



**PORT OF
CROMARTY
FIRTH**

Appendix J: Ecology: General





**PORT OF
CROMARTY
FIRTH**

Appendix J.1: Habitat Regulations Appraisal:
Pre-Screening Report





PORT OF
**CROMARTY
FIRTH**

Phase 4 Habitat Regulations Appraisal Pre-Screening Report

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May 2018

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1 Introduction

In conjunction with submitting an Environmental Impact Assessment Report (EIAR) to support a Marine Licence application for the proposed Phase 4 Development, this Habitats Regulation Appraisal (HRA) pre-screening report provides information required for the competent authority to carry out an HRA and, where required, an Appropriate Assessment (AA).

This report is designed to be read in conjunction with the EIAR and directs the reader to the chapters and section of the EIAR which are relevant to the designated site or qualifying species being discussed.

1.1 Legislative Basis

An HRA is required for this development due to its proximity to multiple Natura 2000 sites, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). The legislative context for this requirement is based on Article 6(3) of the Habitats Directive (92/43/EEC), Article 4(4) of the Birds Directive (2009/147/EC) [European Commission, 2010], and The Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations) [UK Government, 1994].

In Scotland, the Scottish Planning Policy document ensures that Ramsar sites, which are normally included in an HRA assessment, overlap with Natura sites and are therefore protected under the same legislation [Scottish Ministers, 2014]. Therefore, Ramsar sites do not need considered separately as part of this HRA Screening report and will be considered within the SPA assessment.

If a likely significant effect (LSE) is predicted on a Natura Site at the first stage of the HRA, then an Appropriate Assessment (AA) must then be carried out. The AA must demonstrate that the proposal will not adversely affect the integrity of the site [SNH, 2017a].

It is the responsibility of the competent authority to carry out the HRA, based on robust, scientific information provided by the project developer about the proposed project. It is not the role of the developer to make an assessment on whether or not the proposal will have an adverse effect on any associated Natura sites.

1.2 Objectives

The objectives of this HRA Pre-Screening report is to summarise:

- The proposed development details;
- The Natura 2000 sites being considered with reference to the Phase 4 Development proposal, along with these sites' qualifying interests and conservation objectives;
- Details on the qualifying interests for each of the scoped-in Natura sites.

This information will aid the competent authority in carrying out an HRA. This HRA Pre-Screening report provides a reference point as to where the useful information is within the EIAR which will help complete the HRA, and as such should be taken in conjunction with the EIAR and not as a stand-alone document. An indication of whether or not LSE are expected or not is given for each designated site, but it is ultimately up to the competent authority carrying out the LSE assessment to ascertain whether LSE are present and therefore whether an AA is needed for each designated site.

1.3 Terminology

The terminology employed as part of the HRA process relates to likely significant effects. Assessment of LSE takes a precautionary approach and asks whether a project may have an effect or have the possibility of having an effect on a Natura site [SNH, 2017b]. A project component is said to have an LSE on a designated site if *"it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site"* [European Court of Justice C-127/02, 2004]. The conservation objectives of the site provide the framework for considering likely significant effects.

It should be noted that the terminology used as part of the ecological impact assessments in the EIAR chapters refers to significance based on a matrix system. It is important when using these documents in conjunction with one another to be aware that the term 'significance' has different meaning in these two different contexts. In this HRA Pre-Screening report use of the word 'significant' in relation to impact assessments is not employed within the assessment, to avoid confusion.

2 Project summary

The Port of Cromarty Firth (PoCF) is continuing to develop the Invergordon Service Base to increase their capacity to provide services to a range of sectors. They have completed three phases of development to date providing an additional 5.82Ha of laydown area and a 154m long heavy lift quay, Berth 5. The proposed Phase 4 development is immediately adjacent to the previous development (Phase 3), and includes the following components:

- Land reclamation providing an additional 4.5Ha of laydown space;
- Construction of a 215m long quay wall to create Berth 6, adjacent to Berth 5, providing a 369m long combined quay; and
- Fendering of Berths 5 and 6.

Further details on the individual components of the project can be found in the EIAR Chapter 3: Project Description.

3 Designated Sites

The designated sites which have designated features relevant to the Phase 4 development are shown in Table 3.1. The sites, or species within the sites, are scoped in or out depending on the level of ecological connectivity to the development. A reduced list of designated sites and features is then taken forward for further assessment. Explanations for why certain sites or qualifying features are excluded is laid out in Section 3.1.

Table 3.1 Designated sites relevant to the proposed Phase 4 Development.

Site	Direction and Straight-line distance	Qualifying Feature(s)	Included in further assessment.
Cromarty Firth SPA & Ramsar	Directly adjacent to proposed development site.	Common Tern <i>Sterna hirundo</i> (breeding) Osprey <i>Pandion haliaetus</i> (breeding) Bar-tailed Godwit <i>Limosa lapponica</i> (wintering) Whooper Swan <i>Cygnus cygnus</i> (wintering) Greylag Goose <i>Anser anser</i> (wintering) Red-breasted Merganser <i>Mergus serrator</i> (wintering) Redshank <i>Tringa totanus</i> (wintering) Wigeon <i>Anas penelope</i> (wintering) Waterfowl assemblage (wintering) Marine mudflats and sandflats	IN
Moray Firth SAC	6km East	Bottlenose dolphin (<i>Tursiops truncatus</i>) Subtidal sandbanks.	IN for dolphins, OUT for sandbanks
Moray Firth pSPA	12km East	Great northern Diver <i>Gavia immer</i> (wintering) Red-throated Diver <i>Gavia stellata</i> (wintering) Slavonian Grebe <i>Podiceps auritus</i> (wintering) Migratory populations of Scaup, Eider, Long-tailed duck, Common Scoter, Velvet Scoter, Goldeneye, Red-breasted Merganser and Shag.	IN
Inner Moray Firth SPA	16km South and South West	Bar-tailed Godwit (wintering) Common Tern (breeding) Curlew <i>Numenius arquata</i> , (wintering) Goldeneye <i>Bucephala clangula</i> (wintering) Goosander <i>Mergus merganser</i> (wintering) Greylag Goose (wintering) Osprey (breeding) Oystercatcher <i>Haematopus ostralegus</i> , (wintering) Red-breasted Merganser (wintering) Redshank (wintering) Scaup <i>Aythya marila</i> , (wintering) Teal <i>Anas crecca</i> , (wintering) Wigeon (wintering) Waterfowl assemblage (wintering) Marine intertidal mudflats and sandflats.	IN

Site	Direction and Straight-line distance		Qualifying Feature(s)	Included in further assessment.
			Marine reefs.	
Loch Eye SPA	16km East	North	Greylag Goose (wintering) Whooper Swan (wintering)	IN
Dornoch Firth and Loch Fleet SPA	18km East	North	Bar-tailed Godwit (wintering) Curlew, (wintering) Dunlin <i>Calidris alpina</i> (wintering) Greylag Goose (wintering) Osprey (breeding) Oystercatcher (wintering) Teal (wintering) Wigeon (wintering) Waterfowl assemblage (wintering)	IN
River Oykel SAC	25Km West	North	Atlantic salmon Freshwater pearl mussel <i>Margaritifera Margaritifera</i>	OUT
Dornoch Firth and Morrich More SAC	45km East	North	Atlantic salt meadows Coastal dune heathland Dune grassland Dunes with juniper thickets Estuaries Glasswort and other annuals colonising mud and sand Common seal (<i>Phoca vitulina</i>) Humid dune slacks Intertidal mudflats and sandflats Lime-deficient dune heathland with crowberry Otter (<i>Lutra lutra</i>) Reefs Shifting dunes Shifting dunes with marram Subtidal sandbanks	OUT, except for Common Seal which is scoped IN.
Berrisdale and Langwell Waters SAC	55Km East	North	Atlantic salmon	OUT
River Moriston SAC	55Km East	South	Atlantic salmon Freshwater pearl mussel	OUT
River Spey SAC	65Km West		Sea lamprey Atlantic salmon Otter Freshwater pearl mussel	OUT
Faray & Holm of Faray SAC	200km East	North	Grey seal (<i>Halichoerus grypus</i>)	IN
Firth of Tay & Eden Estuary SAC	290km East	South	Estuaries Common seal (<i>Phoca vitulina</i>) Intertidal mudflats and sandflats Subtidal sandbanks	OUT

3.1 Reasons for Designated Site or Species Exclusions

3.1.1 SACs Related to Fish Receptors

No sites within the Cromarty Firth, or its catchment area, are designated for diadromous fish, and as such the development site is not on the migration route of any protected sites designated for diadromous fish populations (see Chapter 14: Diadromous Fish for more details). Since the development site is located in the Cromarty Firth, it is effectively isolated from the migration routes for diadromous fish transiting to designated sites out with the Cromarty Firth. Therefore, there is no potential for the development to affect the designated features of the SACs designated for diadromous fish (see Table 3.1). Designated sites for fish need no further consideration.

3.1.2 Dornoch Firth and Morrich More SAC

For the Dornoch Firth and Morrich More SAC, there is no connectivity between this site and the proposed development for any of the qualifying features, with the exception of the common seal. Whilst otters are a mobile species with extensive home ranges, the coastal distance from Invergordon to the Dornoch Firth is 45km. In the coastal environment otter home ranges are between 2-10km [Chanin, 2012], and as such it is very unlikely that an otter would travel from the Dornoch Firth to the proposed development and are therefore not considered further. The Dornoch Firth and Morrich More SAC site is naturally shielded by a land mass, resulting in no connectivity between the development area and benthic habitats and species within the Dornoch Firth. Thus, the qualifying features of the Dornoch Firth and Morrich More SAC related to marine mudflats and subtidal sandbanks are not considered further.

Therefore, only the common seal is taken forward for further assessment for this designated site.

3.1.3 Moray Firth SAC

No direct habitat loss in the proposed development area will affect the Moray Firth SAC sandbanks due to the distances from the construction activities to the designated features. Remobilisation of sediments and soil disposal at the dredge disposal site are also expected to have no impacts on the Moray Firth sandbanks due to the distances involved. Therefore, only the bottlenose dolphin qualifying feature is taken forward for further assessment for this designated site.

3.1.4 Firth of Tay and Eden Estuary SAC

The Firth of Tay and Eden Estuary SAC are designated for common seal, as well as three static features including estuaries, intertidal mudflats and sandflats, and subtidal sandbanks. Since the site is located 290km from the develop, there is no connectivity between the proposed development, and the static features of the SAC. While common seals are a mobile feature, the relatively short distances of common seal foraging trips, (typically 50 km), means that it is considered unlikely that common seals from the Firth of Tay and Eden Estuary SAC will be in the vicinity of the proposed development. Hence this site will not be taken forward for further assessment.

3.2 Designated Site Information

The Conservation Objectives of each of the designated sites taken forward is provided under each designated site section. Information on where the assessment for the qualifying species for each site is then provided. More detailed information is provided for the Cromarty Firth SPA than for the subsequent SPAs, due to this SPA being adjacent to the proposed development area, and hence more likely to be assessed as having likely significant effects associated with it.

3.2.1 Cromarty Firth SPA

The conservation objectives for the Cromarty Firth SPA are shown in Table 3.2 and the qualifying features are shown in Table 3.3, where the (*) indicates an assemblage qualifier only. For the ornithological qualifying features, where there is survey data available, the peak number of individuals recorded during either the breeding bird surveys carried out or the most recent winter bird surveys (2017/2018) carried out as part of the EIA process are shown. Where no recordings for a particular species were made in the most recent winter bird survey but the species was recorded in the previous winter bird survey (2015/2016), this value is presented instead.

In addition to survey data being shown, the number of individuals as a total of the whole Cromarty Firth population as a percentage, is also given. The total Cromarty Firth values were taken either from the JNCC SPA designation information pages [JNCC, 2001], or where available from the latest WeBS counts [BTO, 2018].

Due to the proximity of the development, LSE are expected and therefore it is likely an AA will need to take place for some, if not all, of the qualifying species.

Table 3.2 Cromarty Firth SPA Conservation Objectives

Conservation Objective of the Designated Site	Main EIAR chapter(s) to inform assessment
Overarching Conservation Objective: 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	Chapter 11: Ornithology
Further Conservation objectives: To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> • 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 • No significant disturbance of the species 	Chapter 11: Ornithology; In addition: Chapter 15: Benthic Ecology; Chapter 9: Coastal Processes; Chapter 21: Water Quality

In addition, the Cromarty Firth Ramsar is designated for marine mudflats and sandbanks, which will be considered as part of the assessment of the Cromarty Firth SPA.

Table 3.3 Cromarty Firth SPA designated feature summary of assessment, where * indicates an assemblage qualifier only.

Species	Relevant EIAR chapter sections	Summary of assessment	Peak number recorded	% of SPA population recorded during Site surveys
Bar-tailed godwit	11.4.3.2; 11.5.1.5; 11.9	No major wintering populations within 500m of the proposed installation, as identified by the winter WeBS surveys in 2015/2016 and 2017/2018. Shoreline habitat not expected to be modified as a result of the development, and noise assessment modelling revealed marginal noise increases along parts of the shoreline, but not of an order of magnitude to disturb the birds during construction. No effects of light pollution are predicted due to directional light being used. No change during operation.	1	<0.1
Common tern	11.4.3.4; 11.5.1.2; 11.5.1.4; 11.5.1.5 11.9	Important breeding population exists at Invergordon Service Station, but not in the direct vicinity of the construction. There are no predicted lasting effects	266	90

Species	Relevant EIA chapter sections	Summary of assessment	Peak number recorded	% of SPA population recorded during Site surveys
		on the breeding tern population, as summarised in Section 11.9 of the EIA.		
Curlew*	11.4.3.6; 11.5.1.5; 11.9	Shoreline habitat not expected to be modified as a result of the development, and noise assessment modelling revealed marginal noise increases along parts of the shoreline, but not of an order of magnitude to disturb the birds during construction. No effects of light pollution are predicted due to directional light being used. No change during operation.	5	1.9
Dunlin*	11.4.3.7; 11.5.1.5; 11.9	One flock of dunlin only seen once during winter bird surveys. Dunlin prefer to use the mudflats in Udale and Nigg bays, 2-10km away respectively. Shoreline habitat not expected to be modified as a result of the development, and noise assessment modelling revealed marginal noise increases along parts of the shoreline, but not of an order of magnitude to disturb the birds during construction. No effects of light pollution are predicted due to directional light being used. No change during operation.	20	1.4
Greylag goose	11.4.3.12	No impacts predicted due to lack of suitable habitat for the geese in development area. Being a largely freshwater or coastal species, the Sutors dredge disposal site is not a location the geese would be found.	0	0
Knot*	11.4.3.13	No knots recorded during any of the winter surveys. Udale and Nigg Bay 2km and 10km of the development are not expected to be impacted by any of the construction or operational procedures.	0	0
Osprey	11.4.3.15	No osprey pairs within 5km of the proposed site. Phase 4 is expected to have no impacts on Osprey, as no	0	0

Species	Relevant EIAR chapter sections	Summary of assessment	Peak number recorded	% of SPA population recorded during Site surveys
		impacts on their potential prey species have been predicted or are likely.		
Oystercatcher*	11.4.3.16; 11.5.1.5; 11.9	Shoreline habitat not expected to be modified as a result of the development, and noise assessment modelling revealed marginal noise increases along parts of the shoreline, but not of an order of magnitude to disturb the birds during construction. No effects of light pollution are predicted due to directional light being used. Temporary displacement due to disturbance in the section adjacent to the proposed development. This section (Section B in winter bird survey area) is already highly disturbed with dog walkers currently. No change during operation.	50	1.2
Pintail*	11.4.3.17	No major wintering populations within 500m of the proposed installation, as identified by the winter WeBS surveys in 2015/2016 and 2017/2018. Larger numbers are found 10km up the coast in Nigg bay. No effects predicted on pintail.	0	0
Red-breasted merganser*	11.4.3.19; 11.9	Only recorded on three occasions during the winter bird surveys which suggests that the area near to the proposed development is not a favoured habitat for the Red-breasted merganser. Any effects are expected to be temporary and minor. No change during operation.	3	1.3
Redshank*	11.4.3.21; 11.9	Shoreline habitat not expected to be modified as a result of the development, and noise assessment modelling revealed marginal noise increases along parts of the shoreline, but not of an order of magnitude to disturb the birds during construction. No effects of light pollution are	9	0.5

Species	Relevant EIAR chapter sections	Summary of assessment	Peak number recorded	% of SPA population recorded during Site surveys
		<p>predicted due to directional light being used.</p> <p>Temporary displacement due to disturbance in the section adjacent to the propose development. This section (Section B in winter bird survey area) is already highly disturbed with dog walkers currently.</p> <p>No change during operation.</p>		
Scaup*	11.4.3.22; 11.5.1.1; 11.9	The favoured wintering flock area is at Jemimaville, 3km south east of the proposed development. No scaup recorded during any of the winter surveys. No effects on scaup predicted.	0	0
Whooper swan	11.4.3.27	No suitable feeding habitat for swans in the proposed development area. Being a freshwater bird, the Sutor dredge disposal site is not a location the whooper swans would be found.	0	0
Wigeon*	11.4.3.28	Udale and Nigg Bays 2-10km away from the development are more popular areas for this species. None were recorded during winter surveys and no effects are this species are predicted.	0	0
Marine mudflats and sandflats	15.6.1	There will be a loss of benthic flora, fauna, and habitat in the development footprint. However, this does not affect any mudflat or sandflat features, and it is not expected that this will have population level effects on the wider Cromarty Firth benthic communities, as the habitat loss is relatively small and localised in nature, in relation to the overall area of the Cromarty Firth.	N/A	N/A

3.2.2 Moray Firth SAC

The conservation objectives for the Moray Firth SAC are shown in Table 3.4 and the qualifying features are shown in Table 3.5, where the (*) indicates an assemblage qualifier only.

Due to the foraging range of the qualifying species, LSE are expected for this site, and therefore it is likely an AA will need to take place for bottlenose dolphins.

Table 3.4 Moray Firth SAC Conservation Objectives

Conservation Objective of the Designated Site	Main EIAR chapter(s) to inform assessment
Overarching Conservation Objective: 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	Chapter 12: Marine mammals
Further Conservation objectives: To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> • 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 • No significant disturbance of the species 	Chapter 12: Marine mammals; In addition: Chapter 7: Underwater Noise

Table 3.5 Moray Firth Qualifying Features

Species	Relevant chapter and sections	Summary of assessment	Estimated population in SAC
Bottlenose Dolphins	12.4.1.1; 12.5; 12.9	In the absence of mitigation procedures there is the potential to have a moderate effect on the bottlenose dolphins designated under the Moray Firth SAC due to both piling operations and disturbance due to increased sediment loading from dredged spoil disposal at the Sutors. With marine mammal mitigation procedures put in place these effects become minor. Therefore, no population level effects on the Moray Firth bottlenose dolphin population are expected.	Number of individuals utilising the Moray Firth SAC is estimated at 103 [Cheney et al., 2018].

3.2.3 Moray Firth pSPA

This proposed SPA has not yet had its Conservation Objectives confirmed, however draft objectives are provided in Table 3.6. Information on its qualifying features are shown below.

LSE are not expected for the majority of the qualifying species and therefore it is unlikely an AA will need to take place for all species. LSE may be present for shag, eider, and long-tailed duck, due to their proximity to the Sutor’s dredge disposal site, and therefore an AA may need to take place for these species.

Table 3.6 Moray Firth pSPA draft Conservation Objectives.

Draft Conservation Objective of the Designated Site	Main EIAR chapter(s) to inform assessment
<p>Overarching Conservation Objective: To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species.</p>	Chapter 11: Ornithology
<p>Further Conservation objectives: This contribution will be achieved through delivering the following objectives for each of the site’s qualifying features:</p> <ul style="list-style-type: none"> • Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term; and • To maintain the habitats and food resources of the qualifying features in favourable condition. 	Chapter 11: Ornithology; In addition: Chapter 15: Benthic Ecology; Chapter 9: Coastal Processes; Chapter 21: Water Quality

Table 3.7 Moray Firth pSPA Qualifying Features, with * representing those designated for migratory populations.

Species	Relevant chapter and sections	Summary of assessment
Great northern diver	11.4.3.11;	The proposed SPA had a mean maximum count of 144 based on aerial counts from 2000-2007 [Lawson et al., 2015]. No effects on the Moray Firth pSPA is predicted for this species. Great northern divers were not recorded during the winter bird surveys on adjacent to the installation. Invergordon and the Cromarty Firth are not important areas for the species, with larger numbers present in the deeper waters in the Inner and Outer Moray Firth and Dornoch Firth. Low densities (less than 0.2 birds per square kilometre) were recorded by the Sutors, so they are not likely to be present near the dredge disposal site either.
Red throated diver	11.4.3.20	The Cromarty Firth area is not an area with high numbers or concentrations of this species, which are more associated with the deeper coastal waters, beyond the Sutors of Cromarty, in the outer Moray Firth. It is not expected that many red-throated divers from the proposed Moray Firth SPA will be utilising the Sutors dredge disposal

Species	Relevant chapter and sections	Summary of assessment
		site. Therefore, no effect on the Moray Firth pSPA is predicted for this species.
Slavonian grebe	11.4.3.24; 11.5.1.1	In the SPA site selection document [SNH, 2016] the maximum mean population in the Moray Firth pSPA was 43, based on land-based counts from 1996-2006 [Lawson et al. 2015]. Slavonian grebes are a common species in the Cromarty Firth and are regularly seen especially along the north coast of the Black Isle, in areas east of Jemimaville [HBR, 2016]. No Slavonian grebes were recorded in any of the winter bird surveys by the Invergordon development, as they appear to prefer the Udale Bay section of the Firth. No effects on Slavonian grebes are expected for the Moray Firth pSPA.
Scaup*	11.4.3.22; 11.5.1.1; 11.9	The favoured wintering flock of scaup is at Jemimaville, 3km south east of the proposed installation. No scaup recorded during any of the winter surveys. No effects on scaup residing in the Moray Firth pSPA are predicted.
Eider*	11.4.3.8; 11.5.1.1; 11.5.1.2; 11.5.1.3; 11.5.1.4; 11.5.1.5; 11.5.2; 11.9	In the SPA site selection document [SNH, 2016] the maximum mean population of the Moray Firth pSPA was 1,745, based on aerial counts from 2000-2007 [Lawson et al., 2015]. With appropriate mitigation procedures no adverse impacts on eiders have been predicted during the ecological assessment as a result of the Phase 4 Development. The only potential adverse effect of accidental nest removal can be mitigated through pre-construction surveys and is only relevant to the localised area of habitat within the development footprint. This effect is not relevant for the pSPA which is related to wintering birds. Wintering eider had low densities around the Sutors area, predicted from the SPA site selection document, and may therefore be in proximity to the Sutor's dredge disposal site. Therefore, no effect on the Moray Firth pSPA is predicted for this species.
Long-tailed duck*	11.4.3.14; 11.5.1.5; 11.9	Long-tailed duck is proposed as a cited species for the Proposed Moray Firth SPA. In the pSPA site selection document [SNH, 2016] the maximum mean population was 5,001, based on land-based counts from 1990-2006 [Lawson et al., 2015]. Long-tailed ducks were one of only two species which overlapped with PoCF's harbour limits (eider being the second, see above). Therefore, there is the potential for wintering long-tailed duck to be in the vicinity of the dredge disposal site. The North and South Sutors, where the dredge disposal site is, provides very little intertidal habitat. The majority of the area is greater than 10m in depth. As such, these waters are not suitable for long-tailed ducks' main food source, blue mussels, which demonstrate a tight zonation in the intertidal region, or in very shallow permanently submerged waters [JNCC, 2015]. This statement is supported by the fact that no blue mussel beds are present in the area, with the nearest documented beds located within the Cromarty Firth, on Skate Bank in the Inner Moray Firth, and on the southern shore of the outer

Species	Relevant chapter and sections	Summary of assessment
		Moray Firth [Marine Scotland, 2018]. No effects on long-tailed duck wintering in the Moray Firth pSPA are predicted.
Common scoter*	11.4.3.3	In the SPA site selection document [SNH, 2016] the maximum mean population was 5,479, based on land-based counts from 1990-2000. The largest concentrations of common scoter within the Moray Firth are in the Dornoch/Embo/Golspie area and the Burghead area. This is much further north (Dornoch area) and south (Burghead) than the proposed development. No effect on Common scoter are predicted, and therefore no effects on the Moray Firth pSPA are expected for this species.
Velvet scoter*	11.4.3.26	Velvet scoter is proposed as a citation species for internationally important migratory populations in the Proposed Moray Firth SPA. In the SPA site selection document, the maximum mean population was 1,488, based on land-based counts from 1990-2006 [SNH, 2016]. This species is not regularly found in the Cromarty Firth at all, more usually restricted to the Outer Moray Firth and the Moray coast. No velvet scoters were recorded in any of the winter bird surveys. No effect on velvet scoter are predicted and therefore no effects on the Moray Firth pSPA are expected for this species.
Goldeneye*	11.4.3.9; 11.5.1.1; 11.5.1.2; 11.9	In the SPA site selection document [SNH 2016] the maximum mean population was 907, based on land-based counts from 1990-2006 [Lawson et al., 2015]. The larger distributions of goldeneye tended to be between Dornoch and Golspie to the north, and between Nairn and Lossiemouth to the South [SNH, 2016]. A maximum of 4 birds were recorded during the winter bird surveys and no adverse impacts on goldeneye were predicted as part of the ecological assessment. No effects on the Moray Firth pSPA is predicted for this species.
Red-breasted merganser*	11.4.3.19	In the SPA site selection document [SNH, 2016] the maximum mean population was 151, based on land-based counts from 1990-2006 [Lawson et al., 2015], with the largest concentrates being noted between Dornoch and Golspie, and in the Inner Moray Firth. No impacts are predicted for this species as a result of the development and therefore no effects on the Moray Firth pSPA are predicted.
Shag*	11.4.3.22; 11.9	The major concentrations of shags in the Moray Firth pSPA are between Brora and Berriedale, both during the breeding and non-breeding periods. There is also a shag breeding colony at North Sutor, which is close to the pSPA. Any shags from the pSPA utilising waters near the dredge disposal site have the potential to be affected by water quality issues. Any impacts on water quality will be temporary in nature and are not predicted to have a large impact on the shag population as a whole as the water quality issues will be localised in nature. Therefore, no effects on the Moray Firth pSPA is predicted for this species.

3.2.4 Inner Moray Firth SPA

The conservation objectives for the Inner Moray Firth SPA are shown in Table 3.8 and the qualifying features are shown in Table 3.9, where the (*) indicates an assemblage qualifier only.

LSE are not expected for the qualifying species and therefore it is unlikely an AA will need to take place for all species.

Table 3.8 Inner Moray Firth SPA Conservation Objectives

Conservation Objective of the Designated Site	Main EIAR chapter for information to inform assessment
Overarching Conservation Objective: 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	Chapter 11: Ornithology
Further Conservation objectives: To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> • 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 • No significant disturbance of the species 	Chapter 11: Ornithology; Chapter 15: Benthic Ecology

Table 3.9 Inner Moray Firth SPA Qualifying features, where * indicates an assemblage qualifier only.

Species	Relevant chapter and sections	Summary of assessment
Bar-tailed godwit	11.4.3.2; 11.5.1.5; 11.9	Potential for waders from Inner Moray Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to localised nature of development, no habitat modifications or noise or light pollution effects are relevant for the Inner Moray Firth SPA. No effects on bar-tailed godwit predicted in the Inner Moray Firth SPA.
Common tern	11.4.3.4; 11.5.1.2; 11.5.1.4; 11.5.1.5 11.9	Common tern population at Inner Moray Firth SPA not expected to be the same individuals as the common tern population at the Invergordon Service base, due to the foraging distances. Terns prefer to forage close to their breeding colony. No effects on common tern predicted in the Inner Moray Firth SPA.
Cormorant*	11.4.3.5; 11.5.1.4; 11.9	Only one recorded during winter bird surveys. There are expected to be no effects on the cormorants protected at the Inner Moray Firth SPA.
Curlew*	11.4.3.6; 11.5.1.5; 11.9	Potential for waders from Inner Moray Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to localised nature of development no habitat modifications or

Species	Relevant chapter and sections	Summary of assessment
		noise or light pollution effects are relevant for the Inner Moray Firth SPA.
Goldeneye*	11.4.3.9; 11.5.1.1; 11.9	Goldeneye are not found in large numbers in the Invergordon area but are found in larger numbers in the Inner Moray Firth SPA. As the habitat modification and construction activities are occurring in a localised area, no effects on the goldeneye in Inner Moray Firth SPA are predicted.
Goosander*	11.4.3.10	Invergordon and Cromarty Firth are not important areas for wintering goosander. None were recorded over winter, and only one female with 6 young were recorded in the summer, approximately 2km from the development. No effects on the goosander in the Inner Moray Firth are expected.
Greylag goose	11.4.3.12	No suitable feeding habitat for geese in the proposed development area. No effects on geese predicted.
Osprey	11.4.3.15	No osprey pairs within 5km of the proposed site. 4 pairs of ospreys are designated in the Inner Moray Firth area. No effects on Osprey are expected as no impacts on their potential prey species are likely or are predicted.
Oystercatcher*	11.4.3.16; 11.5.1.5; 11.9	Potential for waders from Inner Moray Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to localised nature of development no habitat modifications or noise or light pollution effects are relevant for the Inner Moray Firth SPA.
Red-breasted merganser	11.4.3.19; 11.9	Only recorded on three occasions during the winter bird surveys, which suggests that the area near to the proposed development is not a favoured habitat for the Red-breasted merganser. No effects on red-breasted mergansers in the Inner Moray Firth SPA predicted.
Redshank*	11.4.3.21; 11.9	Potential for waders from Inner Moray Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to localised nature of development no habitat modifications or noise or light pollution effects are relevant for the Inner Moray Firth SPA.
Scaup*	11.4.3.22; 11.5.1.1; 11.9	The favoured wintering flock area is at Jemimaville, 3km south east of the proposed development. No scaup recorded during any of the winter surveys. No effects on scaup residing in the Inner Moray predicted.
Teal	11.4.3.25	No effects on teal are predicted and none were recorded as using the site. Therefore, no effects on Inner Moray Firth teal are predicted.
Wigeon*	11.4.3.28	Udale and Nigg Bays 2-10km away from the development are more important areas for this species compared to the shoreline adjacent to the development site. None were recorded during winter surveys and no effects are this species are predicted.

3.2.5 Loch Eye SPA

The conservation objectives for the Loch Eye SPA are shown in Table 3.10 and the qualifying features are shown in Table 3.11, where the (*) indicates an assemblage qualifier only.

LSE are not expected for the qualifying species due to lack of suitable habitat type for the qualifying species. It is therefore it is unlikely an AA will need to take place.

Table 3.10 Loch Eye Conservation Objectives

Conservation Objective of the Designated Site	Main EIAR chapter(s) to inform assessment
Overarching Conservation Objective: 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	Chapter 11: Ornithology
Further Conservation objectives: To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> • 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 • No significant disturbance of the species 	Chapter 11: Ornithology; In addition: Chapter 15: Benthic Ecology; Chapter 9: Coastal Processes; Chapter 21: Water Quality

Table 3.11 Loch Eye Qualifying Features

Species	Relevant chapter and sections	Summary of assessment
Greylag goose	11.4.3.12	No impacts predicted due to lack of suitable habitat in development area for this species. No effects on greylag geese utilising Loch Eye are predicted.
Whooper swan	11.4.3.27	No suitable feeding habitat for swans in the proposed development area for this species. No effects on swans utilising Loch Eye are predicted.

3.2.6 Dornoch Firth and Loch Fleet SPA

The conservation objectives for the Dornoch Firth and Loch Fleet SPA are shown in Table 3.12 and the qualifying features are shown in Table 3.13, where the (*) indicates an assemblage qualifier only.

LSE are not expected for the qualifying species due to distances involved. It is therefore it is unlikely an AA will need to take place.

Table 3.12 Dornoch Firth and Loch Fleet SPA Conservation Objectives

Conservation Objective of the Designated Site	Main EIAR chapter(s) to inform assessment
Overarching Conservation Objective: 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	Chapter 11: Ornithology
Further Conservation objectives: To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> • 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 • No significant disturbance of the species 	Chapter 11: Ornithology; In addition: Chapter 15: Benthic Ecology; Chapter 9: Coastal Processes; Chapter 21: Water Quality

Table 3.13 Dornoch Firth and Loch Fleet SPA Qualifying Features, where * indicates an assemblage qualifier only.

Species	Relevant chapter and sections	Summary of assessment	Peak number recorded*
Bar-tailed godwit	11.4.3.2; 11.5.1.5; 11.9	Potential for waders from Dornoch Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to the localised nature of development no habitat modifications, water quality effects, or noise or light pollution effects are relevant for the Dornoch Firth SPA.	1
Curlew*	11.4.3.6; 11.5.1.5; 11.9	Potential for waders from Dornoch Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to the localised nature of development no habitat modifications, water quality effects, or noise or light pollution effects are relevant for the Dornoch Firth SPA.	5
Dunlin*	11.4.3.7; 11.5.1.5 11.9	Potential for waders from Dornoch Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to localised nature of development no habitat modifications,	20

Species	Relevant chapter and sections	Summary of assessment	Peak number recorded*
		water quality effects, or noise or light pollution effects are relevant for the Dornoch Firth SPA.	
Greylag goose	11.4.3.12	No impacts predicted due to lack of suitable habitat in development area. Not likely to be any connectivity for this species with the development area.	0
Osprey	11.4.3.15	No osprey pairs within 5km of the proposed site. 10 pairs of ospreys are designated in the Dornoch Firth area. No effects on Osprey are expected as no impacts on their potential prey species are likely.	0
Oystercatcher*	11.4.3.16; 11.5.1.5 11.9	Potential for waders from Inner Moray Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to the localised nature of development no habitat modifications or noise or light pollution effects are relevant for the Dornoch Firth SPA.	50
Redshank*	11.4.3.21 11.9	Potential for waders from Dornoch Firth SPA to forage within the Cromarty Firth SPA too, though waders are often winter site faithful. Due to the localised nature of development no habitat modifications or noise or light pollution effects are relevant for the Dornoch Firth SPA.	9
Scaup*	11.4.3.22; 11.5.1.1; 11.9	The favoured wintering flock area is at Jemimaville, 3km south east of the proposed development. No scaup recorded during any of the winter surveys. No effects on scaup predicted.	0
Teal*	11.4.3.25	No effects on teal are predicted and none were recorded as using the site. Therefore, no effects on Dornoch Firth teal are predicted.	0
Wigeon	11.4.3.28	Udale and Nigg Bays 2-10km away from the development are more popular areas for this species. None were recorded during winter surveys and no effects are this species are predicted.	0

3.2.7 Dornoch Firth and Morrich More SAC

As outlined in Section 3.1 only common seals are considered for this assessment due to lack of ecological connectivity between any of the other qualifying features of this SAC with the proposed development site.

There is the potential for LSE for the qualifying species due to the foraging distance ranges and therefore it is likely an AA will need to take place.

Table 3.14 Dornoch Firth and Morrich More SAC Conservation Objectives.

Conservation Objective of the Designated Site	Main EIAR chapter(s) to inform assessment
Overarching Conservation Objective: 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	Chapter 12: Marine Mammals
Further Conservation objectives: To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> • 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 • No significant disturbance of the species 	Chapter 12: Marine Mammals; In addition: Chapter 7: Underwater Noise

Table 3.15 Dornoch Firth and Morrich More SAC Qualifying Features

Species	Relevant chapter and sections	Summary of assessment	Latest count
Common seal	12.4.2.3; 12.5; 12.9	Without any mitigation procedures put in place the development has the potential to cause moderate disturbance due to noise during the piling operations and disturbance/foraging impairment due to increased sediment loading from dredged disposal at the Sutors. Through the implementation of a piling marine mammal protocol and a dredged spoil disposal marine mammal protocol, the resulting impacts on common seals using the Dornoch Firth and Morrich More SAC are expected to be minimal, and no population level effects are expected.	85 [SCOS, 2017]

3.2.8 Faray & Holm of Faray SAC

The conservation objectives for the Faray & Holm of Faray SAC are shown in Table 3.16 and the qualifying feature is shown in Table 3.17.

There is the potential for LSE for the qualifying species due to the foraging distance ranges and therefore it is likely an AA will need to take place.

Table 3.16 Faray & Holm of Faray SAC Conservation Objectives.

Conservation Objective of the Designated Site	Main EIAR chapter(s) to inform assessment
Overarching Conservation Objective: 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	Chapter 12: Marine mammals
Further Conservation objectives: To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> • 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 • No significant disturbance of the species 	Chapter 12: Marine mammals; In addition: Chapter 7: Underwater Noise

Table 3.17 Faray & Holm of Faray SAC Qualifying Feature.

Species	Relevant chapter and sections	Summary of assessment
Grey seal	12.4.2.4; 12.5; 12.9	There are no designated grey seal haul outs or breeding sites within 60km of the Phase 4 Development, and the closest SAC designated for grey seals is the Faray and Holm of Faray SAC, located approximately 200km to the north east of the proposed development (through the water). Grey seals are only very infrequently observed within the Cromarty Firth [SCOS 2017]. During the 2014 Phase 3 Development marine mammal monitoring, there was only 1 confirmed grey seal sighting in the vicinity of the Invergordon Service Base. It is therefore unlikely that grey seals from the Faray and Holm of Faray SAC will be in the vicinity of the works, hence no effects are expected.

4 Cumulative and In-combination effects

No cumulative or in-combination effects were identified for any of the Ornithological, Marine mammals, or Benthic ecology receptors as identified in Chapter 11 Section 11.7; Chapter 12, Section 12.7; and Chapter 15 Section 15.7, respectively.

5 Conclusions

The EIAR did not predict any residual adverse impacts on any of the qualifying features of the designated sites assessed as part of this HRA Pre-Screening Report. Information from this report can be used in conjunction with the relevant EIAR Chapters and Sections, as laid out in this report, for the competent authority to carry out the HRA and AA. It will be up to the competent authority to ascertain whether the proposal will adversely affect the integrity of the designated sites to be considered.

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