affect the integrity of the site's qualifying features.

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

- Production of a Vessel Management Plan, with input from NatureScot, for both the Construction and Operational phases which will detail vessel routes, speeds etc to minimise, and where possible, avoid any disturbance impacts;
- Adherence to measures set out in the Construction Environmental Management Document (CEMD);
- Deployment of an ECoW and marine mammal observer to monitor for the presence of qualifying species of the North Orkney SPA, Orkney Mainland Moors SPA (Red-throated Diver) and cetaceans and pinnipeds (in particular common seal) in the vicinity of the Proposed Development during piling, blasting and dredging works;
- A soft-start approach to piling works to prevent disturbance;
- Production and adherence to detailed Marine Mammal Protection Plan (MMPP);
- Production and adherence to a detailed Pollution Prevention Plan;
- A silt boom to contain fine sediments will be used whilst reclamation work activities are undertaken.

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# 1 INTRODUCTION

## 1.1 Terms of Reference

Envirocentre Limited has been commissioned by Orkney Island Council Harbour Authority (OICHA) to undertake a Habitats Regulation Appraisal (HRA) to determine whether the proposed expansion of Hatston Pier and Harbour works will have any adverse impact on the integrity of any European designated sites.

## 1.2 Scope of Report

A HRA is required to assess whether the project, 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.

## 1.3 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**

<b>Stage 1</b>	
<b>Screening for Likely Significant Effect (LSE)</b>	<ul style="list-style-type: none"> <li>- Identify international sites in and around the project area.</li> <li>- Examine conservation objectives of the interest feature(s) (where available).</li> <li>- Review plan policies and proposals and consider potential effects on UK sites (magnitude, duration, location, extent).</li> <li>- Examine other plans and programmes that could contribute to ‘in combination’ effects.</li> </ul>
	<ul style="list-style-type: none"> <li>- If no effects likely – report no likely significant effect.</li> <li>- If effects are judged likely or uncertainty exists – the precautionary principle applies, proceed to Stage 2.</li> <li>- If following screening the project is reviewed and includes integral mitigation which will ensure no likely significant effects, then no further Appropriate Assessment needed.</li> </ul>
<b>Stage 2</b>	
<b>Appropriate Assessment (AA)</b>	<ul style="list-style-type: none"> <li>- Complete additional scoping work including the collation of further information on sites as necessary to evaluate impact in light of conservation objectives.</li> <li>- Consider how the project ‘in combination’ with other projects will interact when implemented (the Appropriate Assessment).</li> <li>- Consider how effects on integrity of the site could be avoided by changes to the project and the consideration of alternatives.</li> <li>- Develop mitigation measures (including timescale and mechanisms).</li> <li>- Report outcomes of AA including mitigation measures.</li> </ul>
	<ul style="list-style-type: none"> <li>- If the project will not adversely affect European site integrity proceed with plan.</li> <li>- If effects or uncertainty remain following the consideration of alternatives and development of mitigation proceed to Stage 3.</li> </ul>
<b>Stage 3</b>	
<b>Alternative Solutions</b>	<ul style="list-style-type: none"> <li>- Consider alternative solutions, delete from project or modify.</li> <li>- 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).</li> </ul>
<b>Stage 4</b>	
<b>Imperative Reasons of Overriding Public Interest (IROPI)</b>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- 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.</li> </ul>

	Compensatory measures must be practical, implementable, likely to succeed, proportionate and enforceable, and they must be approved by the Minister.
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## 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<sup>1</sup> 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 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

<sup>1</sup>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> (Accessed 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 DESCRIPTION OF THE PROPOSED DEVELOPMENT AND CONSTRUCTION METHODS**

### **3.1 Site Location**

The proposed development is located on the eastern shore of the Orkney mainland, approximately 1.9km west of Kirkwall. It is located on the Hatston coastline within the Bay of Kirkwall, 1.7km northwest of the Peerie Sea and 1.8km west of the Bay of Weyland.

### **3.2 Proposed Works**

It is proposed to extend the existing outer quay by 300m (with minimum water depth of -10m Chart Datum (CD)) which would also form a 125m inner berth. This would create substantially more quayside which would be available for both current and future operations. In addition to the above, circa 7.5 hectares (Ha) of additional land extending from the current shoreline outwards would be made available for harbour-related operations through reclamation. The design includes a ship lift, additional link span and fuel facility.

The development is designed to be built in three phases as noted below. These phases should not be considered consecutively but allow for a degree of flexibility which can be adapted to suit the requirements, budget and programme of OICHA.

#### **Phase 1**

- Reclaim the area by depositing appropriate material to form a platform on the south-eastern side of the current pier causeway and thereby create 3Ha of hard-core surfaced marshalling / storage area along with an HGV trailer park for the ferry service which will be covered by a reinforced concrete slab;
- A sheet pile wall is to be installed to allow a retained interface with the current suspended deck; and
- Place rock armour along the northern and eastern edges of the infill area.

#### **Phase 2**

- Extend the current quay to the west by circa 300m with a 25m return and an inner berth to facilitate the proposed linkspan berth and fixed ramp. The extension will comprise a steel sheet pile wall and will initially interface with the alignment of the existing suspended deck on the north-west inner face before forming the new quay extension;
- Reinforced concrete slabs will form the new main deck areas;
- Reclaim the shoreline by depositing appropriate material to form a platform on the southwestern side of the current pier causeway to create an additional 3.71Ha to be used as a multi-use laydown/work area surfaced with hard-core, as well as establish a separate access road to the new quay extension;
- Place rock armour along the western edge of the infill area; and
- Dredge the approaches to the quay, after quay works complete.

#### **Phase 3**

- Reclaim the shoreline to the south-west of Phase 2 to form a platform on the southwestern side of the current pier causeway to be used as a multi-use laydown/work area as well as create a ship lift;

- The ship lift will extend from the linkspan fixed ramp installed in Phase 2 and will comprise piles and reinforced concrete pads designed for the boatlift wheel-loads;
- The rest of the area will be infilled to provide extra yard / storage; and
- Place rock armour along the western edge of the infill area.

Phase 3 dredging works will form a separate application once more site data is available.

### **3.3 Construction Methods**

#### **3.3.1 Piling and Blasting**

Piling and blasting works will be undertaken during the period of April – October, and only undertaken during suitable weather windows. Sheet piles will be vibro hammered to the required depth, with no impact hammers being utilised.

There is a small possibility that piling and blasting works could occur beyond October if the construction programme slips.

Blasting will be undertaken once per day during the works, likely to be at the end of the working day.

A barge will initially be set up adjacent to the existing pier and once the required depth of drill hole has been established in this area drilling will begin at the farthest away point from the pier and will continue in a direction towards the pier with holes being loaded utilising conservative charge weights of explosives. Upon completion of the drilling and charging the barge will be moved out of position and following audible warning procedures and approval from the port authority, the blast will be fired with each hole firing on a separate delay with the farthest hole from the pier firing first to allow the broken rock and blast energy to channel in the direction away from the existing pier.

Blasts will be monitored by using permanent recording three-directional vibration measuring instruments at suitable agreed nearby locations. Vibration levels will be kept within the norms laid out in the internationally recognised British Standards 7385:1993, "Evaluation and Measurement for Vibration in Buildings, Part 2: Guide to damage levels from ground borne vibrations".

#### **3.3.2 Dredging**

Once all Phase 2 quay works are complete a small amount of dredging is required to the west of along the line of the quay extension to provide a deeper approach channel to the quay berth area (Refer to Figure 2.11).

Dredging will be undertaken by a long reach from land, dredging a total of approximately 4,850m<sup>3</sup> of sediment. The sediment dredged will be used as infill material reused in the reclamation. It is not currently known when dredging works will be undertaken, but will take 4 – 5 weeks to complete.

#### **3.3.3 Vessel Movements During Construction**

During construction works, there will only be a small volume of vessel movements, as it is anticipated that the majority of materials will be brought by land from sites within Orkney Mainland. Rock armour import will consist of two shipments at start and halfway through contract, therefore 8 vessel movements in total. These vessel movements will be following existing shipping routes, with no new/novel routes being utilised. Sheet piles and any other material that cannot be sourced on the

mainland will be imported through the existing Orkney Northlink freight services, so there will be no increase to current vessel movement baseline levels to deliver these.

### **3.3.4 Vessel Movements During Operation**

From information contained in the Navigational Risk Assessment (NRA) (see Technical Appendix 2.2) it is evident that expected vessel calls per year will increase by +104 for oil and gas supply, offshore wind and freight/cargo categories (or +208 vessel movements (arrival/departure)) at Hatston. The more aspirational vessel calls associated with potential boat repair and aquaculture would amount to an additional +230 vessel calls per year (or +460 vessel movements).

Existing vessel movements to and from Kirkwall/Hatston are also described in the NRA, with a strong seasonality being demonstrated. Vessel movements are 998 in winter and 2,104 in summer, a total of 3102 vessel movements through the approaches to Hatston and Kirkwall piers over a calendar year.

On this basis the increases expected at Hatston as a result of oil and gas supply, offshore wind and freight/cargo vessels would equate to an additional 208 vessel movements compared to an existing 3102 movements per year or a 6.7% increase. Should the boat repair and aquaculture initiatives also be realised then this would rise to a total of 668 additional vessel movements or a 21.5% increase over existing annual marine traffic.

## 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.

### 4.2 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:

- North Orkney SPA
- Orkney Mainland Moors SPA
- Scapa Flow SPA
- Loch of Stenness SAC
- Faray and Holm of Faray SAC
- Sanday SAC

The sites are listed in Table 4-1, along with their screening assessment.

#### 4.2.1 In-Combination Effects

Orkney Islands Council (OIC) identified the following projects which should be considered in-combination with the proposed development:

- Scapa Deep Water Quay;
- Cooke Fish Farm move;
- Quanterness onshore wind farm;
- Faray onshore wind farm;
- Stymilders/Heddle Hill (Land Near), Firth, Orkney;
- Kirkwall Pier; and
- Hatson HWRC/Former Abattoir, Sparrowhawk Road/Grainshore Road, Hatson Industrial Estate.

**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 (distance and orientation from works)	Conservation Objectives	Qualifying Features	Likely Significant Effect (LSE)	Screening Assessment
<b>North Orkney SPA</b> (On boundary)	To ensure that the qualifying features of the North Orkney SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.	Great northern diver ( <i>Gavia immer</i> ),	Pathway for LSE identified.  There is potential for the species to be subject to disturbance during the construction phase of the proposed development via temporary noise from piling, blasting and dredging and vessel and onshore vehicle movements. Additional vessel movements during the operational phase (an increase of up to 460-668 movements per year) could result in displacement from the habitat and a reduction in overall foraging habitat. This impact could increase in magnitude and/or duration when considered in-combination with other local development developments.	Scoped in
		Slavonian grebe ( <i>Podiceps auritus</i> ),  Velvet scoter ( <i>Melanitta fusca</i> ), non-breeding		
		Red-throated diver ( <i>Gavia stellata</i> ), breeding	Pathway for LSE identified.  It is possible that birds breeding within the SPA could utilise the water within the proposed harbour area for foraging.  During the construction phase of the proposed development foraging Red-throated Divers could be impacted temporarily by noise from piling, blasting and dredging and vessel and onshore vehicle movements. Additional vessel movements during the operational phase (an increase of up to 460-668 movements per year) could result in displacement from the habitat and a reduction in overall foraging habitat This impact could increase in magnitude and/or duration when considered in-combination with other local development developments.	Scoped in

Site Name (distance and orientation from works)	Conservation Objectives	Qualifying Features	Likely Significant Effect (LSE)	Screening Assessment
<b>Orkney Mainland Moors SPA</b> (4km south west)	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.	Hen harrier ( <i>Circus cyaneus</i> ), breeding	<p>Pathway for LSE identified.</p> <p>Pendlebury <i>et al.</i> (2011) state that the maximum foraging range from nests is 2km for females and males can travel up to 8.5km from a nest site. Hen harriers can utilise coastal areas to predate waders, therefore it is possible that birds breeding within the SPA could utilise the water within the proposed harbour area for foraging.</p> <p>During the construction phase of the proposed development foraging Hen Harriers could be impacted temporarily by noise from piling and blasting. This could result in displacement from the habitat and a reduction in overall foraging habitat. However as Hen harriers favour heather moorland and stream habitat when nesting, and there are plenty of accessible coastal areas outside the working area available, it is unlikely that works associated with the pier will have a significant effect on the foraging success of breeding Hen Harrier. Therefore, no LSE predicted.</p>	Scoped out
		Hen harrier non-breeding	<p>Pathway for LSE identified.</p> <p>It possible that birds within the SPA could utilise the water within the proposed harbour area for foraging.</p> <p>During the construction phase of the proposed development foraging Hen Harriers could be impacted temporarily by noise from piling and blasting. This could result in displacement from the habitat and a reduction in overall foraging habitat. However, as winter foraging Hen Harriers favour open rank habitats for foraging, and there are plenty of accessible coastal areas outside the working area available, it is unlikely that works associated with the pier will have a significant effect on the foraging success of foraging Hen Harrier in the locale. Therefore, no LSE predicted.</p>	Scoped out

Site Name (distance and orientation from works)	Conservation Objectives	Qualifying Features	Likely Significant Effect (LSE)	Screening Assessment
		Red-throated diver, breeding	<p>Pathway for LSE identified.</p> <p>Pendlebury <i>et al.</i> (2011) state that the maximum foraging range from nests during the breeding season is generally 8km for Red-throated Diver but can be up to 13.5km in the Western Isles. It is possible that birds breeding within the SPA could utilise the water within the proposed harbour area for foraging.</p> <p>During the construction phase of the proposed development foraging Red-throated Divers could be impacted temporarily by noise from piling, dredging and vessel and onshore vehicle movements. This could result in displacement from the habitat and a reduction in overall foraging habitat.</p>	Scoped in
		Short-eared owl ( <i>Asio flammeus</i> ), breeding	<p>No pathway identified.</p> <p>No potential impacts to breeding Short-eared owl or their habitat within the SPA are predicted due to the distance between the SPA and the proposed development and the species not being associated with coastal habitats.</p> <p>No LSE is predicted.</p>	Scoped out
<b>Scapa Flow SPA</b> (4km south)	To ensure that the qualifying features of the Scapa Flow SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.	Black-throated diver ( <i>Gavia arctica</i> ), non-breeding	<p>No pathway identified.</p> <p>As there is no works planned across land and given the hydrological distance from the site and Scapa Flow SPA, it is considered unlikely the species will be subject to direct impacts from development activities or indirectly via accidental pollution events.</p> <p>No LSE is predicted.</p>	Scoped out
		Eider ( <i>Somateria mollissima</i> ), non-breeding	<p>No pathway identified.</p> <p>As there is no works planned across land and given the hydrological distance from the site and Scapa Flow SPA, it is considered unlikely the species will be subject to direct impacts from development activities or indirectly via accidental pollution events.</p> <p>No LSE is predicted.</p>	Scoped out

Site Name (distance and orientation from works)	Conservation Objectives	Qualifying Features	Likely Significant Effect (LSE)	Screening Assessment
		Great northern diver, non-breeding	No pathway identified.  There is uncertainty as to whether there is movement between Noryh Orkney SPA and Scapa Flow SPA. As such, it has been assumed that there is an LSE.  LSE is predicted.	Scoped in
		Long-tailed duck ( <i>Clangula hyemalis</i> ), non-breeding	No pathway identified.  As there is no works planned across land and given the hydrological distance from the site and Scapa Flow SPA, it is considered unlikely the species will be subject to direct impacts from development activities or indirectly via accidental pollution events.  No LSE is predicted.	Scoped out
		Red-breasted merganser ( <i>Mergus serrator</i> ), non-breeding	No pathway identified.  As there is no works planned across land and given the hydrological distance from the site and Scapa Flow SPA, it is considered unlikely the species will be subject to direct impacts from development activities or indirectly via accidental pollution events.  No LSE is predicted.	Scoped out
		Red-throated diver, breeding	No pathway identified.  There is uncertainty as to whether there is movement between Noryh Orkney SPA and Scapa Flow SPA. As such, it has been assumed that there is an LSE.  LSE is predicted.	Scoped in
		Shag ( <i>Phalacrocorax aristotelis</i> ), non-breeding	No pathway identified.  As there is no works planned across land and given the hydrological distance from the site and Scapa Flow SPA, it is considered unlikely the species will be subject to direct impacts from development activities or indirectly via accidental pollution events.  No LSE is predicted.	Scoped out



Site Name (distance and orientation from works)	Conservation Objectives	Qualifying Features	Likely Significant Effect (LSE)	Screening Assessment
		Slavonian grebe ( <i>Podiceps auritus</i> ), non-breeding	No pathway identified.  There is uncertainty as to whether there is movement between Noryh Orkney SPA and Scapa Flow SPA. As such, it has been assumed that there is an LSE.  LSE is predicted.	Scoped in
<b>Loch of Stenness SAC</b> (13km west)	To maintain the condition of the SAC feature	Lagoons	No pathway for LSE identified  The distance between the feature and the works is considered to be too great. In addition the Loch of Stenness SAC and Hatston are separated by land, with no possible connectivity between the two sites.	Scoped out
<b>Faray and Holm of Faray SAC</b> (23km 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 the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and To ensure for the qualifying species that the following are maintained in the long term.	Grey seal ( <i>Halichoerus grypus</i> )	Pathway for LSE identified.  There is potential for the species to be subject to disturbance as a result of noise, vibration, human presence and light pollution during construction activities.  There is potential for the species to be indirectly impacted by accidental pollution incidents or increased sedimentation and turbidity during works impacting water quality and therefore food availability.  Grey seals could be subject to death or injury through underwater noise or collision with vessels during works.	Scoped in

Site Name (distance and orientation from works)	Conservation Objectives	Qualifying Features	Likely Significant Effect (LSE)	Screening Assessment
<b>Sanday SAC</b> (30km North east)	To avoid deterioration of the qualifying habitats 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 To ensure for the qualifying habitats are maintained in the long term.	Harbour seal <i>(Phoca vitulina)</i>	<p>Pathway for LSE identified.</p> <p>There is potential for the species to be subject to disturbance as a result of noise, vibration, human presence and light pollution during construction activities.</p> <p>There is potential for the species to be indirectly impacted by accidental pollution incidents or increased sedimentation and turbidity during works impacting water quality and therefore food availability.</p> <p>Harbour seals could be subject to death or injury through underwater noise or collision with vessels during works.</p>	Scoped in
		Intertidal mudflats and sandflats	No pathway for LSE identified. There will be no impact on habitats from the Proposed Development.	Scoped out
		Reefs	No pathway for LSE identified. There will be no impact on habitats from the Proposed Development.	Scoped out
		Subtidal sandbanks	No pathway for LSE identified. There will be no impact on habitats from the Proposed Development.	Scoped out

### 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

- North Orkney SPA
- Orkney Mainland Moors SPA (Red-throated Diver)
- Scapa Flow SPA
- Faray and Holm of Faray SAC
- Sanday SAC (Common Seal)

## 5 APPROPRIATE ASSESSMENT: NORTH ORKNEY SPA

### 5.1 Site Description

The North Orkney Special Protection Area (SPA) lies to the north of Mainland in the Orkney Islands, extending from Deerness in the east to Eynhallow in the west. The site includes Wide Firth and several large, sheltered bays, such as Deer Sound, Inganess Bay and Bay of Firth. North Orkney SPA also encompasses Shapinsay Sound and tidal channels among the islands of Gairsay, Rousay, Egilsay and Wyre, including Rousay Sound and Eynhallow Sound. Water depths are generally less than 20m. Sediments are primarily mixtures of mud, sand and gravel but become coarser in areas where tidal currents are stronger and there are extensive maerl beds in the sounds around Rousay. The varied marine habitats support a rich and varied invertebrate fauna, including polychaete worms, crustaceans and bivalve molluscs, many of which are important prey species for marine birds. These rich sheltered waters support large numbers of waterfowl, particularly in the winter months when frequent storms affect the surrounding North Sea and eastern Atlantic.

The North Orkney Special Protection Area (SPA) qualifies under **Article 4.1** by regularly supporting a non-breeding population of European importance of the following Annex 1 species:

- Great Northern Diver (*Gavia immer*) - a mean peak annual non-breeding population of 308 birds (12.3% of the Great Britain population) for the years 2006/07 to 2008/09); and
- Slavonian Grebe (*Podiceps auratus*) - a mean peak annual non-breeding population of 120 birds (10.9% of the Great Britain population) for the years 2007/08-2008/9).

The site also qualifies under **Article 4.1** by regularly supporting a population of European importance of the following Annex 1 species during the breeding season:

- Red-throated Diver (*Gavia stellata*) - up to 47 pairs (3.7% of the Great Britain population) for the year of 2006).

The site further qualifies under **Article 4.2** by regularly supporting a population of European importance of the following migratory species:

- Velvet Scoter (*Melanitta fusca*) - a mean peak annual non-breeding population of 147 birds (5.9% of the Great Britain population) for the years of 2006/07 to 2008/09).

### 5.2 Conservation Objectives

1. To ensure that the qualifying features of the North Orkney SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.

2. To ensure that the integrity of the North Orkney SPA is maintained in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:

2a. The populations of qualifying features are viable components of the site.

2b. The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species.

2c. The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained.

### 5.3 Red-throated Diver (*Gavia stellata*), breeding

Baseline surveys were undertaken during the 2023 breeding season, details of which can be found in the Ornithological Technical Report (Technical Appendix 5.3). A summary of findings is found below.

For most of the year Red-throated Divers were present in very low numbers within 2 km of the existing pier, generally from nought to three birds.

However, there was a distinct peak in the autumn, from mid-August to mid-November with up to 19 birds on 23rd Sept 2023. Some of these autumn birds were seen to be juveniles, twice an adult and juvenile together (26th Aug and 5th Oct 2023), and on 23rd Sept 2023 a group of six included at least one adult in wing moult. It is likely that birds from the local Orkney breeding population were mainly involved early in the autumn, although the highest numbers in late September and early October could also have included birds from further afield (e.g. Shetland).

During the early breeding season of 2023 there were very few sightings and, of the four birds recorded up to early June, two were seen to be immatures.

Overall, about 15% of birds were within 500m of the existing pier, 38% at 500m–1km, and 47% at 1–2km.

During the key breeding period for chick rearing (June to mid - August), small numbers were present within the survey area with numbers ranging between 0 and 5 birds. Overall, with counts of 3 birds, 5 birds, 0 birds, 2 birds and 2 birds recorded during survey within this period, it is considered that although the site potentially supports foraging adults during breeding, it is not considered to be a main foraging site. The Scottish Government marine map detailing important feeding areas for Red-throated Diver shows that the area in the northwest of Wide Firth, in the bays Bay of Firth and Bay of Isbister are the most significant foraging areas for this species. Taking the precautionary approach that the peak of 5 birds were all adults foraging to chick rearing, this equates to 10.6% of the SPA citation population (suppornig habitats for up to 47 breeding pairs).

The surveys indicate that the site supports significant numbers during post-breeding, with the peak of 19 birds in late September supporting this assumption.

#### 5.3.1.1 *Conservation Objective 2a: The population of qualifying species are viable components of the site*

There is minimal risk of mortality through collision with marine vessels as a result of the Proposed Development. Other direct effects affecting water quality are dealt with in Conservation Objective 2c and indirect effects (ie disturbance resulting in reduced body condition and survival) are dealt with in Conservation Objective 2b.

With no predicted impacts in either conservation Objectives 2b and 2c, it is considered that the population of Red-throated Diver remain a viable component of the site.

#### 5.3.1.2 *Conservation Objective 2b: The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species.*

Red-throated Diver is considered to be highly sensitive to disturbance, particularly from vessel movements. Taking evasive action, particularly flight responses, increases energy budgets of birds which could result in increased mortality rates should they be regularly disturbed.

Blasting and vibro-piling works will be undertaken during the construction phase. These works are timed to occur during April to October, utilising suitable weather windows during this time. Therefore, works will be undertaken during the period when breeding Red-throated Divers are potentially utilising the area for foraging. During the surveys, 15% of the birds recorded were within 500m of the Proposed Development, 38% were between 500m and 1km from the Proposed Development and 47% between 1-2km from the Proposed Development. In terms of airborne noise, the noise assessment undertaken details the various noise levels of certain type of plant and construction activity. The loudest activities are compactors during surfacing works (91dB at source). However, these noise levels will dissipate quickly over distance to a level that will have no significant disturbance impacts on Red-throated Diver. The effects of underwater noise on birds is little known but from a precautionary standpoint, effects up to 250m has been assumed. The majority of birds recorded during the surveys are outwith this distance. Blasting will take place once a day, usually towards the end of the working day. The piling works will be vibro-piling, which is less intrusive than hammer piling.. Mitigation, such as a soft start approach and an ECoW monitoring for the presence of this species within 150m of the Proposed Development prior to piling and blasting works (with works to be undertaken once birds are a sufficient distance away), would limit any potential impact.

At Hatston, most of the material (rock etc) required for the development will be transported via the road network. There will only be a small volume of vessel movements, as it is anticipated that the majority of materials will be brought by land from sites within Orkney Mainland. Rock armour import will consist of two shipments at the start and halfway through contract, therefore 8 vessel movements in total. These vessel movements will be following existing shipping routes, with no new/novel routes being utilised. Sheet piles and any other material that cannot be sourced on the mainland will be imported through the existing Orkney Northlink freight services, so there will be no increase to current vessel movement baseline levels to deliver these. As described in the NRA, the existing baseline for vessel movements within the Bay of Kirkwall is 3102 movements. An increase in 8 vessel movements during the construction phase represents an increase of 0.25%.

For the operational phase, information contained in the NRA (see Technical Appendix 2.2) shows that the expected vessel calls per year will increase by +104 for oil and gas supply, offshore wind and freight/cargo categories (or +208 vessel movements (arrival/departure)). The more aspirational vessel calls associated with potential boat repair and aquaculture would amount to an additional +230 vessel calls per year (or +460 vessel movements).

Existing vessel movements to and from Kirkwall/Hatston are also described in the NRA, with a strong seasonality being demonstrated. Vessel movements are 998 in winter and 2,104 in summer, a total of 3102 vessel movements through the approaches to Hatston and Kirkwall piers over a calendar year.

On this basis the increases expected at Hatston as a result of oil and gas supply, offshore wind and freight/cargo vessels would equate to an additional 208 vessel movements compared to an existing 3102 movements per year or a 6.7% increase. Should the boat repair and aquaculture initiatives also be realised then this would rise to a total of 668 additional vessel movements or a 21.5% increase over existing annual marine traffic.

These vessel movements will use existing vessel routes, with no new/novel routes expected. By using these existing routes, and adhering to accepted speed limits, the increase in a maximum of 2 vessel movements a day (based on a maximum increase of 668 vessel movements each year. There is no anticipated seasonal bias to the additional vessel movements during the operational phase) is not likely to cause a significant disturbance impact. None of these potential disturbance effects will result in barriers to movement, or reduce access to preferred foraging and roosting habitats, resulting in a significant energy expenditure and possible reduction in body condition required for survival and subsequent migration.

There is proposed dredging works within the footprint of the Proposed Development. The estimated dredge volume is small (approximately 4,850m<sup>3</sup> of sediment). Dredging will be undertaken by a long reach from land. The sediment dredged will be used as infill material reused in the reclamation.

Given that the dredging works are very localised, undertaken from land and short term in duration (4 - 5 weeks) it is highly unlikely that significant disturbance will occur.

Overall, it is considered that there would be no significant disturbance to the species as a result of construction works and vessel movements.

*5.3.1.3 Conservation Objective 2c: The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained*

As described in NatureScot's Conservation and Management Advice Document for North Orkney SPA, supporting habitats refer to the characteristics of the seabed and water column relevant to their use by the qualifying features. It relates to wider oceanographic processes such as up-wellings, tidal Flows, hydrological movements which may be necessary for the habitat and could affect nutrient cycling and prey distribution.

As outlined in section 4.5.3, in Volume 1 of the EIAR, the marine deposits within the dredge area comprise of loose to medium dense sands and gravels occasionally with cobbles interspersed with layers of sandy gravelly clay. Dredged material will be used as fill within the reclaimed areas. I

Given the relatively coarse nature of the dredge budget, small proposed dredge volume, and the weak tidal currents within the vicinity of the proposed dredge pockets, it is considered that any plumes generated as a result of the dredging works and their disposal will be very localised and short term in duration. Overall, it is considered that prior to mitigation the magnitude of impact of sediment discharge and dispersion from dredging works will be low within the immediate dredge area, and negligible out with this area, thus maintaining the supporting habitats for Red-throated Diver.

Drainage designs to ensure that there are no untreated surface water discharges directly to surrounding coastal waters and the use of a silt booms during land reclamation works will mitigate against pollution spills which could affect the qualifying interests of the SPA and their prey sources. In terms of water pollution from the quay and attendant vessels, adherence to strict Pollution Prevention controls will aim to prevent the release of pollutants to the water environment. With these measures in place, the supporting habitats for Red-throated Diver will be maintained.

## **5.4 Slavonian Grebe (*Podiceps auritus*), non-breeding**

The citation for Slavonian Grebe states the population within North Orkney SPA is a mean peak annual non-breeding population of 120 birds (10.9% of the Great Britain population) for the years 2007/08-2008/9).

Slavonian Grebes are listed under Schedule 1 of the Wildlife and Countryside Act, which recognises their rarity as a breeding species in the UK and affords them extra protection during the nesting period. They are also an Annex I migratory species under the EU Birds Directive (2009/147/EC).

### 5.4.1 Assessment of Potential Impacts on Conservation Objectives

During the Vantage Point Surveys at Hatston, a peak count of 10 birds was recorded on 5<sup>th</sup> November 2023, which represents 6% of the non-breeding population of the North Orkney SPA. All birds were exclusively recorded from sectors 3, 4, 7 and 8 to the west of the Proposed Development. These numbers were higher than those recorded during the HiDef surveys of 2021/22 and 2022/23. The HiDef showed that the majority of observations occurred in inner Scapa Bay (2022: ~25%; 2023 ~50% mean percentage occurrence) and St. Mary's Bay (2022: ~44%; 2023: ~27% mean percentage occurrence).

**Table 5.1: Average and Peak Monthly Counts for Slavonian Grebe at Hatston**

	Month							
	October	November	December	January	February	March	April	May
Average monthly count	1.25	5.25	3.75	4.5	1.5	5.25	0	0
Peak monthly count	5 (25/10/22)	10 (05/11/22)	7 (16/12/22)	8 (05/01/24)	3 (25/02/24)	9 (20/03/24)	-	-

As can be seen from Table 5.1, the core period for Slavonian Grebe was November to March, where average numbers and peak counts were relatively constant. Low numbers occur in October before building up and then a reduction from March. No Slavonian Grebe were present between April and September. During the surveys undertaken in 2017/18, it was found that numbers of Slavonian grebe within the SPA increased from November through to January and remained steady in February and March which correlates with the Project survey findings.

#### 5.6.1.1 Conservation Objective 2a: The population of qualifying species are viable components of the site

Surveys undertaken for the entire North Orkney SPA during the winter period of 2017/18, found that Slavonian Grebes were largely confined to shallow nearshore waters, with the most notable concentrations in Bay of Firth, Wide Firth, Inganess Bay and Deerness Sound off Orkney Mainland and in Veantrow Bay (Shapinsay). Other notable areas were Eynhallow and Rousay Sounds. With a peak count of 59 birds in the outer Wide Firth to the north of the Proposed Development, it is considered that the wider SPA has the capacity to support a peak of 10 birds present within 2km of the Proposed Development.

There is minimal risk of mortality through collision with marine vessels as a result of the Proposed Development. Other direct effects affecting water quality are dealt with in Conservation Objective 2c and indirect effects (ie disturbance resulting in reduced body condition and survival) are dealt with in Conservation Objective 2b.

With no predicted impacts in either conservation Objectives 2b and 2c, it is considered that the population of Slavonian Grebe remain a viable component of the site.

#### 5.5.1.2 Conservation Objective 2b: The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species.



Slavonian Grebe is considered to be highly sensitive to disturbance, particularly from vessel movements. Taking evasive action, particularly flight responses, increases energy budgets of birds which could result in increased mortality rates should they be regularly disturbed. During the bird/boat interaction observations, there was one instance of a small creel boat (at about 200-300m distance) causing a single Slavonian Grebe to take evasive action (dive and swim away).

Blasting and vibro-piling works will be undertaken during the construction phase. These works are timed to occur during April to October, utilising suitable weather windows during this time. These works are outwith the core period for this species, with the surveys showing the peak counts are between November and March (with smaller numbers present in October). However, there is a small possibility that piling and blasting works could occur beyond October if the construction programme slips. Within the survey area, Slavonian Grebe were confined to the inshore waters, particularly to the west of the Proposed Development. Mitigation, such as a soft start approach and an ECoW monitoring for the presence of this species within 250m of the Proposed Development prior to piling and blasting works (with works to be undertaken once birds are a sufficient distance away), would further limit any potential impact. These activities would be limited to the month of October (and beyond if the construction programme slips) only when Slavonian Grebes are present. In terms of airborne noise, the noise assessment undertaken details the various noise levels of certain type of plant and construction activity. The loudest activities are compactors during surfacing works (91dB at source). However, these noise levels will dissipate quickly over distance to a level that will have no significant disturbance impacts on Slavonian Grebe.

At Hatston, most of the material (rock etc) required for the development will be transported via the road network. There will only be a small volume of vessel movements, as it is anticipated that the majority of materials will be brought by land from sites within Orkney Mainland. Rock armour import will consist of two shipments at start and halfway through contract, therefore 8 vessel movements in total. These vessel movements will be following existing shipping routes, with no new/novel routes being utilised. Sheet piles and any other material that cannot be sourced on the mainland will be imported through the existing Orkney Northlink freight services, so there will be no increase to current vessel movement baseline levels to deliver these. As described in the NRA, the existing baseline for vessel movements within the Bay of Kirkwall is 3102 movements. An increase in 8 vessel movements during the construction phase represents an increase of 0.25%.

For the operational phase, information contained in the NRA (see Technical Appendix 2.2) shows that the expected vessel calls per year will increase by +104 for oil and gas supply, offshore wind and freight/cargo categories (or +208 vessel movements (arrival/departure)) The more aspirational vessel calls associated with potential boat repair and aquaculture would amount to an additional +230 vessel calls per year (or +460 vessel movements).

Existing vessel movements to and from Kirkwall/Hatston are also described in the NRA, with a strong seasonality being demonstrated. Vessel movements are 998 in winter and 2,104 in summer, a total of 3102 vessel movements through the approaches to Hatston and Kirkwall piers over a calendar year.

On this basis the increases expected at Hatston as a result of oil and gas supply, offshore wind and freight/cargo vessels would equate to an additional 208 vessel movements compared to an existing 3102 movements per year or a 6.7% increase. Should the boat repair and aquaculture initiatives also be realised then this would rise to a total of 668 additional vessel movements or a 21.5% increase over existing annual marine traffic.

These vessel movements will use existing vessel routes, with no new/novel routes expected. By using these existing routes, and adhering to accepted speed limits, the increase in a maximum 2 vessel

movements a day (based on a maximum increase of 668 additional vessel movements a year. There is no anticipated seasonal bias to the additional vessel movements during the operational phase) is not likely to cause a significant disturbance impact. None of these potential disturbance effects will result in barriers to movement, or reduce access to preferred foraging and roosting habitats, resulting in a significant energy expenditure and possible reduction in body condition required for survival and subsequent migration.

There is proposed dredging works within the footprint of the Proposed Development. The estimated dredge volume is small (approximately 4,850m<sup>3</sup> of sediment). Dredging will be undertaken by a long reach from land. The sediment dredged will be used as infill material reused in the reclamation.

Given that the dredging works are very localised, undertaken from land and short term in duration (4 - 5 weeks) it is considered to be highly unlikely that significant disturbance will occur.

#### *5.5.1.3 Conservation Objective 2c: The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained*

As described in NatureScot's Conservation and Management Advice Document for North Orkney SPA, supporting habitats refer to the characteristics of the seabed and water column relevant to their use by the qualifying features. It relates to wider oceanographic processes such as up-wellings, tidal Flows, hydrological movements which may be necessary for the habitat and could affect nutrient cycling and prey distribution.

As outlined in section 4.5.3, in Volume 1 of the EIAR, the marine deposits within the dredge area comprise of loose to medium dense sands and gravels occasionally with cobbles interspersed with layers of sandy gravelly clay. Dredged material will be used as fill within the reclaimed areas.

Given the relatively coarse nature of the dredge budget, small proposed dredge volume, and the weak tidal currents within the vicinity of the proposed dredge pockets, it is considered that any plumes generated as a result of the dredging works and their disposal will be very localised and short term in duration. Overall, it is considered that prior to mitigation the magnitude of impact of sediment discharge and dispersion from dredging works will be low within the immediate dredge area, and negligible out with this area, thus maintaining the supporting habitats for Slavonian Grebe.

Drainage designs to ensure that there are no untreated surface water discharges directly to surrounding coastal waters and the use of a silt booms during land reclamation works will mitigate against pollution spills which could affect the qualifying interests of the SPA and their prey sources. In terms of water pollution from the quay and attendant vessels, adherence to strict Pollution Prevention controls will aim to prevent the release of pollutants to the water environment. With these measures in place, the supporting habitats for Slavonian Grebe will be maintained.

## **5.5 Velvet Scoter (*Melanitta fusca*), non-breeding**

The citation for Velvet Scoter states the population within North Orkney SPA is a mean peak annual non-breeding population of 147 birds (5.9% of the Great Britain population) for the years of 2006/07 to 2008/09).

Velvet Scoter are listed under Schedule 1 of the Wildlife and Countryside Act, which recognises their rarity as a breeding species in the UK and affords them extra protection during the nesting period.

### 5.5.1 Assessment of Potential Impacts on Conservation Objectives

During the Vantage Point Surveys at Hatston, a peak count of 38 birds was recorded on 14<sup>th</sup> March 2024, which represents 25% of the non-breeding population in North Orkney SPA.

This species was exclusively recorded off the north pier, in the mouth of the Bay of Kirkwall. The sectors where birds were most frequently encountered were Sectors 8, 9 and 10 which are between 500m-1km from the Proposed Development. Small numbers were occasionally recorded in Sectors 5 and 6. No Velvet Scoter were recorded in inshore waters.

No Velvet Scoter were recorded within the Bay of Kirkwall during the HiDef surveys over winter 2021/22. During the 2022/23 surveys, ten birds were recorded in December 2022 and 19 birds in January 2023. These birds were located at the mouth of the Bay of Kirkwall, similar to the findings of the project surveys.

**Table 5.2: Average and Peak Monthly Counts for Velvet Scoter at Hatston**

	Month							
	October	November	December	January	February	March	April	May
Average monthly count	5.5	18.75	22	30.75	13.25	17.75	13	0
Peak monthly count	21 (29/10/22)	34 (17/11/22)	35 (02/12/22)	37 (20/01/24)	20 (05/02/24)	38 (14/03/24)	13 (29/04/23)	-

As can be seen from Table 5.2, the core period for Velvet Scoter was November to April, where average numbers and peak counts relatively constant (with the exception of a larger peak in January). Low numbers occur in October before building up and then a reduction in number in April. No Velvet Scoter were present between May and September.

#### 5.5.1.1 Conservation Objective 2a: The population of qualifying species are viable components of the site

Surveys undertaken for the entire North Orkney SPA during the winter period of 2017/18, found that Velvet Scoter tend to congregate to the outer parts of larger bays off Mainland, with highest numbers in Wide Firth, Shapinsay Sound, Inganess Bay and the entrance to Deer Sound. The largest numbers were recorded within Wide Firth. This area, along with the other areas has the capacity to support these birds (peak count of 38 birds). During the HiDef surveys over the winter of 2021/22 recorded no Velvet Scoter within the survey area, which demonstrates that these birds do move around within the SPA and therefore further supports the argument that it has the capacity to support these birds.

There is minimal risk of mortality through collision with marine vessels as a result of the Proposed Development. Other direct effects affecting water quality are dealt with in Conservation Objective 2c and indirect effects (ie disturbance resulting in reduced body condition and survival) are dealt with in Conservation Objective 2b.

With no predicted impacts in either conservation Objectives 2b and 2c, it is considered that the population of Velvet Scoter remain a viable component of the site.

5.5.1.2 *Conservation Objective 2b: The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species.*

Velvet Scoter is considered to be highly sensitive to disturbance, particularly from vessel movements. Taking evasive action, particularly flight responses, increases energy budgets of birds which could result in increased mortality rates should they be regularly disturbed. During the bird/boat observations, there was a total of ten instances of interaction. Most resulted in a slow swim away, although there were two instances of flight response to a work boat and a creel boat.

Blasting and vibro-piling works will be undertaken during the construction phase. These works are timed to occur during April to October, utilising suitable weather windows during this time. However, there is a small possibility that piling and blasting works occur beyond October if the construction programme slips. These works are outwith the core period for this species (should the construction programme remain on time), with the surveys showing the peak counts are between November and April. This corresponds with findings from the 2017/18 surveys, which stated that “*numbers of velvet scoter within the site increased after November and thereafter fluctuated around 200 birds throughout the winter*”. Within the survey area, the primary sectors that Velvet Scoter were present in were Sectors 8, 9 and 10. These sectors are located approximately 500m to 1km from the piling and blasting works which is considered to be a sufficient distance away so as not to cause disturbance to birds should they be present in the months of April and October (and beyond depending on construction programmes) (no Velvet Scoter were recorded between May and September). Mitigation, such as a soft start approach and an ECoW monitoring for the presence of this species within 250m of the Proposed Development prior to piling and blasting works (with works to be undertaken once birds are a sufficient distance away), would further limit any potential impact. These mitigation measures would be undertaken in the months of April and October (and beyond depending on construction programmes) when birds are present. In terms of airborne noise, the noise assessment undertaken details the various noise levels of certain type of plant and construction activity. The loudest activities are compactors during surfacing works (91dB at source). However, these noise levels will dissipate quickly over distance to a level that will have no significant disturbance impacts on Velvet Scoter.

At Hatston, most of the material (rock etc) required for the development will be transported via the road network. There will only be a small volume of vessel movements, as it is anticipated that the majority of materials will be brought by land from sites within Orkney Mainland. Rock armour import will consist of two shipments at start and halfway through contract, therefore 8 vessel movements in total. These vessel movements will be following existing shipping routes, with no new/novel routes being utilised. Sheet piles and any other material that cannot be sourced on the mainland will be imported through the existing Orkney Northlink freight services, so there will be no increase to current vessel movement baseline levels to deliver these. As described in the NRA, the existing baseline for vessel movements within the Bay of Kirkwall is 3102 movements. An increase in 8 vessel movements during the construction phase represents an increase of 0.25%.

For the operational phase, information contained in the NRA (see Technical Appendix 2.2) shows that the expected vessel calls per year will increase by +104 for oil and gas supply, offshore wind and freight/cargo categories (or +208 vessel movements (arrival/departure)) The more aspirational vessel calls associated with potential boat repair and aquaculture would amount to an additional +230 vessel calls per year (or +460 vessel movements).

Existing vessel movements to and from Kirkwall/Hatston are also described in the NRA, with a strong seasonality being demonstrated. Vessel movements are 998 in winter and 2,104 in summer, a total of 3102 vessel movements through the approaches to Hatston and Kirkwall piers over a calendar year.

On this basis the increases expected at Hatston as a result of oil and gas supply, offshore wind and freight/cargo vessels would equate to an additional 208 vessel movements compared to an existing 3102 movements per year or a 6.7% increase. Should the boat repair and aquaculture initiatives also be realised then this would rise to a total of 668 additional vessel movements or a 21.5% increase over existing annual marine traffic.

These vessel movements will use existing vessel routes, with no new/novel routes expected. By using these existing routes, and adhering to accepted speed limits, the increase in a maximum of 2 vessel movements a day (based on a maximum increase of 668 vessel movements each year. There is no anticipated seasonal bias to the additional vessel movements during the operational phase) is not likely to cause a significant disturbance impact. None of these potential disturbance effects will result in barriers to movement, or reduce access to preferred foraging and roosting habitats, resulting in a significant energy expenditure and possible reduction in body condition required for survival and subsequent migration.

There is proposed dredging works within the footprint of the Proposed Development. The estimated dredge volume is small (approximately 4,850m<sup>3</sup> of sediment). Dredging will be undertaken by a long reach from land. The sediment dredged will be used as infill material reused in the reclamation.

Given that the dredging works are very localised, undertaken from land and approximately 500m to 1km from where Velvet Scoter have been recorded, it is considered to be highly unlikely that significant disturbance will occur.

*5.5.1.3 Conservation Objective 2c: The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained*

As described in NatureScot's Conservation and Management Advice Document for North Orkney SPA, supporting habitats refer to the characteristics of the seabed and water column relevant to their use by the qualifying features. It relates to wider oceanographic processes such as up-wellings, tidal Flows, hydrological movements which may be necessary for the habitat and could affect nutrient cycling and prey distribution.

As outlined in section 4.5.3, in Volume 1 of the EIAR, the marine deposits within the dredge area comprise of loose to medium dense sands and gravels occasionally with cobbles interspersed with layers of sandy gravelly clay. Dredged material will be used as fill within the reclaimed areas.

Given the relatively coarse nature of the dredge budget, small proposed dredge volume, and the weak tidal currents within the vicinity of the proposed dredge pockets, it is considered that any plumes generated as a result of the dredging works and their disposal will be very localised and short term in duration. Overall, it is considered that prior to mitigation the magnitude of impact of sediment discharge and dispersion from dredging works will be low within the immediate dredge area, and negligible out with this area, thus maintaining the supporting habitats for Velvet Scoter.

Drainage designs to ensure that there are no untreated surface water discharges directly to surrounding coastal waters and the use of a silt booms during land reclamation works will mitigate against pollution spills which could affect the qualifying interests of the SPA and their prey sources. In terms of water pollution from the quay and attendant vessels, adherence to strict Pollution Prevention controls will aim to prevent the release of pollutants to the water environment. With these measures in place, the supporting habitats for Velvet Scoter will be maintained.

## 5.6 Great Northern Diver (*Gavia immer*), non-breeding

The citation for Great Northern Diver states the population within North Orkney SPA a mean peak annual non-breeding population of 308 birds (12.3% of the Great Britain population) for the years 2006/07 to 2008/09)

Great Northern Diver are listed under Schedule 1 of the Wildlife and Countryside Act, which recognises their rarity as a breeding species in the UK and affords them extra protection during the nesting period. They are also an Annex I migratory species under the EU Birds Directive (2009/147/EC).

### 5.6.1 Assessment of Potential Impacts on Conservation Objectives

During the Vantage Point Surveys at Hatston, a peak count of 31 birds were recorded on 16<sup>th</sup> December 2022 and 5<sup>th</sup> January 2024, which represents 10% of the non-breeding population in North Orkney SPA.

From the North Pier vantage point, Great Northern Diver was recorded during all months, peaking with 31 on 16<sup>th</sup> December 2022. The majority of birds were recorded in the mouth of the Bay of Kirkwall. However, a peak count of 9 was also recorded close to the fish cages.

From the southern pier vantage point, small numbers were recorded, with a peak of 8 birds on 16<sup>th</sup> December 2022. Birds were predominately recorded out towards Iceland Skerry.

Great Northern Diver was also recorded in all months (except March 2023) during the HiDef surveys over winters 2021/22 and 2022/23, with a peak count of 18 birds in January 2022 and 20 birds in February 2023. As with winter 2022/23, the majority of birds were recorded at the mouth of the Bay of Kirkwall.

**Table 5.3: Monthly and Peak Counts for Great Northern Diver at Hatston**

	Month							
	October	November	December	January	February	March	April	May
Average monthly count	6.5	12.25	20.75	16.25	13.25	11.75	11	3.5
Peak monthly count	9 (29/10/22, 05/10/23)	17 (17/11/23)	31 (16/12/22)	31 (05/01/24)	21 (05/02/24)	15 (20/03/24)	11 (29/04/23)	7 (21/05/23)

As can be seen from Table 5.3, the core period for Great Northern Diver was November to April, where average numbers and peak counts relatively constant (with the exception of larger peaks in December and January). Low numbers occur in October before building up and then a reduction in number in May. No Great Northern Diver were present between June and September. During the surveys undertaken in 2017/18, it was found that numbers of Great Northern Diver within the SPA increased during November and December suggesting that birds were continuing to arrive from their breeding grounds in this period.

*5.6.1.1 Conservation Objective 2a: The population of qualifying species are viable components of the site*

Surveys undertaken for the entire North Orkney SPA during the winter period of 2017/18, found that Great Northern Divers were found throughout the SPA, with the highest mean counts in deeper waters in outer Wide Firth and Shapinsay Sound. Notable concentrations were also evident to the north of Shapinsay and east of Gairsay and Wyre. With a peak count of 127 birds in the outer Wide Firth to the north of the Proposed Development, it is considered that the wider SPA has the capacity to support a peak of 31 birds present within 2km of the Proposed Development.

There is minimal risk of mortality through collision with marine vessels as a result of the Proposed Development. Other direct effects affecting water quality are dealt with in Conservation Objective 2c and indirect effects (ie disturbance resulting in reduced body condition and survival) are dealt with in Conservation Objective 2b.

With no predicted impacts in either conservation Objectives 2b and 2c, it is considered that the population of Great Northern Diver remain a viable component of the site.

*5.5.1.2 Conservation Objective 2b: The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species.*

Great Northern Diver is considered to be highly sensitive to disturbance, particularly from vessel movements. Taking evasive action, particularly flight responses, increases energy budgets of birds which could result in increased mortality rates should they be regularly disturbed. During the bird/boat interaction observations, there was a total of 23 interactions. The majority elicited no response, although eight resulted in a dive or swim away. There was one instance of the Shapinsay ferry potentially causing a flight response.

Blasting and vibro-piling works will be undertaken during the construction phase. These works are timed to occur during April to October, utilising suitable weather windows during this time. However, there is a small possibility that piling and blasting works may occur beyond October if construction programmes slip. These works are outwith the core period for this species, with the surveys showing the peak counts are between November and March (with smaller numbers still present in April). Within the survey area, Great Northern Diver were spread out across the Bay of Kirkwall, with regular occurrences in sectors 9 and 10. However, birds have been recorded close to the Proposed Development in Sector 2 (peak of 13 birds in November 2023). Further mitigation, such as a soft start approach and an ECoW monitoring for the presence of this species within 250m of the Proposed Development prior to piling and blasting works (with works to be undertaken once birds are a sufficient distance away), would further limit any potential impact. In terms of airborne noise, the noise assessment undertaken details the various noise levels of certain type of plant and construction activity. The loudest activities are compactors during surfacing works (91dB at source). However, these noise levels will dissipate quickly over distance to a level that will have no significant disturbance impacts on Great Northern Diver.

At Hatston, most of the material (rock etc) required for the development will be transported via the road network. There will only be a small volume of vessel movements, as it is anticipated that the majority of materials will be brought by land from sites within Orkney Mainland. Rock armour import will consist of two shipments at start and halfway through contract, therefore 8 vessel movements in total. These vessel movements will be following existing shipping routes, with no new/novel routes being utilised. Sheet piles and any other material that cannot be sourced on the mainland will be imported through the existing Orkney Northlink freight services, so there will be no increase to current vessel movement baseline levels to deliver these. As described in the NRA, the existing baseline for

vessel movements within the Bay of Kirkwall is 3102 movements. An increase in 8 vessel movements during the construction phase represents an increase of 0.25%.

For the operational phase, information contained in the NRA (see Technical Appendix 2.2) shows that the expected vessel calls per year will increase by +104 for oil and gas supply, offshore wind and freight/cargo categories (or +208 vessel movements (arrival/departure)) The more aspirational vessel calls associated with potential boat repair and aquaculture would amount to an additional +230 vessel calls per year (or +460 vessel movements).

Existing vessel movements to and from Kirkwall/Hatston are also described in the NRA, with a strong seasonality being demonstrated. Vessel movements are 998 in winter and 2,104 in summer, a total of 3102 vessel movements through the approaches to Hatston and Kirkwall piers over a calendar year.

On this basis the increases expected at Hatston as a result of oil and gas supply, offshore wind and freight/cargo vessels would equate to an additional 208 vessel movements compared to an existing 3102 movements per year or a 6.7% increase. Should the boat repair and aquaculture initiatives also be realised then this would rise to a total of 668 additional vessel movements or a 21.5% increase over existing annual marine traffic.

These vessel movements will use existing vessel routes, with no new/novel routes expected. By using these existing routes, and adhering to accepted speed limits, the increase in a maximum 2 vessel movements a day (based on a maximum increase of 668 vessel movements each year. There is no anticipated seasonal bias to the additional vessel movements during the operational phase) is not likely to cause a significant disturbance impact. None of these potential disturbance effects will result in barriers to movement, or reduce access to preferred foraging and roosting habitats, resulting in a significant energy expenditure and possible reduction in body condition required for survival and subsequent migration.

There is proposed dredging works within the footprint of the Proposed Development. The estimated dredge volume is small (approximately 4,850m<sup>3</sup> of sediment). Dredging will be undertaken by a long reach from land. The sediment dredged will be used as infill material reused in the reclamation.

Given that the dredging works are very localised, undertaken from land and short term in duration (4 - 5 weeks) it is considered to be highly unlikely that significant disturbance will occur.

Overall, it is considered that there would be no significant disturbance to the species as a result of construction works and vessel movements.

#### *5.5.1.3 Conservation Objective 2c: The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained*

As described in NatureScot's Conservation and Management Advice Document for North Orkney SPA, supporting habitats refer to the characteristics of the seabed and water column relevant to their use by the qualifying features. It relates to wider oceanographic processes such as up-wellings, tidal Flows, hydrological movements which may be necessary for the habitat and could affect nutrient cycling and prey distribution.

As outlined in section 4.5.3, in Volume 1 of the EIAR, the marine deposits within the dredge area comprise of loose to medium dense sands and gravels occasionally with cobbles interspersed with layers of sandy gravelly clay. Dredged material will be used as fill within the reclaimed areas.

Given the relatively coarse nature of the dredge budget, small proposed dredge volume, and the weak tidal currents within the vicinity of the proposed dredge pockets, it is considered that any plumes generated as a result of the dredging works and their disposal will be very localised and short term in



duration. Overall, it is considered that prior to mitigation the magnitude of impact of sediment discharge and dispersion from dredging works will be low within the immediate dredge area, and negligible out with this area, thus maintaining the supporting habitats for Great Northern Diver.

Drainage designs to ensure that there are no untreated surface water discharges directly to surrounding coastal waters and the use of a silt booms during land reclamation works will mitigate against pollution spills which could affect the qualifying interests of the SPA and their prey sources. In terms of water pollution from the quay and attendant vessels, adherence to strict Pollution Prevention controls will aim to prevent the release of pollutants to the water environment. With these measures in place, the supporting habitats for Great Northern Diver will be maintained.

## 6 APPROPRIATE ASSESSMENT: ORKNEY MAINLAND MOORS SPA

Orkney Mainland Moors SPA comprises four areas of moorland on Mainland; at its closest point, it lies within 5km of Hatston Pier. The predominant habitats include extensive areas of blanket bog, heaths and mires, with these upland areas supporting 5.9% of the UK's breeding and 2% of the UK's overwintering Hen Harrier (*Circus cyaneus*) population, 2% of the UK's breeding Short-eared Owl (*Asio flammeus*) population. In both cases one of very few sites to support such dense and significant numbers. The area also supports 2% of the UK's breeding Red-throated Diver (*Gavia stellata*) population. This site's boundaries also correspond to Keelylang Hill and Swartaback Burn Site of Special Scientific Interest (SSSI) which is designated for breeding Hen Harrier.

### 6.1 Assessment of Potential Impacts on Conservation Objectives

It was established during the screening stage that there is no LSE for Short-eared Owl and Hen Harrier. Therefore, this assessment on Orkney Mainland Moors SPA relates to Red-throated Diver only.

Baseline surveys were undertaken during the 2023 breeding season, details of which can be found in the Ornithological Technical Report ([Technical Appendix 5.3](#)). A summary of findings is found below.

For most of the year Red-throated Divers were present in very low numbers within 2 km of the existing pier, generally from nought to three birds.

However, there was a distinct peak in the autumn, from mid-August to mid-November with up to 19 birds on 23rd Sept 2023. Some of these autumn birds were seen to be juveniles, twice an adult and juvenile together (26th Aug and 5th Oct 2023), and on 23rd Sept 2023 a group of six included at least one adult in wing moult. It is likely that birds from the local Orkney breeding population were mainly involved early in the autumn, although the highest numbers in late September and early October could also have included birds from further afield (e.g. Shetland).

During the early breeding season of 2023 there were very few sightings and, of the four birds recorded up to early June, two were seen to be immatures.

Overall, about 15% of birds were within 500m of the existing pier, 38% at 500m–1km, and 47% at 1–2km.

During the key breeding period for chick rearing (June to mid - August), small numbers were present within the survey area with numbers ranging between 0 and 5 birds. Overall, with counts of 3 birds, 5 birds, 0 birds, 2 birds and 2 birds recorded during survey within this period, it is considered that although the site potentially supports foraging adults during breeding, it is not considered to be a main foraging site. The Scottish Government marine map detailing important feeding areas for Red-throated Diver<sup>2</sup> shows that the area in the northwest of Wide Firth, in the bays Bay of Firth and Bay of Isbister are the most significant foraging areas for this species. Taking the precautionary approach that the peak of 5 birds were all adults foraging to chick rearing, this equates to 27% of the SPA citation population (18 breeding pairs).

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<sup>2</sup> <https://marinescotland.atkinsgeospatial.com/nmpi/default.aspx?layers=1281>

The surveys indicate that the site supports significant numbers during post-breeding, with the peak of 19 birds in late September supporting this assumption.

*6.1.1.1 Conservation Objective 2a: The population of qualifying species are viable components of the site*

There is minimal risk of mortality through collision with marine vessels as a result of the Proposed Development. Other direct effects affecting water quality are dealt with in Conservation Objective 2c and indirect effects (ie disturbance resulting in reduced body condition and survival) are dealt with in Conservation Objective 2b.

With no predicted impacts in either conservation Objectives 2b and 2c, it is considered that the population of Red-throated Diver remain a viable component of the site.

*6.1.1.2 Conservation Objective 2b: The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species.*

Red-throated Diver is considered to be highly sensitive to disturbance, particularly from vessel movements. Taking evasive action, particularly flight responses, increases energy budgets of birds which could result in increased mortality rates should they be regularly disturbed.

Blasting and vibro-piling works will be undertaken during the construction phase. These works are timed to occur during April to October, utilising suitable weather windows during this time. Therefore, works will be undertaken during the period when breeding Red-throated Divers are potentially utilising the area for foraging. During the surveys, 15% of the birds recorded were within 500m of the Proposed Development, 38% were between 500m and 1km from the Proposed Development and 47% between 1-2km from the Proposed Development. In terms of airborne noise, the noise assessment undertaken details the various noise levels of certain type of plant and construction activity. The loudest activities are compactors during surfacing works (91dB at source). However, these noise levels will dissipate quickly over distance to a level that will have no significant disturbance impacts on Red-throated Diver. The effects of underwater noise on birds is little known but from a precautionary standpoint, effects between 250m have been assumed. The majority of birds recorded during the surveys are outwith this distance. Blasting will take place once a day, usually towards the end of the working day. The piling works will be vibro-piling, which is less intrusive than hammer piling. Mitigation, such as a soft start approach and an ECoW monitoring for the presence of this species within 150m of the Proposed Development prior to piling and blasting works (with works to be undertaken once birds are a sufficient distance away), would limit any potential impact.

At Hatston, most of the material (rock etc) required for the development will be transported via the road network. There will only be a small volume of vessel movements, as it is anticipated that the majority of materials will be brought by land from sites within Orkney Mainland. Rock armour import will consist of two shipments at start and halfway through contract, therefore 8 vessel movements in total. These vessel movements will be following existing shipping routes, with no new/novel routes being utilised. Sheet piles and any other material that cannot be sourced on the mainland will be imported through the existing Orkney Northlink freight services, so there will be no increase to current vessel movement baseline levels to deliver these. As described in the NRA, the existing baseline for vessel movements within the Bay of Kirkwall is 3102 movements. An increase in 8 vessel movements during the construction phase represents an increase of 0.25%.

For the operational phase, information contained in the NRA (see Technical Appendix 2.2) shows that the expected vessel calls per year will increase by +104 for oil and gas supply, offshore wind and freight/cargo categories (or +208 vessel movements (arrival/departure)) The more aspirational vessel

calls associated with potential boat repair and aquaculture would amount to an additional +230 vessel calls per year (or +460 vessel movements).

Existing vessel movements to and from Kirkwall/Hatston are also described in the NRA, with a strong seasonality being demonstrated. Vessel movements are 998 in winter and 2,104 in summer, a total of 3102 vessel movements through the approaches to Hatston and Kirkwall piers over a calendar year.

On this basis the increases expected at Hatston as a result of oil and gas supply, offshore wind and freight/cargo vessels would equate to an additional 208 vessel movements compared to an existing 3102 movements per year or a 6.7% increase. Should the boat repair and aquaculture initiatives also be realised then this would rise to a total of 668 additional vessel movements or a 21.5% increase over existing annual marine traffic.

These vessel movements will use existing vessel routes, with no new/novel routes expected. By using these existing routes, and adhering to accepted speed limits, the increase in a maximum of 2 vessel movements a day (based on a maximum increase of 668 vessel movements each year. There is no anticipated seasonal bias to the additional vessel movements during the operational phase) is not likely to cause a significant disturbance impact. None of these potential disturbance effects will result in barriers to movement, or reduce access to preferred foraging and roosting habitats, resulting in a significant energy expenditure and possible reduction in body condition required for survival and subsequent migration.

There is proposed dredging works within the footprint of the Proposed Development. The estimated dredge volume is small (approximately 4,850m<sup>3</sup> of sediment). Dredging will be undertaken by a long reach from land. The sediment dredged will be used as infill material reused in the reclamation.

Given that the dredging works are very localised, undertaken from land and short term in duration (4 - 5 weeks) it is considered to be highly unlikely that significant disturbance will occur.

Overall, it is considered that there would be no significant disturbance to the species as a result of construction works and vessel movements.

*6.1.1.3 Conservation Objective 2c: The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained*

As described in NatureScot's Conservation and Management Advice Document for North Orkney SPA, supporting habitats refer to the characteristics of the seabed and water column relevant to their use by the qualifying features. It relates to wider oceanographic processes such as up-wellings, tidal Flows, hydrological movements which may be necessary for the habitat and could affect nutrient cycling and prey distribution.

As outlined in section 4.5.3, in Volume 1 of the EIAR, the marine deposits within the dredge area comprise of loose to medium dense sands and gravels occasionally with cobbles interspersed with layers of sandy gravelly clay. Dredged material will be used as fill within the reclaimed areas.

Given the relatively coarse nature of the dredge budget, small proposed dredge volume, and the weak tidal currents within the vicinity of the proposed dredge pockets, it is considered that any plumes generated as a result of the dredging works and their disposal will be very localised and short term in duration. Overall, it is considered that prior to mitigation the magnitude of impact of sediment discharge and dispersion from dredging works will be low within the immediate dredge area, and negligible out with this area, thus maintaining the supporting habitats for Red-throated Diver.

Drainage designs to ensure that there are no untreated surface water discharges directly to surrounding coastal waters and the use of a silt booms during land reclamation works will mitigate against pollution spills which could affect the qualifying interests of the SPA and their prey sources. In terms of water pollution from the quay and attendant vessels, adherence to strict Pollution Prevention controls will aim to prevent the release of pollutants to the water environment. With these measures in place, the supporting habitats for Red-throated Diver will be maintained.

## 7 APPROPRIATE ASSESSMENT: SCAPA FLOW SPA

### 7.1 Site Description

The Scapa Flow SPA comprises a total area of 31819 ha located within Scapa Flow, an enclosed sea area, sheltered by Mainland Orkney to the north, Hoy, South Walls and Flotta to the west and south, and Burray and South Ronaldsay to the east. The Flow is linked to the Pentland Firth in the south through the Sound of Hoxa, and to the Atlantic Ocean in the west through Hoy Sound. The site also includes nearshore waters to the east of Orkney, extending from South Ronaldsay to Deerness, and including the sheltered shallow waters of Holm Sound, between Burray and East Mainland. It encompasses a range sheltered and diverse marine communities which provide a range of food resource for breeding, moulting and roosting sea birds.

The SPA supports the following species:

- The third largest population of wintering Great Northern Diver (c.20% of the GB population or 505 individuals).
- Wintering Black-throated Diver (c. 9.5% of the GB population or 57 individuals).
- Wintering Slavonian Grebe (c.12% of GB population or 135 birds)
- The second largest population of wintering European shag in Scotland (c.3% of GB population or 2927 individuals)
- Wintering Common Eider (3% of GB population or 1997 individuals)
- Wintering Red-breasted Merganser (6% of GB population or 539 individuals)
- Wintering Long-tailed Duck (13% of GB population or 1395 individuals)
- Red-throated Diver (c.6% of GB population or 76 pairs) breeding within fresh water lochans within 10km of the SPA.

All the designated site features are assessed as favourable.

### 7.2 Conservation Objectives

The conservation objectives for Scapa Flow SPA are as follows:

1. To ensure that the qualifying features of the Scapa Flow SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.
2. To ensure that the integrity of the Scapa Flow SPA is maintained in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:
  - 2a. The populations of qualifying features are viable components of the site.
  - 2b. The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species.
  - 2c. The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained.

### **7.3 Qualifying Features to be Assessed**

Red-throated Diver, Slavonian Grebe and Great Northern Diver are all qualifying features of Scapa Flow SPA, and it is possible that these birds can utilise Scapa Flow SPA as well as North Orkney SPA, although there is no evidence to support this.. If they do, it is likely to be in small numbers.

As each of these species are qualifying features of both Scapa Flow SPA and North Orkney SPA, they are subject to the same assessment protocols that have been undertaken in Section 5.3, 5.4 and 5.6. Although the baseline numbers for these species are different for North Orkney SPA than they are for Scapa Flow SPA, the same conclusions would be reached, with the overall conclusion that the favourable conservation status would be maintained and that there would be no adverse effect on the integrity of Scapa Flow SPA.

## 8 APPROPRIATE ASSESSMENT: FARAY AND HOLM OF FARAY SAC

Faray and Holm of Faray SAC is located approximately 23km north of Hatston, at its closest point, and is designated for its breeding colony of Grey Seal (*Halichoerus grypus*), which produces 9% of UK Grey Seal pups. There are also numerous designated seal haul-outs on Orkney, the closest of which to Hatston are Damsay and Holm of Grimbister on Mainland Orkney approximately 4km around the coast to the west of Hatston, and Helliar Holm North and Elwick, approximately 5.5km north-east of Hatston on Shapinsay.

### 8.1 Assessment of Potential Impacts on Conservation Objectives

The conservation objectives are to avoid deterioration of the habitats of qualifying species (Grey seal) 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 the qualifying interest.

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

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species

The distance of the breeding colony (23km) is at a distance whereby the Proposed Development works would not have an impact. Similarly, the nearest haul out site, Damsay and Holm of Grimbister at 4km, is also at a distance whereby the Proposed Development works would not have an impact.

Individual seals which form part of the SAC population could potentially feed and forage within the bay of Kirkwall. They could be at risk of temporary disturbance from underwater noise associated with blasting, piling and dredging operations. In addition, seals are also at risk from collision with vessels and with a reduction in water quality.

Blasting and vibro-piling works will be undertaken during the construction phase. These works are timed to occur during April to October, utilising suitable weather windows during this time. The piling works will be vibro-piling, which is less intrusive than hammer piling. There is proposed dredging works within the footprint of the Proposed Development. The estimated dredge volume is small (approximately 4,850m<sup>3</sup> of sediment). Dredging will be undertaken by a long reach from land. It is highly likely that the sediment dredged will be used as infill material reused in the reclamation. If some material is deemed unsuitable, this will be disposed of at a licenced dredge disposal site. Dredging works will be completed within 4 – 5 weeks.

The underwater noise assessment (Technical Appendix 5.6) undertaken for Hatston has indicated that the maximal ranges for limits for Grey Seal during blasting is 100-250m, 50-100m for vibro-piling and 50m for dredging. As detailed within the Marine Mammal Protection Plan (MMPP) (Technical Appendix 5.7), a Marine Mammal Observer will be deployed during the construction phase to observe seals within these limit ranges (50-250m) prior to blasting, vibro-piling and dredging works commencing.



At Hatston, most of the material (rock etc) required for the development will be transported via the road network. There will only be a small volume of vessel movements, as it is anticipated that the majority of materials will be brought by land from sites within Orkney Mainland. Rock armour import will consist of two shipments at start and halfway through contract, therefore 8 vessel movements in total. These vessel movements will be following existing shipping routes, with no new/novel routes being utilised. Sheet piles and any other material that cannot be sourced on the mainland will be imported through the existing Orkney Northlink freight services, so there will be no increase to current vessel movement baseline levels to deliver these. As described in the NRA, the existing baseline for vessel movements within the Bay of Kirkwall is 3102 movements. An increase in 8 vessel movements during the construction phase represents an increase of 0.25%.

For the operational phase, information contained in the NRA (see Technical Appendix 2.2) shows that the expected vessel calls per year will increase by +104 for oil and gas supply, offshore wind and freight/cargo categories (or +208 vessel movements (arrival/departure)) The more aspirational vessel calls associated with potential boat repair and aquaculture would amount to an additional +230 vessel calls per year (or +460 vessel movements).

Existing vessel movements to and from Kirkwall/Hatston are also described in the NRA, with a strong seasonality being demonstrated. Vessel movements are 998 in winter and 2,104 in summer, a total of 3102 vessel movements through the approaches to Hatston and Kirkwall piers over a calendar year.

On this basis the increases expected at Hatston as a result of oil and gas supply, offshore wind and freight/cargo vessels would equate to an additional 208 vessel movements compared to an existing 3102 movements per year or a 6.7% increase. Should the boat repair and aquaculture initiatives also be realised then this would rise to a total of 668 additional vessel movements or a 21.5% increase over existing annual marine traffic.

These vessel movements will use existing vessel routes, with no new/novel routes expected. By using these existing routes, and adhering to accepted speed limits, the increase in a maximum of 2 vessel movements a day (based on a maximum increase of 668 vessel movements each year. There is no anticipated seasonal bias to the additional vessel movements during the operational phase) is not likely to cause a significant disturbance impact. None of these potential disturbance effects will result in significant disturbance to grey seals.

Given the mitigation which will be employed and the temporary nature of the works producing underwater noise, the number of individuals affected will be negligible and any disturbance which may occur will not fall under the JNCC (2008) definition of significant disturbance. Therefore, it is considered that the MMMP will be sufficient to prevent short term negative effects.

As outlined in section 4.5.3, in Volume 1 of the EIAR, the marine deposits within the dredge area comprise of loose to medium dense sands and gravels occasionally with cobbles interspersed with layers of sandy gravelly clay. Dredged material will be used as fill within the reclaimed areas.

Given the relatively coarse nature of the dredge budget, small proposed dredge volume, and the weak tidal currents within the vicinity of the proposed dredge pockets, it is considered that any plumes generated as a result of the dredging works and their disposal will be very localised and short term in duration. Overall, it is considered that prior to mitigation the magnitude of impact of sediment discharge and dispersion from dredging works will be low within the immediate dredge area, and negligible out with this area, thus maintaining the supporting habitats for grey seal.

Drainage designs to ensure that there are no untreated surface water discharges directly to surrounding coastal waters and the use of a silt booms during land reclamation works will mitigate against pollution spills which could affect the qualifying interests of the SPA and their prey sources. In terms of water pollution from the quay and attendant vessels, adherence to strict Pollution Prevention

controls will aim to prevent the release of pollutants to the water environment. With these measures in place, the supporting habitats for grey seal will be maintained.

## **9 APPROPRIATE ASSESSMENT: SANDAY SPECIAL AREA OF CONSERVATION (SAC)**

Sanday is a large, low-lying island situated in the north-east of the Orkney archipelago. The island has a complex coastline characterised by extensive sandy beaches, sheltered inlets and exposed rocky headlands. The coastal waters of Sanday hold the largest colony of common seals at any relatively discrete site in Scotland. Around 1,450 adults haul out on the intertidal reefs to pup, moult and rest. This represents around 17% of the Orkney, 5% of the UK and 2% of the EU populations of the species. During the 1998 breeding survey over 550 pups were observed at the site, accounting for 34% of newborn pups in Orkney. Large breeding colonies are important in maintaining overall population size and are significant as sources of emigration to smaller or newly established groups. The SAC is located 30km north east from Hatston.

### **9.1 Assessment of Potential Impacts on Conservation Objectives**

The conservation objectives are to avoid deterioration of the habitats of qualifying species (common seal) 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 the qualifying interest.

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

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species

The distance of the breeding colony (30km) is at a distance whereby the Proposed Development works would not have an impact.

Individual seals which form part of the SAC population could potentially feed and forage within the bay of Kirkwall. They could be at risk of temporary disturbance from underwater noise associated with the blasting, piling and dredging operations. In addition, seals are also at risk from collision with vessels and with a reduction in water quality.

Blasting and vibro-piling works will be undertaken during the construction phase. These works are timed to occur during April to October, utilising suitable weather windows during this time. The piling works will be vibro-piling, which is less intrusive than hammer piling. There is proposed dredging works within the footprint of the Proposed Development. The estimated dredge volume is small (approximately 4,850m<sup>3</sup> of sediment). Dredging will be undertaken by a long reach from land. The sediment dredged will be used as infill material reused in the reclamation.

The underwater noise assessment undertaken for Hatston has indicated that the maximal ranges for limits for Common Seal during blasting is 100-250m, 50-100m for vibro-piling and 50m for dredging. As detailed within the Marine Mammal Protection Plan (MMPP), a Marine Mammal Observer will be deployed during the construction phase to observe seals within these limit ranges (50-250m) prior to blasting, vibro-piling and dredging works commencing.

At Hatston, most of the material (rock etc) required for the development will be transported via the road network. There will only be a small volume of vessel movements, as it is anticipated that the majority of materials will be brought by land from sites within Orkney Mainland. Rock armour import will consist of two shipments at start and halfway through contract, therefore 8 vessel movements in total. These vessel movements will be following existing shipping routes, with no new/novel routes being utilised. Sheet piles and any other material that cannot be sourced on the mainland will be imported through the existing Orkney Northlink freight services, so there will be no increase to current vessel movement baseline levels to deliver these. As described in the NRA, the existing baseline for vessel movements within the Bay of Kirkwall is 3102 movements. An increase in 8 vessel movements during the construction phase represents an increase of 0.25%.

For the operational phase, information contained in the NRA (see Technical Appendix 2.2) shows that the expected vessel calls per year will increase by +104 for oil and gas supply, offshore wind and freight/cargo categories (or +208 vessel movements (arrival/departure)) The more aspirational vessel calls associated with potential boat repair and aquaculture would amount to an additional +230 vessel calls per year (or +460 vessel movements).

Existing vessel movements to and from Kirkwall/Hatston are also described in the NRA, with a strong seasonality being demonstrated. Vessel movements are 998 in winter and 2,104 in summer, a total of 3102 vessel movements through the approaches to Hatston and Kirkwall piers over a calendar year.

On this basis the increases expected at Hatston as a result of oil and gas supply, offshore wind and freight/cargo vessels would equate to an additional 208 vessel movements compared to an existing 3102 movements per year or a 6.7% increase. Should the boat repair and aquaculture initiatives also be realised then this would rise to a total of 668 additional vessel movements or a 21.5% increase over existing annual marine traffic.

These vessel movements will use existing vessel routes, with no new/novel routes expected. By using these existing routes, and adhering to accepted speed limits, the increase in a maximum of 2 vessel movements a day (based on a maximum increase of 668 vessel movements each year. There is no anticipated seasonal bias to the additional vessel movements during the operational phase) is not likely to cause a significant disturbance impact. None of these potential disturbance effects will result in significant disturbance to common seals.

Given the mitigation which will be employed and the temporary nature of the works producing underwater noise, the number of individuals affected will be negligible and any disturbance which may occur will not fall under the JNCC (2008) definition of significant disturbance. Therefore, it is considered that the MMMP will be sufficient to prevent short term negative effects.

As outlined in section 4.5.3, in Volume 1 of the EIAR, the marine deposits within the dredge area comprise of loose to medium dense sands and gravels occasionally with cobbles interspersed with layers of sandy gravelly clay. Dredged material will be used as fill within the reclaimed areas.

Given the relatively coarse nature of the dredge budget, small proposed dredge volume, and the weak tidal currents within the vicinity of the proposed dredge pockets, it is considered that any plumes generated as a result of the dredging works and their disposal will be very localised and short term in duration. Overall, it is considered that prior to mitigation the magnitude of impact of sediment discharge and dispersion from dredging works will be low within the immediate dredge area, and negligible out with this area, thus maintaining the supporting habitats for common seal.

Drainage designs to ensure that there are no untreated surface water discharges directly to surrounding coastal waters and the use of a silt booms during land reclamation works will mitigate against pollution spills which could affect the qualifying interests of the SPA and their prey sources. In terms of water pollution from the quay and attendant vessels, adherence to strict Pollution Prevention

controls will aim to prevent the release of pollutants to the water environment. With these measures in place, the supporting habitats for common seal will be maintained.

## 10 IN COMBINATION EFFECTS

It is a requirement of Appropriate Assessment that the cumulative or in-combination effects of the proposed development together with other plans or projects are assessed. Cumulative impacts can be defined as a project/plan/programme likely to have a significant effect thereon, either individually or in combination with other plans or projects.

For the Proposed Development at Hatston, the following developments have been recommended by Orkney Islands Council to be considered for in-combination effects:

- Scapa Deep Water Quay;
- Cooke Fish Farm move;
- Quanterness onshore wind farm;
- Faray onshore wind farm;
- Stymilders/Heddle Hill (Land Near), Firth, Orkney;
- Kirkwall Pier; and
- Hatson HWRC/Former Abattoir, Sparrowhawk Road/Grainshore Road, Hatson Industrial Estate.

Table 10.1 below details information and predicted impacts on designated sites.

**Table 10.1: Summary table of predicted impacts on designated sites**

Planning Application Reference	Project Name	Project Description	Predicted Effects on North Orkney SPA
23/289/NATEIA	Scapa Deep Water Quay	Construct a deep water quay including 597 metre, 2.7 hectare quayside and quay extension, excavate landform and reclaim land to create an 18 hectare laydown including rock armour revetments, construct an access road, vehicle parking, water tanks and associated infrastructure	With mitigation measures in place, no significant impacts to the qualifying features of Scapa Flow SPA, North Orkney SPA, Orkney Mainland Moors SPA, Hoy SPA, Loch of Stenness SAC and Sanday SAC.
	Cooke Fish Farm move	Relocation of fish farm	No information available on planning portal
20/037/TPPMAJ	Quanterness (Land Near) St Ola, Orkney	Erect 6 wind turbines (maximum height 149.9m, maximum wind capacity 50MW), erect a meteorological mast (maximum height 90m) and a substation, create an access and construct access tracks, and associated infrastructure.  Currently awaiting decision – called in by Scottish Government	The ornithology assessment highlights that no SPA species were present within the site boundary, and that the area is unsuitable for nesting Red-throated Diver. No impacts on designated sites are concluded.
21/240/TPPMAJ	Faray Wind Farm	Erect 6 wind turbines (maximum height 149.9 metres, maximum wind	No impacts on qualifying features of North Orkney SPA.

		<p>farm capacity 50MW), erect a meteorological mast (maximum height 90 metres) and a substation, construct access tracks, crane hardstandings, underground cabling, transformers, and a slipway and jetty, create a borrow pit, and associated infrastructure</p> <p>Status: Awaiting decision.</p>	<p>Mitigation measures are required to avoid impacts to qualifying features of Faray and Holm SAC and Sanday SAC, including timing of construction works, construction method statements, and JNCC protocols for offshore piling activities.</p>
19/113/NATEIA	Stymilders/Heddle Hill (Land Near), Firth, Orkney	<p>Erect a 220/132kV substation comprising platform area, electrical infrastructure and buildings, associated plant, ancillary infrastructure, drainage, landscaping, access road and temporary construction compound areas</p> <p>Status: Consented subject to conditions.</p>	<p>Agreed by NatureScot that there is no connectivity between this development and Orkney Mainland Moors SPA.</p>
20/240/SCR	Kirkwall Pier	<p>Extend a pier to provide additional quay infrastructure, reclaim land to create a mixed-use development, and reconfigure and expand marina</p>	<p>Currently at screening stage so no assessment information available.</p>
21/015/SCR	Hatston, HWRC/Former Abattoir, Sparrowhawk Road/Grainshore Road, Hatston Industrial Estate	<p>Demolish household waste and recycling centre and former abattoir to create an integrated waste facility.</p> <p>Status: Screening stage. EIA not required.</p>	<p>It has been agreed during the screening process that there is no connectivity to any European designated site.</p>

In isolation, with mitigation, the Proposed Development will not have an adverse impact on the integrity of the designated sites assessed. From a review of the other projects assessed as part of this process, no significant impacts are predicted. Therefore, it is considered highly unlikely that the Proposed Development would contribute cumulatively to adverse effects on the integrity of these designated sites.

## 11 MITIGATION

The following mitigation will be employed to avoid and minimise any impacts occurring both during the construction and operational phases of the proposed development:

- Production of a Vessel Management Plan, with input from NatureScot, for both the Construction and Operational phases which will detail vessel routes, speeds etc to minimise, and where possible, avoid any disturbance impacts;
- Adherence to measures set out in the Construction Environmental Management Document (CEMD);
- Deployment of an ECoWt and marine mammal observer to monitor for the presence of qualifying species of the North Orkney SPA, Orkney Mainland Moors SPA (Red-throated Diver) and cetaceans and pinnipeds (in particular common seal) in the vicinity of the Proposed Development during piling, blasting and dredging works;
- A soft-start approach to piling works to prevent disturbance;
- Production and adherence to detailed Marine Mammal Protection Plan (MMPP);
- Production and adherence to a detailed Pollution Prevention Plan;
- A silt boom to contain fine sediments will be used whilst reclamation work activities are undertaken.