

Hornsea Project Four:

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B2.2: Report to Inform Appropriate Assessment Part 3: Appendix B: HRA Screening Matrices

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Acronyms

Acronym	Definition	
AEol	Adverse Effect on Integrity	
APIS	Air Pollution Information System	
CPEMMP	Construction Phase Environmental Management and Monitoring Plan	
DCO	Development Consent Order	
EEC	Export Cable Corridor	
EDR	Effective Disturbance Range	
EMF	Electromagnetic Fields	
ES	Environmental Statement	
EU	European Union	
FFC SPA	Flamborough and Filey Coast Special Protection Area	
HRA	Habitats Regulations Assessment	
INNS	Invasive Non-native Species	
LSE	Likely Significant Effect	
MMMP	Marine Mammal Mitigation Protocol	
MPCP	Marine Pollution Contingency Plan	
NN	Nutrient Nitrogen	
OWF	Offshore wind farm	
O&M	Operation and Maintenance (phase of Hornsea Four)	
PCH	Potential collision height	
pSPA	Proposed Special Protection Area	
PTS	Permanent Threshold Shift	
PVA	Population Viability Analysis	
RIAA	Report to Inform Appropriate Assessment	
SAC	Special Area of Conservation	
SCI	Site of Community Importance	
SCOS	Special Committee on Seals	
SIP	Site Integrity Plan	
SPA	Special Protection Area	
SSC	suspended sediment concentrations	
TTS	temporary threshold shifts	
UK	United Kingdom	
UXO	Unexploded Ordinance	
UXO-MMMP	Marine Mammal Mitigation Protocol relating to Unexploded Ordinance	
WTGs	Wind turbine generators	
WWT	Wildfowl and Wetlands Trust	

Units

Unit	Definition
km	Kilometre
cm	Centimetre
m	Metre
ha	Hectare
kg	Kilgogram

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Species Glossary

Arctic skuaStercorarius parasiticusArctic ternSterno paradisaeaPuffinFratercula arcticaBar-tailed godwitLimosa lapponicaBlack-tailed godwitLimosa lapponicaBlack-tailed godwitLimosa limosaCormorantPhalacrecorax carboCommon goldeneyeBucephala clangulaCommon gocharakTringa nebulariaCommon gocharakTringa totanusCommon pochardAythya ferinaCommon scoterMelaina nigraCommon scoterMelaina nigraCommon scoterMelaina taigraCommon ternSterna hirundoDark-bellied brent gooseBranta berniciaDunlinCalidris dipinateaEurosian curlewNumenius arguataEurosian onystercatcherHaematopus ostrolegusEurosian onystercatcherHaematopus ostrolegusEurosian onystercatcherPalacrecora visitotelisEurosian vinibrelNumenius phacepusEuropean storm petrelHydrobates pelagicusGodavallAnas streperaGanetMorus bassanusGreat skuaStercorarius skuaGreat scaupAythya marilaGreat scaupCalochidon niloticaHerning gullCircus cyaneus	Birds	
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KittiwakeCharadrius alexandrinusLeach's storm petrelRissa tridactylaLesser black-backed gullOceanodroma leucorhoaLittle gullTachybaptus ruficollisLittle ternHydrocoloeus mintusMallardSternula albifronsNorthern lapwingCircus pygargusNorthern pintailVanellus vanellusNorthern shovelerAnas acutaRed-throated diverPandion haliaetus	Hen harrier	Gelochelidon nilotica
Leach's storm petrelRissa tridactylaLesser black-backed gullOceanodroma leucorhoaLittle gullTachybaptus ruficollisLittle ternHydrocoloeus mintusMallardSternula albifronsNorthern lapwingCircus pygargusNorthern pintailVanellus vanellusNorthern shovelerAnas acutaRed-throated diverPandion haliaetus	Herring gull	Circus cyaneus
Lesser black-backed gullOceanodroma leucorhoaLittle gullTachybaptus ruficollisLittle ternHydrocoloeus mintusMallardSternula albifronsNorthern lapwingCircus pygargusNorthern pintailVanellus vanellusNorthern shovelerAnas acutaRed-throated diverPandion haliaetus	Kittiwake	Charadrius alexandrinus
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Little ternHydrocoloeus mintusMallardSternula albifronsNorthern lapwingCircus pygargusNorthern pintailVanellus vanellusNorthern shovelerAnas acutaRed-throated diverPandion haliaetus	Lesser black-backed gull	Oceanodroma leucorhoa
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Northern lapwingCircus pygargusNorthern pintailVanellus vanellusNorthern shovelerAnas acutaRed-throated diverPandion haliaetus	Little tern	Hydrocoloeus mintus
Northern pintailVanellus vanellusNorthern shovelerAnas acutaRed-throated diverPandion haliaetus	Mallard	Sternula albifrons
Northern pintailVanellus vanellusNorthern shovelerAnas acutaRed-throated diverPandion haliaetus	Northern lapwing	Circus pygargus
Red-throated diver Pandion haliaetus		Vanellus vanellus
	Northern shoveler	Anas acuta
Red knot Edico peregrinus	Red-throated diver	Pandion haliaetus
	Red knot	Falco peregrinus

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Birds	
Ringed plover	Anser brachyrhynchus
Roseate tern	Stercorarius pomarinus
Ruddy turnstone	Calidris maritima
Ruff	Alca torda
Sanderling	Mergus serrator
Whooper swan	Xema sabini
Marine mammals	
Harbour Porpoise	Podiceps auritus
Bottlenose dolphin	Asio flammeus
Grey seal	Puffinus griseus
Harbour seal	Tringa erythropus
Fish	
Sea lamprey	Melanitta fusca
River lamprey	Cygnus Cygnus
Atlantic salmon	Tringa glareola
_Sea trout	Halichoerus grypus
Allis shad	Phoca vitulina
Twaite shad	Petromyzon marinus
Habitats	
Atlantic salt meadows	Glauco-Puccinellietalia maritimae

Matrix Key

✓ = Likely Significant Effect cannot be excluded

X = Likely Significant Effect can be excluded

Evidence for, or against, adverse effects on European site qualifying feature and Likely Significant Effect is detailed within the footnotes to the integrity matrices

- C = construction
- O = operation and maintenance
- D = decommissioning

Effect not relevant to feature (no pathway)



Index to matrices

This appendix presents the Screening matrices for Hornsea Project Four Offshore Wind Farm (hereafter 'Hornsea Four') promoted by Orsted Hornsea Project Four Limited (hereafter 'the Applicant') in accordance with the structure and format specified in PINS Advice Note 10 (November 2017 (version 8)).

Matrix	European site included within the assessment	
Matrix 1	Southern North Sea (UK) Special Area of Conservation	
Matrix 2	Flamborough Head (UK) Special Area of Conservation	
Matrix 3	Moray Firth (UK) Special Area of Conservation	
Matrix 4	The Wash and North Norfolk Coast (UK) Special Area of Conservation	
Matrix 5	River Derwent (UK) Special Area of Conservation	
Matrix 6a	Grey seal - Humber Estuary (UK) Special Area of Conservation	
Matrix 6b	Migratory fish - Humber Estuary (UK) Special Area of Conservation	
Matrix 6c	Habitats - Humber Estuary SAC (UK) Special Area of Conservation	
Matrix 7a	Grey seal and Natterjack toad - Humber Estuary (UK) Ramsar	
Matrix 7b	Migratory fish - Humber Estuary (UK) Ramsar	
Matrix 7c	Habitats - Humber Estuary (UK) Ramsar	
Matrix 7d	Ornithology - Humber Estuary (UK) Ramsar	
Matrix 8	Berwickshire and North Northumberland Coast (UK) Special Area of Conservation	
Matrix 9a	Transboundary harbour porpoise sites - sites 1 to 10 (of 48)	
Matrix 9b	Transboundary harbour porpoise sites - sites 11 to 20 (of 48)	
Matrix 9c	Transboundary harbour porpoise sites - sites 21 to 31 (of 48)	
Matrix 9d	Transboundary harbour porpoise sites - sites 32 to 40 (of 48)	
Matrix 9e	Transboundary harbour porpoise sites – sites 40 to 48 (of 48)	
Matrix 10	Transboundary bottlenose dolphin sites (6 sites)	
Matrix 11	Doggersbank (Dutch) Special Area of Conservation (SAC)	
Matrix 12	Klaverbank (Dutch) Special Area of Conservation (SAC)	
Matrix 13	Bancs des Flandres (France) Special Area of Conservation	
Matrix 14	Vlaamse Banken (Belgium) Special Area of Conservation	
Matrix 15	SBZ 1 (Belgium) Special Area Conservation	
Matrix 16		
Matrix 17	SBZ 4 (Belgium) Special Area Conservation	
Matrix 18		
Matrix 19	Westerschelde & Saeftinghe (Netherlands) Special Area Conservation	
Matrix 20	Voordelta (Netherlands) Special Area of Conservation	
Matrix 21	Noordzeekustzone (Netherlands) Special Area of Conservation	
Matrix 22	Waddenzee (Netherlands) Special Area of Conservation (SAC)	
Matrix 23	Greater Wash Special Protection Area	
Matrix 24	Flamborough and Filey Coast Special Protection Area	
Matrix 25	Northumbria Coast Special Protection Area	

Matrix	European site included within the assessment
Matrix 26	Humber Estuary Special Protection Area
Matrix 27	Coquet Island Special Protection Area
Matrix 28	Farne Islands Special Protection Area
Matrix 29	Teesmouth and Cleveland Coast Special Protection Area
Matrix 30	St Abb's Head and Fast Castle (UK) Special Protection Area
Matrix 31	: Forth Islands (UK) Special Protection Area
Matrix 32	Outer Firth of Forth and St Andrew's Complex proposed Special Protection Area
Matrix 33	Fowlsheugh Special Protection Area
Matrix 34	Buchan Ness to Collieston Coast Special Protection Area
Matrix 35	Troup, Pennan and Lion's Heads Special Protection Area
Matrix 36	East Caithness Cliffs Special Protection Area
Matrix 37	North Caithness Cliffs Special Protection Area
Matrix 38	Copinsay Special Protection Area
Matrix 39	Hoy Special Protection Area
Matrix 40	Marwick Head Special Protection Areas
Matrix 41	Rousay Special Protection Area
Matrix 42	Calf of Eday Special Protection Area
Matrix 43	West Westray Special Protection Area
Matrix 44	Fair Isle Special Protection Area
Matrix 45	Sumburgh Head Special Protection Area
Matrix 46	Noss Special Protection Area
Matrix 47	Foula Special Protection Area
Matrix 48	Fetlar Special Protection Area
Matrix 49	Hermaness, Saxa Vord and Valla Field Special Protection Area
Matrix 50	Hornsea Mere Special Protection Area
Matrix 51	Northumberland Marine SPA



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Effects Considered

Potential effects on European sites which are considered within the submitted Information to Support the Report to Inform Appropriate Assessment for the Habitats Regulation Assessment (HRA) of Hornsea Four are provided in Table 1 below.

Table 1: Potential effects on the European site considered in the matrices.

Designations	Impacts Considered In Matrices
	Increase in underwater noise.
	Vessel disturbance
	Vessel collision risk
Southern North Sea SAC	Accidental pollution
Southern North Sed SAC	Changes in prey availability and behaviour
	Long term physical loss of habitat
	Temporary increases in suspended sediments
	In-combination
	Temporary habitat loss/ disturbance
	Temporary increases in suspended sediments / smothering
	Accidental pollution
Flamborough Head (UK) SAC	Invasive Non-Native Species
	Changes to physical processes
	Long term physical loss of habitat
	Electromagnetic fields (EMF)
	In-combination
	Increase in underwater noise
	Vessel disturbance
	Vessel collision risk
Moray Firth	Changes in prey availability and behaviour
	Accidental pollution
	Temporary increases in suspended sediments
	Long term physical loss of habitat
	In-combination
	Increase in underwater noise
	Vessel disturbance
The Wash and North Norfolk Coast (UK) SAC	Vessel collision risk
The washend to the to the coust (OK) SAC	Changes in prey availability and behaviour
	Accidental pollution
	Temporary increases in suspended sediments

Designations	Impacts Considered In Matrices
	Long term physical loss of habitat In-combination
River Derwent (UK) SAC	Release of sediment - suspension/smothering Increase in underwater noise Temporary habitat loss/ disturbance Accidental pollution Long term physical loss of habitat Introduction of hard substrate Changes to physical processes In-combination
Humber Estuary (UK) SAC Grey Seal	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat Change to physical processes In-combination
Humber Estuary (UK) SAC Migratory fish	Increase in underwater noise Accidental pollution Release of sediment suspension/smothering Long term physical loss of habitat Temporary habitat loss/ disturbance Introduction of hard substrate (INNS) Change to physical processes In-combination
Humber Estuary (UK) SAC Habitats	Accidental pollution Release of sediment suspension/smothering Long term physical loss of habitat Temporary disturbance / damage to habitats Introduction of hard substrate (INNS) Change to physical processes. Increased nitrogen deposition In-combination
Humber Estuary (UK) Ramsar Features under Criteria 3: Grey seal and natterjack toad	Increase in underwater noise Accidental pollution Release of sediment suspension/smothering

Designations	Impacts Considered In Matrices
	Long term physical loss of habitat
	Temporary habitat loss/ disturbance
	Introduction of hard substrate (INNS)
	Change to physical processes
	In-combination
	Increase in underwater noise
	Accidental pollution
Humber Estuary (UK) Ramsar	Release of sediment suspension/smothering
Features under Criteria 8	Long term physical loss of habitat
Migratory fish	Temporary habitat loss/ disturbance
	Introduction of hard substrate (INNS)
	Change to physical processes
	In-combination
Humber Estuary (UK) Ramsar (Cont.)	Accidental pollution
Features under Criteria 1	Release of sediment suspension/smothering
Habitats	Long term physical loss of habitat
	Temporary disturbance / damage to habitats
	Introduction of hard substrate (INNS)
	Change to physical processes.
	Increased nitrogen deposition
	In-combination
Humber Estuary (UK) Ramsar (Cont.)	Temporary habitat loss (onshore)
Features under Criteria 5 and 6 Birds	Temporary disturbance/ damage to habitats (onshore)
	Habitat fragmentation or severance
	Disturbance (airborne noise and visual) (onshore)
	Invasive non-native species (onshore)
	Accidental release of contaminants (onshore)
	In-combination
	Increase in underwater noise
	Vessel disturbance
	Vessel collision risk
Berwickshire and North Northumberland	Changes in prey availability and behaviour
Coast (UK) SAC	Accidental pollution
	Temporary increases in suspended sediments
	Long term physical loss of habitat
	In-combination

Designations	Impacts Considered In Matrices
Transboundary harbour porpoise sites (48 sites)	Increase in underwater noise Accidental pollution Release of sediment suspension/smothering Long term physical loss of habitat Temporary habitat loss/ disturbance Introduction of hard substrate (INNS) Change to physical processes In-combination
Transboundary bottlenose dolphin sites (6 sites)	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Doggersbank (Dutch) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Klaverbank (Dutch) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Bancs des Flandres (France) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments

Designations	Impacts Considered In Matrices
	Long term physical loss of habitat In-combination
Vlaamse Banken (Belgium) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
SBZ 1 (Belgium) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
SBZ 2 (Belgium) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
SBZ 3 (Belgium) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Vlakte van de Raan (Belguim/Netherlands) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour

Designations	Impacts Considered In Matrices
	Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Westerschelde & Saeftinghe (Netherlands) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Voordelta (Netherlands) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Noordzeekustzone (Netherlands) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Waddenzee (Netherlands) SAC	Increase in underwater noise Vessel disturbance Vessel collision risk Changes in prey availability and behaviour Accidental pollution Temporary increases in suspended sediments Long term physical loss of habitat In-combination
Greater Wash SPA	Direct disturbance and displacement Changes in prey availability & behaviour

Designations	Impacts Considered In Matrices
	Indirect impacts through effects on prey
	species
	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Changes in prey availability & behaviour
	Indirect impacts through effects on prey
Flamborough and Filey Coast SPA	species
	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Changes in prey availability & behaviour
	Indirect impacts through effects on prey
Northumbria Coast SPA	species
	Collision risk
	Barrier effect
	In-combination
	Temporary habitat loss
	Temporary disturbance / damage to habitats
	(onshore)
	Fragmentation or severance of habitats
	(onshore
Humber Estuary SPA (onshore)	Disturbance (airborne noise and visual) (onshore)
	Invasive non-native species (onshore)
	Invasive non-native species (onshore) Accidental release of contaminants (onshore)
	•
	Accidental release of contaminants (onshore)
	Accidental release of contaminants (onshore) In-combination
Humber Estuary SPA (offshore)	Accidental release of contaminants (onshore) In-combination Increased nitrogen deposition
	Accidental release of contaminants (onshore) In-combination Increased nitrogen deposition Collision risk
	Accidental release of contaminants (onshore) In-combination Increased nitrogen deposition Collision risk In-combination
Humber Estuary SPA (offshore) Humber Estuary Ramsar (offshore)	Accidental release of contaminants (onshore) In-combination Increased nitrogen deposition Collision risk In-combination Collision risk In-combination
	Accidental release of contaminants (onshore) In-combination Increased nitrogen deposition Collision risk In-combination Collision risk In-combination Direct disturbance and displacement
Humber Estuary Ramsar (offshore)	Accidental release of contaminants (onshore) In-combination Increased nitrogen deposition Collision risk In-combination Collision risk In-combination Direct disturbance and displacement Indirect impacts through the effects on prey
	Accidental release of contaminants (onshore)In-combinationIncreased nitrogen depositionCollision riskIn-combinationCollision riskIn-combinationDirect disturbance and displacement

Designations	Impacts Considered In Matrices
	In-combination
Farne Islands SPA	Direct disturbance and displacement Indirect impacts through the effects on prey species Collision risk Barrier effect In-combination
Teesmouth and Cleveland Coast SPA	Direct disturbance and displacement Indirect impacts through the effects on prey species Collision risk Barrier effect In-combination
St Abb's Head and Fast Castle	Direct disturbance and displacement Indirect impacts through the effects on prey species Collision risk Barrier effect In-combination
Forth Islands (UK) SPA	Direct disturbance and displacement Indirect impacts through the effects on prey species Collision risk Barrier effect In-combination
Outer Firth of Forth and St Andrew's Complex	Direct disturbance and displacement Indirect impacts through the effects on prey species Collision risk Barrier effect In-combination
Fowlsheugh SPA	Direct disturbance and displacement Indirect impacts through the effects on prey species Collision risk Barrier effect
	In-combination

Designations	Impacts Considered In Matrices
	Changes in prey availability & behaviour
	Indirect impacts through effects on prey
	species
	Collision risk
	Barrier effects
	In-combination
	Direct disturbance and displacement
	Indirect impacts through the effects on prey
	species
Troup, Pennan and Lion's Heads SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through the effects on prey
	species
East Caithness Cliffs SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through the effects on prey
	species
North Caithness Cliffs SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through the effects on prey
	species
Copinsay SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through the effects on prey
	species
Hoy SPA	Collision risk
	Barrier effect
	In-combination
Manuals Hand SDA	Direct disturbance and displacement
Marwick Head SPA	Indirect impacts through the effects on prey
	species

Designations	Impacts Considered In Matrices
	Collision risk Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through effects on prey species
Rousay SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through effects on prey
Calf of Eday SPA	species
Call of Eddy SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through effects on prey
West Westray SPA	species
-	Collision risk
	Barrier effect In-combination
	Direct disturbance and displacement Indirect impacts through effects on prey
	species
Fair Isle SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through effects on prey
	species
Sumburgh Head SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through effects on prey
Noss SPA	species
	Collision risk
	Barrier effect
	In-combination

Designations	Impacts Considered In Matrices
	Direct disturbance and displacement
	Indirect impacts through effects on prey
Foula SPA	species
Fould SFA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through effects on prey
Fetla SPA	species
retta SPA	Collision risk
	Barrier effect
	In-combination
	Direct disturbance and displacement
	Indirect impacts through effects on prey
Hormanosa, Sava Vord and Valla Field SPA	species
ermaness, Saxa Vord and Valla Field SPA	Collision risk
	Barrier effect
	In-combination
Hornseg Mere SPA	Collision risk
Hornsed Mere SPA	In-combination
	Direct disturbance and displacement
	Changes in prey availability and behaviour
	Indirect impacts through effects on prey
Northumberland Marine SPA	species
	Collision risk
	Barrier effect
	In-combination

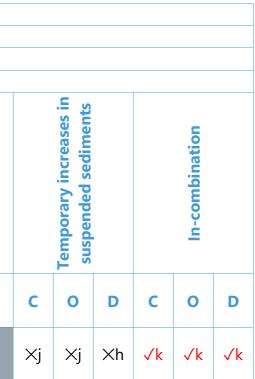
HRA Screening Matrix 1: Southern North Sea (UK) Special Area of Conservation (SAC)

Name of European site:	Sou	thern	Nort	h Sea	(UK)	SAC												
EU Code:	UK0	0303	95															
Distance to Project:	0 km to array																	
Likely Effects of Project																		
Effect		Vessel disturbance				Vessel collision risk			Accidental pollution			Changes in prey availability &behaviour		ong term physical loss of habitat				
Stage of Development	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	С	ο	D
Harbour porpoise	√a	√a	√b	√c	√d	√b	√e	√e	√b	√f	√f	√b	×g	×g	×h		×i	

Evidence supporting conclusions.

- Hornsea Four is located within 0 km of the SAC. There is potential for a likely significant effect (LSE). √a
- The impacts during decommissioning are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate. √b
- The presence of additional vessels within the SAC during construction may result in disturbance of harbour porpoise. Potential LSE is identified. √c
- The presence of additional vessels within the SAC during operation & maintenance may result in disturbance of harbour porpoise. Potential LSE is identified. √d
- Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase √e the risk of mortality in marine mammals from collisions. The recently re-issued 'Advice on Activities' finds that the risk of death or injury collision to be 'not currently considered a significant risk and no additional management is likely to be required'. However, as a precaution (given the significance for an individual if collision occurs), potential LSE has been identified for the project alone.
- Following consultation (noted in Section 8.1 of the Report to Inform Appropriate Assessment (RIAA) (APP-B2.2) accidental pollution has been identified for potential LSE. √f
- Given the large foraging range of this species and the short-term duration and temporary nature of any impact, and the conclusions of the ES regarding fish and benthic ecology the potential effect Χa is considered to be negligible. Confirmed as not needing further assessment within Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- ×h The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- Potential for physical habitat loss for the duration of the project is calculated within the Screening Report included as Appendix A (contained within Table 1), being 0.0001% of the volume (water Xi column) and 0.01% of the footprint (seabed), considered to be trivial and non-consequential for both harbour porpoise and harbour porpoise prey. Confirms conclusion of **no LSE** alone.
- Harbour porpoise frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning Xi activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- √k Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. In addition, although the potential for temporary habitat loss from the project alone has not been identified as potential LSE, habitat loss in-combination during the operation phase has been screened in for potential LSE.

End of Matrix 1



HRA Screening Matrix 2: Flamborough Head (UK) Special Area of Conservation (SAC)

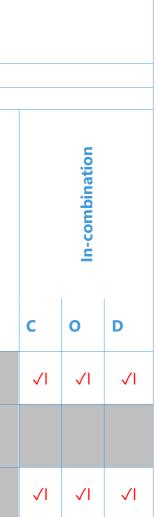
Name of European site:	Flam	borou	ugh H	ead (l	JK) SA	C															
EU Code:	UK0	01303	6																		
Distance to Project:	60.2	km to	o array	/																	
Likely Effects of Project																					
Effect		Temporary habitat loss/ disturbance			Temporary increases in suspended sediments / smothering			Accidental pollution			Invasive Non Native Species (INNS)			Changes to physical processes					Electromagnetic fields (EMF)		
Stage of Development	С	ο	D	с	ο	D	с	ο	D	с	0	D	с	ο	D	С	0	D	С	0	D
Reefs	×a	×a	×b	√c	√d	√e	√f	√f	√e	√g	√h	√e		√i			×j			×k	
Vegetated sea cliffs of the Atlantic & Baltic Coasts																					
Submerged or partially submerged sea caves	Xa	Xa	×b	√c	√d	√e	√f	√f	√e	√g	√h	√e		Хm			×j			×k	

Evidence supporting conclusions.

- ×a Lack of physical overlap between Hornsea Four and the SAC results in a conclusion of no Likely Significant Effects (LSE) for all features as no works will occur within the SAC boundary and therefore no temporary habitat loss/disturbance would occur.
- ×b The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- √c Suspended sediment released during works within the Export Cable Corridor (ECC) may reach the SAC, within which the features are located. Potential for LSE exists.
- Vd The potential for sediment release during operation and maintenance is considered less than during construction. Suspended sediment released during works within the ECC may reach the SAC, within which the features are located. Potential for LSE exists.
- Ve The impacts during decommissioning are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- Following consultation (noted in Section 8.1 of the Report to Inform Appropriate Assessment (APP-B2.2) (RIAA) accidental pollution has been identified for potential LSE. √f
- A number of measures and best practice approaches will be implemented during the construction phase to reduce the potential for release and spread of non-native, invasive species (INNS) and to √g provide a process to deal with any should they occur. These will include measures to follow published guidelines and best working practice for the prevention of the release and spread of non-native, invasive species. Such measures are considered an integral part of the project and would be required regardless of HRA matters. It is anticipated that such plans will remove the risk of LSE. In addition, there is little evidence to date from other offshore wind farm development within the North Sea having had any adverse effects on key species and habitats through increasing the spread of marine INNS. However, given that such plans form mitigation, the potential for LSE cannot be ruled out at this stage.

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HRA Screening Matrix 2: Flamborough Head (UK) SAC (Cont.)

Evidence supporting conclusions (Cont.)

- In the project could increase the spread of INNS during construction through the movement of vessels in and out of the benthic subtidal study area, should work vessels arrive from outside the UK. Mitigation measures including a Construction Project Environmental Management and Monitoring Plan with a marine biosecurity plan (see Co111 of Volume A4, Annex 5.2: Commitment Register) will ensure the potential introduction and spread of INNS will be minimised. Due to the application of mitigation, a finding of LSE applies.
- Vi The only element of the project which is close enough to the SAC to potentially affect coastal processes is installation of the export cable. Volume 2 Chapter 1 of the Environmental Statement (ES) (Marine Geology, Oceanography and Physical Processes (APP-A2.1)) found any such changes to be localised to the project. However, given the proximity of the cable corridor to the SAC boundary and therefore potentially reef features, although significant effects are unlikely a potential for LSE cannot be ruled out.
- There is no longer any overlap of the offshore ECC with the SAC boundary, and therefore no potential for any loss of habitat within the SAC. A finding of **no LSE** applies. Xj
- There is no overlap of the offshore ECC with the SAC boundary. Therefore, no potential for electromagnetic fields (EMF) within the SAC boundary. A finding of **no LSE** therefore applies. Xk
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. $\sqrt{|}$
- ×m There is no potential for overlap between Annex I Habitats and Hornsea Four. Any changes to physical processes will be small scale and localised in nature, insufficient to affect the sea cave feature. A finding of **no LSE** therefore applies.

End of Matrix 2



HRA Screening Matrix 3: Moray Firth (UK) Special Area of Conservation (SAC)

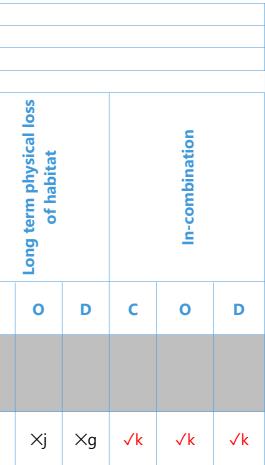
Name of European site:	Мо	ray Fi	rth (UI	() SAC															
EU Code:	UK	0198	80																
Distance to Project:	522	.5 km	to arr	ay															
Likely Effects of Project																			
Effect		Increase in underwater			Vessel disturbance			Vessel collision risk			Changes in prey availability and	Denaviour		Accidental pollution					
Stage of Development	с	ο	D	с	ο	D	с	0	D	с	ο	D	с	ο	D	с	ο	D	С
Sandbanks which are slightly covered by sea water all the time											_								
Bottlenose dolphin	√a	×b	√c	√d	√d	√c	√e	√e	√c	×f	×f	×g	×h	×h	×g	×i	×i	×g	×j

Evidence supporting conclusions.

- Va Following consultation (noted in Section 8.1 of the Report to Inform Appropriate Assessment (RIAA) (APP-B2.2) increase in underwater noise during construction has been identified for potential LSE.
- Designated site and array boundary do not have a physical overlap, therefore there is no pathway for underwater noise during operation on bottlenose dolphin at this site from Hornsea Four. Xb
- The impacts during decommissioning are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate √c
- Following consultation (noted in Section 8.1 of the Report to Inform Appropriate Assessment (RIAA) (APP-B2.2) vessel disturbance has been identified for potential LSE. √d
- Following consultation (noted in Section 8.1 of the Report to Inform Appropriate Assessment (RIAA) (APP-B2.2), vessel collision risk has been identified for potential LSE. √e
- Given the large foraging range of this species and the short-term duration and temporary nature of any impact, and the conclusions of the ES regarding fish and benthic ecology the potential effect Χf is considered to be negligible. Confirmed as not needing further assessment within Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- ×q The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- ×h This site is located at a significant distance from the Hornsea Four array (522.5 km) and cable corridor (522.1 km) and therefore there is no pathway for effect on bottlenose dolphin at this site from Hornsea Four.
- Bottlenose dolphin frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning Xi activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- Xj Potential for physical habitat loss for the duration of the project will not occur inside the SAC boundary, being located at significant distance from the Hornsea Four array (522.5 km) and cable corridor (522.1 km). Confirms conclusion of **no LSE** alone.

Vk Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

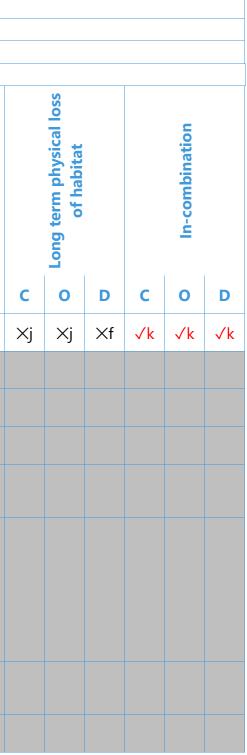
End of Matrix 3



HRA Screening Matrix 4: The Wash and North Norfolk Coast (UK) SAC

Name of European site:		Wash		North	Nor	folk C	oast ((UK) S	SAC									
EU Code:		01707																
Distance to Project:	105.	4 km	to arı	ray														
Likely Effects of Project																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability & behaviour			Accidental pollution			Temporary increases in suspended sediments	
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	0	D	С	ο	D	С	0	D
Harbour seal	√a	×b	√c	√d	√d	√c	×е	×e	×f	×g	×g	×f	×h	×h	×f	×i	×i	×f
Atlantic salt meadows																		
Coastal lagoons																		
Large shallow inlets and bays																		
Mediterranean and thermo-Atlantic halophilous scrubs																		
Mudflats and sandflats not covered by seawater at low tide																		
Reefs																		
Salicornia and other annuals colonising mud and sand																		
Sandbanks which are slightly covered by sea water all the time																		
Otter																		

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HRA Screening Matrix 4: The Wash and North Norfolk Coast (UK) SAC (Cont.)

Evidence supporting conclusions.

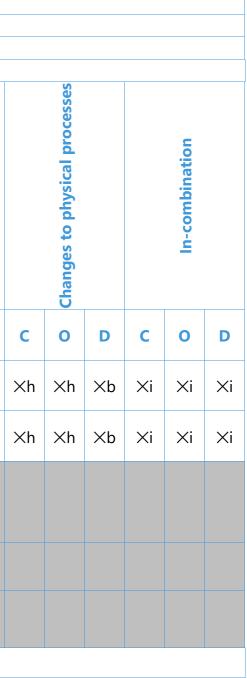
- Va Site within a distance of 120 km from the project. Therefore, there is the potential for some level of interaction between harbour seal and underwater noise associated with Hornsea Four. Potential for Likely Significant Effects (LSE) identified.
- ×b The distance between the array boundary and the SAC, low harbour seal numbers within the array boundary and the small scale and localised potential for effect during operation results in a conclusion of **no LSE**.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- Vd The location of Hornsea Four on the fringes of the at sea usage area of harbour seal may result in disturbance of harbour seal. Potential for LSE.
- Xe Volume 2, Chapter 4: Marine Mammals of the Environmental Statement (ES) (APP-A2.4) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. Low levels of harbour seal are found within the site boundary. Therefore, **no LSE** has been identified for the project alone.
- ×f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. **No LSE** applies.
- Given the large foraging range of this species, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not significant within Xa Volume 2, Chapter 4: Marine Mammals. No LSE identified.
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary, and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- ×i Harbour seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the RIAA. No LSE applies. Xi
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √k

End of Matrix 4

HRA Screening Matrix 5: River Derwent (UK) Special Area of Conservation (SAC)

Name of European site:	Rive	er Der	went	(UK)	SAC														
EU Code:	UK0	0302	53																
Distance to Project:	47*	km to	arra	y															
Likely Effects of Project																			
Effect		Release of sediment - suspension/smothering			Increase in underwater noise			Temporary habitat loss/ disturbance			Accidental pollution			Long term physical loss of habitat			Introduction of hard substrate		
Stage of Development	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	
Sea lamprey	Xa	Xa	×b	Xc	Xc	×b	×d	×d	×b	×e	Хe	×b	×f	×f	×b	×g	×g	×b	
River lamprey	Xa	Xa	×b	Xc	×c	×b	×d	×d	×b	×е	Xe	Хb	×f	×f	×b	×g	×g	×b	
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho- Batrachion vegetation																			
Bullhead																			
Otter																			
* Being the shortest distance between Hornsea Four a	nd the	Humb	er Estu	ary (ex	cludin	g strai	ght lin	es cro	ssing la	and)									

Cont. on next page



HRA Screening Matrix 5: River Derwent (UK) SAC (Cont.)

Evidence supporting conclusions.

- ×a The mouth of the Humber Estuary, which leads to the River Derwent, is located at least 47 km (excluding straight lines crossing land) from the Hornsea Four offshore Export Cable Corridor (ECC). Due to the lower maximum range of effect for this impact, it is considered that there is no potential for a Likely Significant Effect (LSE) to migratory fish moving into or out of the Humber Estuary and therefore migratory fish found within the River Derwent.
- ×b The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. **No LSE** applies.
- ×c The distance between the mouth of the Humber Estuary, which leads to the River Derwent, and the array area is approximately 74 km, with the cable corridor at least 47 km. It is therefore considered that there will be **no LSE** from underwater noise generated at Hornsea Four on migratory fish entering or leaving the mouth of the Humber Estuary and therefore the migratory fish found within the River Derwent.
- ×d The SAC does not physically overlap with Hornsea Four, and therefore is remote from direct temporary habitat loss or disturbance, with **no LSE** identified.
- ×e With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary, and subject to significant dilution and quickly dissipated to nonsignificant levels in the open coastal environment. No LSE would therefore arise with respect to accidental pollution.
- ×f The SAC does not physically overlap with Hornsea Four, and therefore is remote from long term habitat loss, with **no LSE** identified.
- ×q There is already a potential for non-native species to occur due to the presence of other local offshore windfarms (OWF)s and major shipping lanes. No additional risk is posed by Hornsea Four, should a hard substrate be introduced in proximity to the SAC (or in proximity to the mouth of the Humber Estuary) and therefore no LSE applies.
- ×h The only element of the project which is close enough to the mouth of the Humber Estuary (the route to the SAC) to potentially affect coastal processes is installation of the export cable. Volume 2 Chapter 1 of the Environmental Statement (ES) (Marine Geology, Oceanography and Physical Processes (APP-A2.1)) (APP-A2.1) found any such changes to be localised to the project and therefore **no LSE** applies.
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. Xi

End of Matrix 5



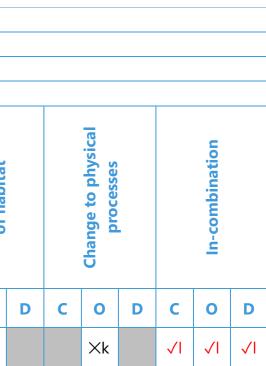
HRA Screening Matrix 6a: Grey seal - Humber Estuary (UK) Special Area of Conservation (SAC)

Name of European site:	Grey	seal ·	- Hum	ber E	stuary	/ (UK)	SAC														
EU Code:	UK0	03017	'0																		
Distance to Project:	79.7	km to	o arra	y and	32.2	km to	ECC														
Likely Effects of Project																					
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and	behaviour		Accidental pollution			emporary increas			Long term physical loss of habitat	
Stage of Development	С	ο	D	С	ο	D	с	ο	D	С	ο	D	с	ο	D	С	ο	D	С	ο	
Grey seal	√a	×b	√c	√d	√d	√c	√e	√e	√c	Xf	Xf	×g	×h	×h	×g	Xi	Xi	×g		×j	

Evidence supporting conclusions.

- Va This site is within 145 km of Hornsea Four. As this is places the project within foraging range, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. As such, potential LSE cannot be discounted.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE**.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, potential LSE is identified.
- The location of the project relative to the at sea usage area of grey seal together with connectivity to the SAC may result in disturbance of grey seal. Potential for LSE. √d
- Volume 2, Chapter 4: Marine Mammals of the Environmental Statement (ES) (APP-A2.4) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the √e risk of mortality in marine mammals from collisions. However, in response to consultation concerns about collision risk potential LSE is identified on a precautionary basis.
- ×f Given the large foraging range of this species, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further assessment within Volume 2, Chapter 4: Marine Mammals) (APP-A2.4). No LSE identified.
- ×q The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and guickly dissipated to nonsignificant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Xi Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- Xj No physical habitat loss within the SAC boundary has been identified within the ES. **No LSE** applies.
- ×k The Humber Estuary SAC at its closest point to Hornsea Four (avoiding straight lines crossing land) is 47km. The Volume 2 Chapter 1 of the Environmental Statement (ES) (Marine Geology, Oceanography and Physical Processes (APP-A2.1) found the maximum extent of change in physical processes to be insufficient to reach the Humber. On this basis, it is determined there is no potential for Likely Significant Effects (LSE) from Hornsea Four to the habitats and supporting habitats of the Humber Estuary SAC.
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. $\sqrt{|}$

End of Matrix 6a - Cont. on next page for additional features



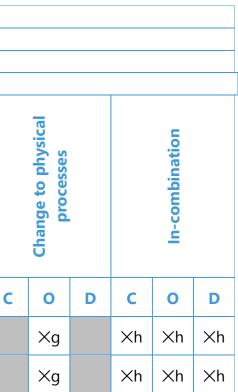
HRA Screening Matrix 6b: Migratory fish - Humber Estuary SAC

Name of European site:	Mig	ratory	y fish	- Hun	nber l	Estuai	y (Uk	() SA (2										
EU Code:	UKO	0301	70																
Distance to Project:	79.7	' km t	o arra	ay and	d 32.2	km t	o ECC	2											
Likely Effects of Project																			
Effect		Increase in underwater noise			Accidental pollution			Release of sediment suspension/smothering			Long term physical loss of habitat			Temporary habitat loss/ disturbance			Introduction of hard substrate (INNS)		
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	Ο	D	C
River lamprey Lampetra fluviatilis	Xa	×a	×b	Xc	Xc	×b	Xd	Xd	×b		×е		×е	Xe	×b		×f		
Sea lamprey Petromyzon marinus	Xa	×a	×b	Xc	Xc	×b	×d	×d	×b		×е		×е	×е	×b		×f		

Evidence supporting conclusions.

- ×a The site does not overlap with Hornsea Four and is located at least 47 km from its boundary (excluding straight lines crossing land), with the array even further distance. No potential for LSE with respect to underwater noise and fish accessing the Humber as a migration route, and **no LSE** applies.
- ×b The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- ×c While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- ×d The site does not overlap with Hornsea Four and is located at least 47 km from its boundary (excluding straight lines crossing land), with the array even further distance, which is outside the potential range of effect for suspended sediment and **no LSE** applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. **No LSE** applies. ×е
- ×f There is already a potential for non-native species to occur due to the presence of other local offshore wind farms and major shipping lanes. No additional risk is posed by Hornsea Four, should a hard substrate be introduced in proximity to the SAC **no LSE** applies.
- ×q The Humber Estuary SAC at its closest point to Hornsea Four (avoiding straight lines crossing land) is 47km. The Volume 2 Chapter 1 of the Environmental Statement (ES) (Marine Geology, Oceanography and Physical Processes (APP-A2.1)) (APP-A2.1) found the maximum extent of change in physical processes to be insufficient to reach the Humber. On this basis, it is determined there is no potential for Likely Significant Effects (LSE) from Hornsea Four to the habitats and supporting habitats of the Humber Estuary SAC.
- ×h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

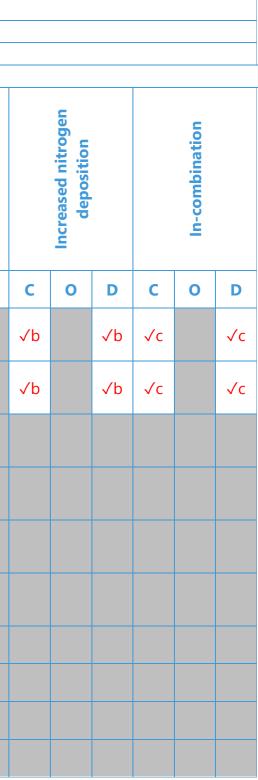
End of Matrix 6b Cont. on next page for additional features



HRA Screening Matrix 6c: Habitats - Humber Estuary SAC (UK)

Name of European site:	Hab	itats ·	Hum	ber E	stuar	y (UK) SAC											
EU Code:	UK0	03017	70															
Distance to Project:	79.7	ˈkm t	o arra	iy and	32.2	km t	o ECC											
Likely Effects of Project																		
Effect		Accidental pollution			Release of sediment suspension/smothering			Long term physical loss of habitat			Temporary disturbance / damage to habitats			Introduction of hard substrate (INNS)	,		Change to physical processes	
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D
Atlantic salt meadows (Glauco-Puccinellietalia maritimae)																	Xa	
Salicornia and other annuals colonising mud and sand																	Xa	
Mudflats and sandflats not covered by seawater at low tide																		
Sandbanks slightly covered by sea water all the time																		
Fixed dunes with herbaceous vegetation																		
Shifting dunes along the shoreline with Ammophila arenaria																		
Estuaries																		
Coastal lagoons * Priority feature																		
Dunes with Hippophae rhamnoides																		
Embryonic shifting dunes																		

Cont. on next page



HRA Screening Matrix 6c: Habitats of the Humber Estuary SAC (cont.)

Evidence supporting conclusions (habitats).

- ×a The Humber Estuary SAC at its closest point to Hornsea Four (avoiding straight lines crossing land) is 47 km. Volume 2 Chapter 1 of the Environmental Statement (ES) (Marine Geology, Oceanography and Physical Processes (APP-A2.1) found the maximum extent of change in physical processes to be insufficient to reach the Humber. On this basis, it is determined there is no potential for Likely Significant Effects (LSE) from Hornsea Four to the habitats and supporting habitats of the Humber Estuary SAC.
- **V** The air quality assessment **Volume 3 Chapter 9** of the **ES** (**APP-A3.9**) has highlighted that there will be a potential, temporary increase in nitrogen deposition on an area of saltmarsh within the Humber SAC associated with construction traffic on the A63. Potential LSE cannot be discounted without further consideration.
- Vc Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. Additional note: The habitats of the SAC provide supporting habitat to the designated bird species of the Humber Estuary SPA (see Screening Matrix 26) and Humber Estuary Ramsar (see Screening

Matrix 7c). The potential implications of the project for this supporting habitat (and associated species) have been considered.

End of Matrix 6c

End of Humber Estuary SAC matrices.



HRA Screening Matrix 7a: Grey seal and Natterjack toad - Humber Estuary (UK) Ramsar (Ramsar Criterion 3)

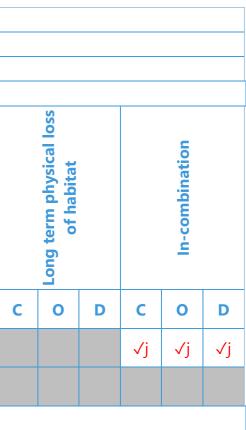
Name of European site:	Grey	, seal	and I	Vatte	rjack 1	toad -	Hum	ber R	lamsa	r (UK)								
EU Code:	UK1	1031																	
Distance to Project:	77.9	km fo	or arra	ay to	Humb	oer an	d 32.	2km l	ECC										
Likely Effects of Project																			
Effect	Increase in underwater noise Vessel disturbance Vessel collision risk Accidental pollution									riemporary increases in suspended sediments									
Stage of Development	С	ο	D	с	ο	D	С	ο	D	с	ο	D	с	ο	D	с	ο	D	
Grey seal (Ramsar Criterion 3)	√a	×b	√c	√d	√d	√c	√e	√e	√c	×f	×f	×g	×h	×h	×g	Xi	×i	×g	
Natterjack toad (Ramsar Criterion 3)																			

*Being the shortest distance between Hornsea Four and the Humber Estuary (excluding straight lines crossing land)

Evidence supporting conclusions.

- Va This site is within 145 km of Hornsea Four. As this is places the project within foraging range, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. As such, potential LSE cannot be discounted.
- ×b The distance between the array boundary and the Ramsar, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE**
- Vc The impacts during decommissioning are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- Vd The location of the project relative to the at sea usage area of grey seal together with connectivity to the Ramsar may result in disturbance of grey seal. Potential for LSE.
- Volume 2, Chapter 4: Marine Mammals of the Environmental Statement (ES) (APP-A2.4) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the √e risk of mortality in marine mammals from collisions. However, in response to consultation concerns collision risk has been screened in for potential LSE on a precautionary basis
- ×f Given the large foraging range of this species, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further assessment within Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate. Χq
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this Ramsar population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and guickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this Ramsar population.
- Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will Xi be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √i

End of Matrix 7a Cont. on next page for additional features



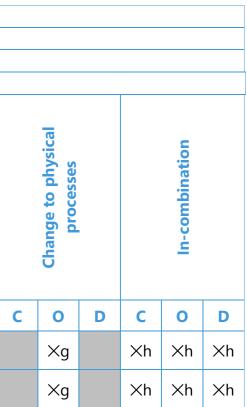
HRA Screening Matrix 7b: Migratory fish - Humber Estuary (UK) Ramsar – (Ramsar Criterion 8)

Name of European site:	Mig	ratory	/ fish	of the	e Hun	nber F	Ramsa	ar (Uk	()										
EU Code:	UK1	1031																	
Distance to Project:	77.9	km fo	or arra	ay to	Hum	oer an	d 32.	2km l	ECC										
Likely Effects of Project																			
Effect		Increase in underwater noise			Accidental pollution			Release of sediment suspension/smothering			Long term physical loss of habitat			Temporary habitat loss/ disturbance			Introduction of hard substrate (INNS)		
Stage of Development	С	Ο	D	С	0	D	С	Ο	D	С	0	D	С	ο	D	С	ο	D	
River lamprey (Ramsar criterion 8)	Xa	×a	×b	Xc	Xc	×b	×d	×d	×b		×e		×е	×е	×b	×f	×f		
Sea lamprey (Ramsar criterion 8)	Xa	×a	×b	Хc	Хc	×b	×d	×d	×b		×е		×е	×е	Хb	×f	×f		

Evidence supporting conclusions.

- ×a The site does not overlap with Hornsea Four and is located at least 47 km from its boundary (excluding straight lines crossing land), with the array even further distance. No potential for LSE with respect to underwater noise and fish accessing the Humber as a migration route, and **no LSE** applies.
- ×b The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- While connectivity between the project and this site is possible, the potential for significant effects to this Ramsar population is considered to decrease with the severity of effects experienced locally Xc and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this Ramsar population.
- ×d The site does not overlap with Hornsea Four and is located at least 47 km from its boundary (excluding straight lines crossing land), with the array even further distance, which is outside the potential range of effect for suspended sediment and **no LSE** applies.
- Xe No physical habitat loss within the Ramsar boundary has been identified within the ES. **No LSE** applies.
- There is already a potential for non-native species to occur due to the presence of other local OWFs and major shipping lanes. No additional risk is posed by Hornsea Four, should a hard substrate Χf be introduced in proximity to the Ramsar **no LSE** applies.
- The Humber Estuary Ramsar at its closest point to Hornsea Four (avoiding straight lines crossing land) is 47km. The Volume 2 Chapter 1 of the Environmental Statement (ES) (Marine Geology, Xq Oceanography and Physical Processes (APP-A2.1)) found the maximum extent of change in physical processes to be insufficient to reach the Humber. On this basis, it is determined there is no potential for Likely Significant Effects (LSE) from Hornsea Four to the habitats and supporting habitats of the Humber Estuary Ramsar.
- ×h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

End of Matrix 7b - Cont. on next page for additional features



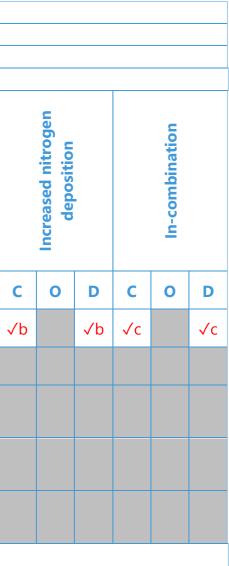
HRA Screening Matrix 7c: Habitats - Humber Estuary (UK) Ramsar (Ramsar Criterion 1)

Hab	itats	of the	e Hur	nber	Estua	ry Ra	msar											
UK1	1031																	
77.9	km f	or arr	ay to	Hum	nber a	nd 3	2.2kn	n ECC										
	Accidental pollution			Release of sediment suspension/smothering			Long term physical loss of habitat			Temporary disturbance / damage to habitats)		Introduction of hard substrate (INNS)			Change to physical processes	-	
С	0	D	С	С	ο	D	С	ο	С	ο	D	С	0	D	с	ο	D	
																Xa		`
	UK1 77.9	UK11031 77.9km for Vaccidental bollution	UK11031 77.9km for arr Ollution Accidental	UK11031 77.9km for array to Vocidental bollution Vocidental bollution	Accidental pollution Release of sediment suspension/smothering	UK11031 77.9km for array to Humber a Busbension/smothering sarsbension/smothering	UK11031 77.9km for array to Humber and 3 Belease of sediment sasbension/smothering	Accidental pollution Accidental pollution Release of sediment Long term physical loss of habitat	Accidental pollution Accidental pollution Release of sediment Long term physical loss of habitat of habitat	UK11031 77.9km for array to Humber and 32.2km ECC Build loss of sediment of habitat of habitat of habitat suspension/smothering	Accidental pollution Accidental pollution Accidental pollution Release of sediment suspension/smothering Long term physical loss I amage to habitat / damage to habitat	OK11031 Accidental pollution Accidental pollution Release of sediment Release of sediment Release of sediment Image of habitat Compared to habitat / damage to habitats	UK11031 Accidental pollution Accidental pollution Release of sediment Release of sediment Release of sediment Image of habitat Image of habitat / damage to habitat / damage to habitat	Accidental pollution Accidental pollution Accidental pollution Accidental pollution Release of sediment Release of sediment Release of sediment Introduction of habitat Introduction of habitat Substrate (INNS)	Accidental pollution Accidental pollution Accidental pollution Release of sediment suspension/smothering of habitat / damage to habitat substrate (INNS)	Accidental pollution Accidental pollution Accidental pollution Accidental pollution Release of sediment Release of sediment of habitat / damage to habitat substrate (INNS) substrate (INNS)	OK11031 Accidental pollution O O O O O Accidental pollution 7.0 0 7 0 7 7 7 7 7 7.1031 2.5 </td <td>UK11031 Accidental pollution O O O O O O Accidental pollution 7.0 0 0 0 0 0 0 0 Accidental pollution Accidental pollution Accidental pollution 0 0 0 1</td>	UK11031 Accidental pollution O O O O O O Accidental pollution 7.0 0 0 0 0 0 0 0 Accidental pollution Accidental pollution Accidental pollution 0 0 0 1

Evidence supporting conclusions (habitats).

- ×a The Humber Estuary Ramsar at its closest point to Hornsea Four (avoiding straight lines crossing land) is 47 km. Volume 2 Chapter 1 of the Environmental Statement (ES) (Marine Geology, Oceanography and Physical Processes (APP-A2.1) found the maximum extent of change in physical processes to be insufficient to reach the Humber. On this basis, it is determined there is no potential for Likely Significant Effects (LSE) from Hornsea Four to the habitats and supporting habitats of the Humber Estuary Ramsar.
- Vb The air quality assessment Volume 3 Chapter 9 (APP-A3.9) of the ES has highlighted that there will be a potential, temporary increase in nitrogen deposition on an area of saltmarsh within the Humber Ramsar associated with construction traffic on the A63. Potential LSE cannot be discounted without further consideration.
- Vc Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

End of Matrix 7c Cont. on next page for additional features



HRA Screening Matrix 7d: Ornithology - Humber Estuary (UK) Ramsar - (Ramsar Criterion 5 and 6)

Name of European site:	Orn	ithol	ogy	of the	e Hui	nber	Estu	ary F	Rams	ar														
EU Code:	UK	1103	1																					
Distance to Project:	77.9	9km 1	for a	rray t	o Hu	mbe	r and	1 32.2	2km l	CC														
Likely Effects of Project																								
Effect		Temporary habitat loss (onshore)		Tomorout		to habitats (onshore)		Habitat fragmentation or severance			noise and visual)	(onshore)		Invasive non-native species (onshore)		Arridontal release of		(onshore)		collision risk			In-combination	
Stage of Development	С	0	D	С	0	0	С	0	D	С	0	D	С	ο	D	С	ο	D	с	0	D	С	0	D
Golden plover (Ramsar Criterion 6)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Хb	Хb	Xb	Хb	×b	Хb	Хb	×b		√c			√d	
Dunlin (Ramsar Criterion 6)	×a	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Хb	Хb	Хb	Хb	×b	Хb	Хb	×b		√c			√d	
Black-tailed godwit (Ramsar Criterion 6)	×a	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Хb	Хb	Xb	Хb	×b	Хb	Хb	Хb		√c			√d	
Bar-tailed godwit (Ramsar Criterion 6)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Хb	Xb	Xb	Хb	Хb	Хb	Хb	Хb		√c			√d	
Redshank (Ramsar Criterion 6)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Хb	×b	Xb	Хb	×b	Хb	Хb	Хb		√c			√d	
Shelduck (Ramsar Criterion 6)	×a	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Хb	Xb	Xb	Хb	Хb	Хb	Хb	Хb		√c			√d	
Knot (Ramsar Criterion 6)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Хb	Xb	Xb	×ь	×ь	Хb	Хb	×ь		√c			√d	
Waterbird assemblage (non-breeding) (Criterion 5)*	Xa	Xa	Xa	Xa	Xa	Ха	Xa	Xa	Xa	Xb	Xb	Xb	Xb	Хb	Хb	Xb	Хb	Хb		√c			√d	

Evidence supporting conclusions.:

- ×a The site does not physically overlap with the onshore Hornsea Four boundaries and therefore does not result in loss of habitat, disturbance, damage, or fragmentation. A finding of no likely significant effects (LSE) applies.
- ×b Although it is possible that these species may use habitat within the onshore Hornsea Four boundaries, given the expansive landscape of similar habitat in the project surrounds and immediately adjacent to the Ramsar site. It is very unlikely that birds will expend large amounts of valuable energy flying over suitable habitat in order to use areas that may be affected by Hornsea Four that are more than 7 km away. Therefore, it is reasonable to conclude that there are **no LSE**.
- Vc It is estimated that only very small potential impacts / effects would occur on all migratory waterbird species and hen harrier from individual developments in the North Sea. However, in order to provide a quantification of any potential impacts and effects potential LSE is identified for these species.
- Vd Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

End of Matrix 7 (a-d)

HRA Screening Matrix 8: Berwickshire and North Northumberland Coast (UK) Special Area of Conservation

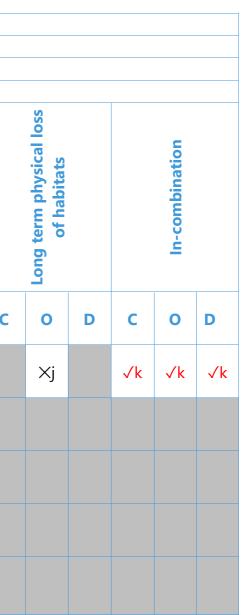
Name of European site:	Berv	vicksh	ire an	d Nor	th No	rthum	berla	nd Coa	ast (U	K) SA	C								
EU Code:	UK0	01707	2																
Distance to Project:	201.	4 km 1	to arra	ay															
Likely Effects of Project																			
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and	behaviour		Accidental pollution			Temporary increases in suspended sediments	-	
Stage of Development	C O D				ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	С
Grey seal	√a	×b	√c	√d	√d	√c	√e	√e	√c	×f	×f	×g	×h	×h	×g	×i	Xi	×g	
Large shallow inlets and bays																			
Mudflats and sandflats not covered by seawater at low tide																			
Reefs																			
Submerged and partially submerged sea caves																			

Evidence supporting conclusions.

- Va This site is not within 145 km of Hornsea Four Site, but some site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. The potential for likely significant effects (LSE) is therefore identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE**.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. A finding of potential LSE is therefore appropriate.
- The location of the project relative to the at sea usage area of grey seal together with connectivity to the SAC may result in disturbance of grey seal. Potential for LSE. √d
- Ve Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. However, in response to consultation concerns collision risk (particularly in-combination) has been screened in for potential LSE on a precautionary basis.

Cont. on next page





HRA Screening Matrix 8: Berwickshire and North Northumberland Coast SAC (cont.)

Evidence supporting conclusions (cont.)

- ×f Given the large foraging range of this species, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further assessment within Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- Хg The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no LSE is appropriate.
- Χh While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Xi Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- Xi No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies.
- √k Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

End of Matrix 8.

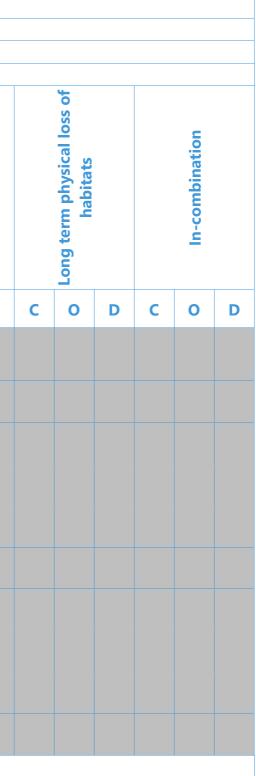


HRA Screening Matrix 9a: Transboundary harbour porpoise sites - sites 1 to 10 (of 48)

Name of European site:	Trar	nsbou	ndary	<mark>/ harb</mark>	our p	orpoi	se sit	es (48	3 sites	5)*								
EU Code:	Vari	ous																
Distance to Project:	78 t	o 768	km t	o arra	y													
Likely Effects of Project																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental pollution			Temporary increases in suspended sediments	
Stage of Development	С	ο	D	С	ο	D	С	ο	D	с	ο	D	с	ο	D	с	ο	D
Agger Tange, Nissum Bredning, Skibsted Fjord og Agerø (Denmark) SAC																		
Anse de Vauville (France) SAC																		
Baie de Canche et couloir des trois estuaires (France) SAC																		
Baie de Seine occidentale (France) SAC																		
Baie de Seine orientale (France) SAC																		
Banc et récifs de Surtainville (France) SAC																		
Bancs des Flandres (France) SAC																		
Borkum-Riffgrund (Germany) SAC																		
Doggerbank (Germany) SAC																		
Doggersbank (Dutch) SAC																		
*Note that some sites may be considered separately for	other	feature	e(s), no	tably s	seals													

All sites screened out based on 26 km effective disturbance range (EDR) (all sites located beyond that range). No Likely Significant Effects (LSE) identified.

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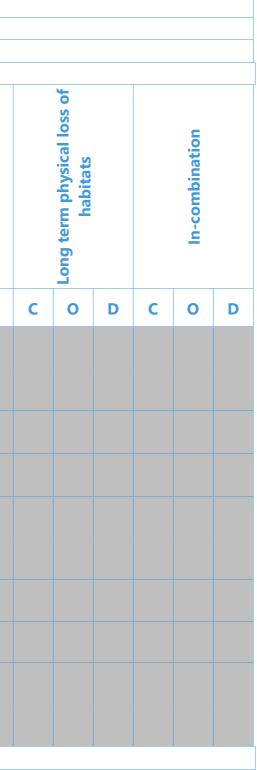


HRA Screening Matrix 9b: Transboundary harbour porpoise sites - sites 11 to 20 (of 48)

Name of European site:			ndary	harb	our p	orpoi	se sit	es (48	B sites	5)*								
EU Code:	Vari																	
Distance to Project:	78 t	o 768	km t	o arra	y													
Likely Effects of Project				1									1			1		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental pollution			Temporary increases in suspended sediments	
Stage of Development	С	ο	D	С	0	D	С	ο	D	С	0	D	С	0	D	С	ο	D
Dråby Vig (Denmark) SAC																		
Estuaire de la Seine (France) SAC																		
Estuaires et littoral picards (baies de Somme et d'Authie) (France) SAC Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et																		
Gule Rev (Denmark) SAC																		
Hamburgisches Wattenmeer (UK) SAC																		
Helgoland mit Helgoländer Felssockel (Germany) SAC																		
Jyske Rev, Lillefiskerbanke (Denmark) SAC																		
Klaverbank (Netherlands) SAC																		
Kosterfjorden-Väderöfjorden (Sweden) SAC																		
*Note that some sites may be considered separately for	other	feature	e(s), no	tably s	seals													

All sites screened out based on 26 km effective disturbance range (EDR) (all sites located beyond that range). No Likely Significant Effects (LSE) identified.

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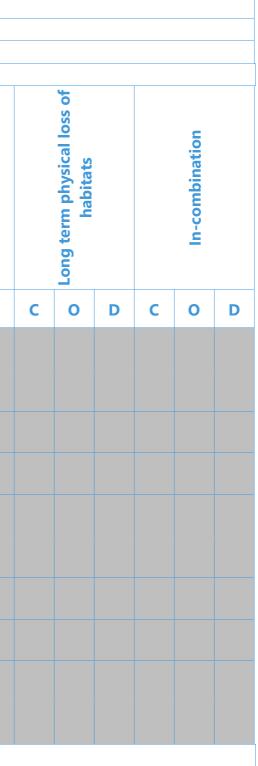


HRA Screening Matrix 9c: Transboundary harbour porpoise sites - sites 21 to 31 (of 48)

Name of European site:	Trar	<u>nsbou</u>	ndary	ı harb	our p	orpoi	ise sit	es (48	3 sites	5)*								
EU Code:	Vari	ous																
Distance to Project:	78 t	o 768	km t	o arra	y													
Likely Effects of Project																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour	•		Accidental pollution			Temporary increases in suspended sediments	
Stage of Development	С	ο	D	С	ο	D	с	ο	D	с	ο	D	С	Ο	D	С	0	D
Løgstør Bredning, Vejlerne og Bulbjerg (Denmark) SAC																		
Lønstrup Rødgrund (Denmark) SAC																		
Nationalpark Niedersächsisches Wattenmeer (Germany) SAC																		
Noordzeekustzone (Netherlands) SAC																		
NTP S-H Wattenmeer und angrenzende Küstengebiete (Germany) SAC																		
Oosterschelde (Netherlands) SAC																		
Récifs et landes de la Hague (France) SAC																		
Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire (France) SAC																		
Récifs Gris-Nez Blanc-Nez (France) SAC																		
Ridens et dunes hydrauliques du détroit du Pas- de-Calais (France) SAC																		

All sites screened out based on 26 km effective disturbance range (EDR) (all sites located beyond that range). No Likely Significant Effects (LSE) identified.

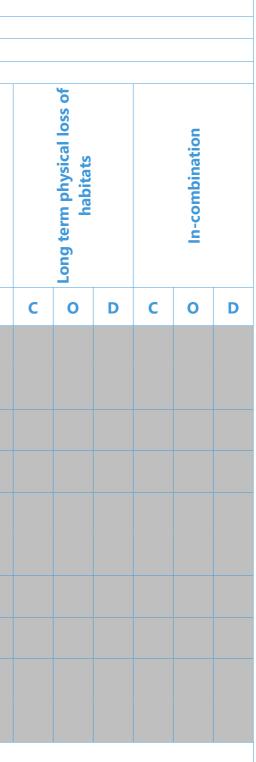
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HRA Screening Matrix 9d: Transboundary harbour porpoise sites - sites 32 to 40 (of 48)

Name of European site:		nsbou	ndary	/ harb	our p	orpoi	ise sit	es (48	3 sites	;)*								
EU Code:	Vari																	
Distance to Project:	/8 t	o 768	km t	o arra	y													
Likely Effects of Project Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental pollution			Temporary increases in suspended sediments	
Stage of Development	С	0	D	с	0	D	с	0	D	с	0	D	с	0	D	с	0	D
Sandbanker ud for Thorsminde (Denmark) SAC																		
SBZ 1 / ZPS 1 (Belguim)																		
SBZ 2 / ZPS 2 (Belguim)																		
SBZ 3 / ZPS 3 (Belguim)																		
Skagens Gren og Skagerak (Denmark) SAC																		
SPA Östliche Deutsche Bucht (Germany) SCI																		
Steingrund (Germany) SAC																		
Store Rev (Denmark) SAC																		
Sydlige Nordsø (Denmark) SAC																		
Sylter Aubenriff (Germany) SCI																		
*Note that some sites may be considered separately for	r other	featur	e(s), no	otably	seals													

All sites screened out based on 26 km effective disturbance range (EDR) (all sites located beyond that range). No Likely Significant Effects (LSE) identified. Cont. on next page



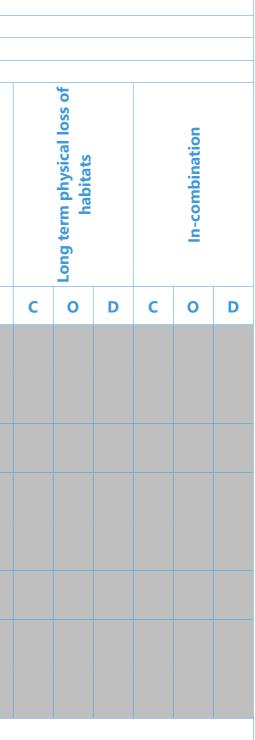
HRA Screening Matrix 9e: Transboundary harbour porpoise sites - sites 40 to 48 (of 48)

Name of European site:	Tran	nsbou	ndary	/ harb	our p	orpoi	ise sit	es (48	8 sites	5)*								
EU Code:	Vari	ous																
Distance to Project:	78 t	o 768	km t	o arra	y													
Likely Effects of Project																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental pollution			Temporary increases in suspended sediments	
Stage of Development	С	ο	D	С	0	D	С	Ο	D	С	ο	D	С	0	D	С	0	D
Thyborøn Stenvolde (Denmark) SAC																		
Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde (Denmark) SAC																		
Venø, Venø Sund (Denmark) SAC																		
Vlakte van de Raan (Belguim/Netherlands) SAC																		
Vlaamse Banken (Belguim) SAC																		
Voordelta (Netherlands) SAC																		
Waddenzee (Netherlands) SAC																		
Westerschelde and Saeftunghe (Netherlands) SAC																		
*Note that some sites may be considered separately for	other	feature	e(s), no	otably	seals													

Evidence supporting conclusions.

All sites screened out based on 26 km effective disturbance range (EDR) (all sites located beyond that range). No Likely Significant Effects (LSE) identified.

End of Matrix 9



HRA Screening Matrix 10: Transboundary bottlenose dolphin sites (6 sites)

Name of European site:	Tran	sbou	ndary	bott	enos	e dolp	ohin s	ites (6 site	s)								
EU Code:	Vari	ous																
Distance to Project:	78 t	o 768	km t	o arra	у													
Likely Effects of Project																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental pollution			Temporary increases in suspended sediments	
Stage of Development	с	ο	D	с	ο	D	с	ο	D	с	0	D	с	ο	D	с	ο	D
Anse de Vauville (France) Special Area of Conservation (SAC)																		
Banc et récifs de Surtainville (France) SAC																		
Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant (France) SAC																		
Baie de Seine orientale (France) SAC																		
Estuaires et littoral picards (baies de Somme et d'Authie) (France) SAC																		
Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire (France) SAC																		

Evidence supporting conclusions.

No Likely Significant Effects (LSE) alone or in-combination based on lack of connectivity to Hornsea Four.

End of Matrix 10

	Long term physical loss of habitats			In-combination	
С	ο	D	С	ο	D

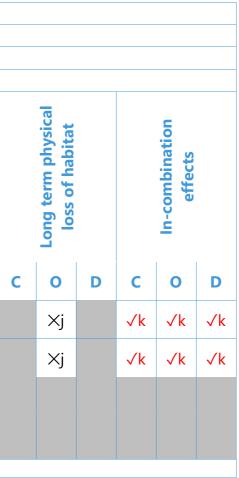
HRA Screening Matrix 11: Doggersbank (Dutch) Special Area of Conservation (SAC)

Name of European site:	Dog	gersb	ank (Dutcl	n) SAG	2													
EU Code:	NL2	00800)1																
Distance to Project:	84 k	m to	array																
Likely Effects of Project										1									
Effect	Tempo														i emporary increases in suspended 	sediments			
Stage of Development	С	ο	D	С	ο	D	с	ο	D	с	ο	D	С	ο	D	С	ο	D	
Grey seal	√a	×b	√c	√d	√d	√c	×е	×е	×f	×g	×g	×f	×h	×h	×f	×i	Xi	×f	
Harbour seal	√a	×b	√c	√d	√d	√c	×е	×е	×f	×g	×g	×f	×h	×h	×f	×i	Xi	×f	
Harbour porpoise*																			
Sandbanks which are slightly covered by sea water all the time																			
* Screened out based on 26 km effective disturbance	range	(EDR)	(site lo	cated	beyon	d that	range)												

Evidence supporting conclusions.

- Va Site within screening distance of the project for both harbour and grey seal. Therefore, there is the potential for some level of interaction between harbour seal and grey seal and underwater noise associated with Hornsea Four. The potential for likely significant effects (LSE) is therefore identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for both species of seal.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate. √c
- The location of the project relative to the at sea usage area of harbour seal and grey seal may result in disturbance of harbour seal and grey seal. Potential for LSE. √d
- Xe Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate. Χf
- Given the large foraging range of both species, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing Χq further assessment within Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.

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- Xi Harbour seal and grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, O&M and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies. Хj
- Vk Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.



HRA Screening Matrix 12: Klaverbank (Dutch) Special Area of Conservation (SAC)

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disturbance | | | Vessel collision
risk | | | | behaviour
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 | Accidental | | Temporary | increases in
suspended | sediments | | Long term
physical loss of | habitat | | In-combination |
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 | Xh
 | Xh | ×f | Xi | Xi | ×f | | ×j | | √k | √k | √k
 |
 | | |
 | | |
| √a | ×b | √c | √d | √d | √c | Хe | ×e | Xf | ×g | ×g | ×f
 | Xh
 | ×h | ×f | ×i | Xi | ×f | | ×j | | √k | √k | √k
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Evidence supporting conclusions.

- Va Site within screening distance of the project for both harbour and grey seal. Therefore, there is the potential for some level of interaction between harbour seal and grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for both species of seal.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate. √c
- The location of the project relative to the at sea usage area of harbour seal and grey seal may result in disturbance of harbour seal and grey seal. Potential for LSE. √d
- Xe Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate. Χf
- Given the large foraging range of both species, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further Χq assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary, and subject to significant dilution and quickly dissipated to nonsignificant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Xi Harbour seal and grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.



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- ×j No physical habitat loss within the SAC boundary has been identified within the ES. **No LSE** applies.
- Vk Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified



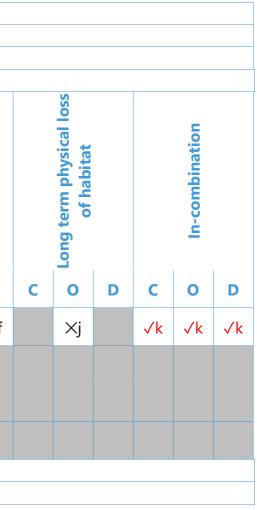
HRA Screening Matrix 13: Bancs des Flandres (France) Special Area of Conservation (SAC)

Name of European site:	Ban	cs de	s Flan	dres (Franc	e) SA	С											
EU Code:	FR3	1020)2															
Distance to Project:	296	km t	o arra	у														
Likely Effects of Project																		
Effect		Increase in underwater			Vessel disturbance			Vessel collision risk			changes in prey availability and	behaviour		Accidental Pollution			Temporary increases in suspended sediments	
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D
Grey seal	√a	×b	√c	√d	√d	√c	×е	×е	×f	×g	×g	×f	×h	×h	×f	Xi	Xi	Xf
Harbour seal#																		
Harbour porpoise*																		
Sandbanks which are slightly covered by sea water all the time																		
*Screened out based on 26 km effective disturbance ran	nge (ED	DR) (sit	e locat	ed bey	ond th	at ran	ge)											
#Screened out based on 120 km screening range and la	ck of si	ite con	nectivi	ity														

Evidence supporting conclusions.

- Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE. √d
- Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase Xe the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- ×f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further Χq assessment within Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.

Cont. on next page



- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary, and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Xi Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies. Хj
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √k



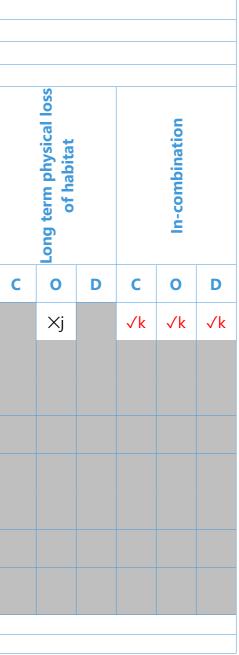
HRA Screening Matrix 14: Vlaamse Banken (Belgium) Special Area of Conservation (SAC)

Name of European site:	Vlaa	mse l	Banke	en (Be	lgium	n) SAC	2												
EU Code:	BEN	INZ00	001																
Distance to Project:	278	km to	o arra	у															
Likely Effects of Project																			
Effect	 According to the second structure of the															Temporary increases in suspended sediments			
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D	
Grey seal	√a	×b	√c	√d	√d	√c	×e	×e	×f	×g	×g	×f	×h	×h	×f	×i	Xi	×f	
Harbour seal#																			
Harbour porpoise*																			
Shad																			
Sea lamprey																			
River lamprey																			
Reef																			
Sandbanks slightly covered by sea water all the time																			
*Screened out based on 26 km effective disturbance	range (EDR) (site lo	cated b	eyond	l that r	ange)												
#Screened out based on 120 km screening range and	l lack o	f site c	onnect	tivity															

Evidence supporting conclusions.

- Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- \sqrt{d} The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE.

Cont. on next page



- ×e Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate. Χf
- Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further Χq assessment within Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities Xi will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies. Xj
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √k

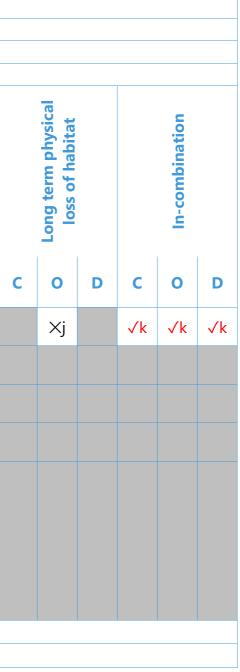


HRA Screening Matrix 15: SBZ 1 (Belgium) Special Area Conservation (SAC)

Name of European site:	SBZ	1 (Be	lgiun	ı) SAC															
EU Code:	BEN	INZ00	002																
Distance to Project:	313	km to	o arra	у															
Likely Effects of Project													1			1			
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			availability and	behaviour		Accidental Pollution		F	 Temporary Increases in suspended 	sediments	
Stage of Development	С	ο	D	с	ο	D	с	ο	D	С	0	D	с	ο	D	с	ο	D	
Grey seal	√a	×b	√c	√d	√d	√c	×e	×e	×f	×g	×g	×f	×h	Xh	Xf	Xi	Xi	×f	
Harbour seal#																			
Harbour porpoise*																			
Reef																			
Sandbanks which are slightly covered by sea water all the time																			
Shad																			
River lamprey																			
Sea lamprey																			
*Screened out based on 26 km effective disturbance	range (EDR) (site loo	ated b	eyond	that r	ange)												
#Screened out based on 120 km screening range and	l lack of	f site co	onnect	ivitv															

Evidence supporting conclusions.

- Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- √c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- \sqrt{d} The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE.



- ×e Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- Χf The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further Χq assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally Χh and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and guickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- ×i Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies. Xi
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √k

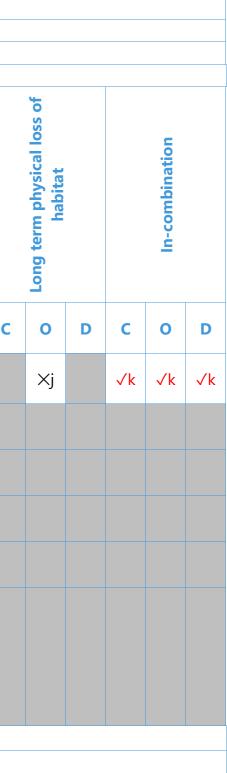


HRA Screening Matrix 16: SBZ 2 (Belgium) Special Area of Conservation (SAC)

Name of European site:	SBZ	2 (Be	lgium	n) SAC	2														
EU Code:	BEN	INZ00	003																
Distance to Project:	303	km to	o arra	у															
Likely Effects of Project																			
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental Pollution			Temporary increases in suspended sediments		
Stage of Development	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с
Grey seal	√a	×b	√c	√d	√d	√c	Xe	×e	×f	×g	×g	×f	×h	×h	×f	×i	Xi	×f	
Harbour seal#																			
Harbour porpoise*																			
Reef																			
Sandbanks which are slightly covered by sea water all the time																			
Shad																			
River lamprey																			
Sea lamprey																			
*Screened out based on 26 km effective disturbance	e range	e (EDR)) (site l	ocated	l beyo	nd that	t range	2)											
# Screened out based on 120 km screening range a	nd lack	of site	conn	ectivity	v														

Evidence supporting conclusions.

Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.



- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE. √d
- Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase Хe the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate. Χf
- Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further Χq assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally Χh and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary, and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities Xi will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. **No LSE** applies. Xi
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √k

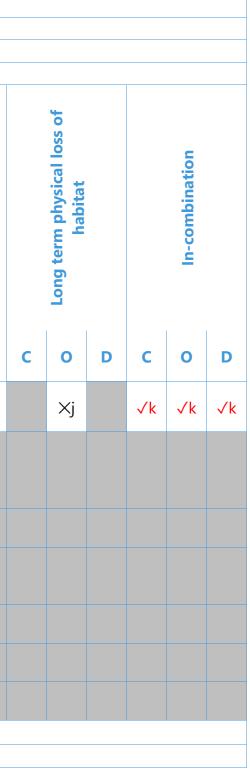
End of Matrix 16

HRA Screening Matrix 17: SBZ 3 (Belgium) Special Area of Conservation (SAC)

Name of European site:	SBZ	3 (Be	lgium	1) SAC														
EU Code:	BEN	INZ00)04															
Distance to Project:	307	km to	o arra	у														
Likely Effects of Project																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental Pollution	1		Temporary increases in suspended sediments	
Stage of Development	С	ο	D	с	0	D	С	ο	D	с	ο	D	с	ο	D	с	0	D
Grey seal	√a	×b	√c	√d	√d	√c	×e	×e	×f	×g	×g	×f	×h	Xh	×f	Xi	Xi	×f
Harbour seal#																		
Harbour porpoise*																		
Reef																		
Sandbanks which are slightly covered by sea water all the time																		
Shad																		
River lamprey																		
Sea lamprey																		
*Screened out based on 26 km effective disturbance	range (E	DR) (s	ite loca	ated be	eyond	that ra	nge)											
#Screened out based on 120 km screening range and					-													

Evidence supporting conclusions.

Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.



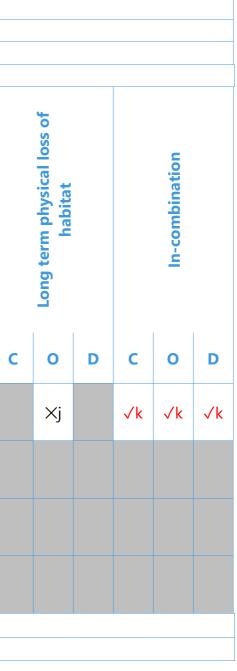
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- √c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- √d The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE.
- Xe Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- Χf The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- ×g Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and guickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Xi Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- Xj No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies.
- √k Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

HRA Screening Matrix 18: Vlakte van de Raan (Belguim/Netherlands) Special Area Conservation (SAC)

Name of European site:	Vlak	te va	n de l	Raan	(Belgi	um/N	lethe	rlands	s) SAG	C									
EU Code:	NL2	00800)3																
Distance to Project:	292	km to	arra	у															
Likely Effects of Project																			
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental Pollution			Temporary increases in suspended sediments	-	
Stage of Development	С	ο	D	с	ο	D	С	ο	D	с	ο	D	С	ο	D	с	ο	D	
Grey seal	√a	×b	√c	√d	√d	√c	×е	×e	×f	×g	×g	×f	×h	×h	×f	×i	×i	×f	
Harbour seal#															_				
Harbour porpoise*																			
Sandbanks which are slightly covered by sea water all the time																			
*Screened out based on 26 km effective disturbance	range	(EDR) (site lo	cated	beyond	d that i	ange)												
#Screened out based on 120 km screening range and	l lack o	f site c	onnec	tivity															

Evidence supporting conclusions.

- Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate. √c
- \sqrt{d} The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE.



- Xe Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- Χf The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- Хg Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- $\times h$ While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Xi Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- Хj No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies.
- √k Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.



HRA Screening Matrix 19: Westerschelde & Saeftinghe (Netherlands) Special Area Conservation (SAC)

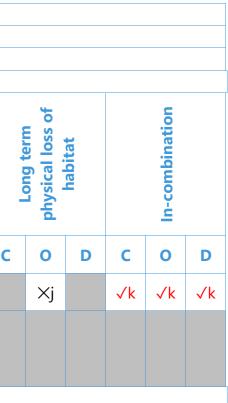
Name of European site:	Wes	terscl	helde	& Sad	efting	<mark>jhe (</mark> N	lethe	rlands	s) SAC										
EU Code:	NL9	8030	51																
Distance to Project:	301	km to	o arra	у															
Likely Effects of Project	I																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			∎. <u>₹</u> .	behaviour		Accidental Pollution		Temporary	increases in suspended	sediments	
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С
Grey seal	√a	×b	√c	√d	√d	√c	Хe	×е	×f	×g	×g	×f	×h	×h	×f	Xi	×i	×f	
Harbour seal#																			
Harbour porpoise*																			
*Scrooned out based on 26 km offective dist) /-:+-			410.04		C	lt	haaad .	120		.		a d la ala	. f .:				

*Screened out based on 26 km effective disturbance range (EDR) (site located beyond that range) #Screened out based on 120 km screening range and lack of site connectivity

Evidence supporting conclusions – grey seal.

- Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, potential LSE is identified.
- The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE. √d
- Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase Хe the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- ×f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- Χq Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and guickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Xi Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies. Xj
- √k Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

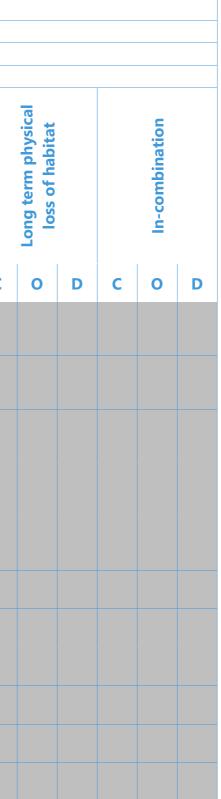
Cont. on next page for additional features



HRA Screening Matrix 19: Westerschelde & Saeftinghe (Netherlands) (Cont.)

Name of European site:	Wes	stersc	helde	& Sa	efting	he (N	lethe	lands	s) SAC	2									
EU Code:	NL9	8030	51																
Distance to Project:	301	km to	o arra	у															
Likely Effects of Project	·																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			 Cnanges in prey availability and 	behaviour		Accidental Pollution			Temporary increases in suspended sediments		
Stage of Development	С	0	D	С	Ο	D	С	0	D	С	ο	D	С	ο	D	С	0	D	C
Salicornia and other annuals colonizing mud and sand																			
Shifting dunes along the shoreline with Ammophila arenaria																			
Fixed coastal dunes with herbaceous vegetation																			
Sandbanks which are slightly covered by sea water all the time																			
Mudflats and sandflats not covered by seawater at low tide																			
Estuaries																			
Dunes with Hippophaë rhamnoides																			
Embryonic shifting dunes																			
Spartina swards																			
Atlantic salt meadows																			
Humid dune slacks																			

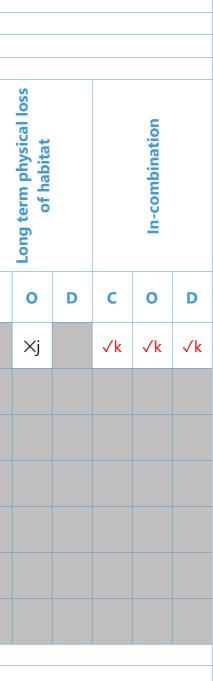
End of Matrix 19



HRA Screening Matrix 20: Voordelta (Netherlands) Special Area of Conservation (SAC)

Name of European site:	Voo	rdelta	ı (Net	herla	nds) S	SAC													
EU Code:	NL4	00001	7																
Distance to Project:	272	km to	o arra	у															
Likely Effects of Project																			
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and	behaviour		Accidental Pollution			Temporary increases in suspended sediments	-	
Stage of Development	С	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с
Grey seal	√a	×b	√c	√d	√d	√c	×е	Xe	×f	×g	×g	×f	×h	Xh	×f	Xi	Xi	×f	
Harbour seal#																			
Harbour porpoise*																			
Allis shad																			
Shad																			
Lampern																			
Great sea lamprey																			
*Screened out based on 26 km effective	disturbance ran	ge (ED	R) (sit	e locat	ed bey	ond th	nat ran	ge)											
#Screened out based on 120 km screeni	ng range and lac	k of si	te con	nectivi	ty														

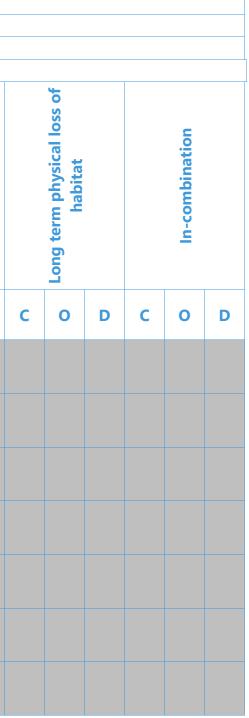
Cont. on next page



HRA Screening Matrix 20: Voordelta (Netherlands) SAC (Cont.)

Name of European site:	Voo	rdelta	a (Net	herla	nds) S	SAC												
EU Code:	NL4	00001	17															
Distance to Project:	272	km to	o arra	у														
Likely Effects of Project																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental Pollution			Temporary increases in suspended sediments	
Stage of Development	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D
Salicornia and other annuals colonizing mud and sand																		
Spartina swards																		
Atlantic salt meadows																		
Embryonic shifting dunes																		
Shifting dunes along the shoreline with Ammophila arenaria																		
Sandbanks which are slightly covered by sea water all the time																		
Mudflats and sandflats not covered by seawater at low tide																		

Cont. on next page



HRA Screening Matrix 20: Voordelta (Netherlands) SAC (Cont.)

Evidence supporting conclusions.

- Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- \sqrt{d} The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE.
- Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will ×е increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate. Χf
- Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further Χq assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally Xh and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and guickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities Xi will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. **No LSE** applies. Xj
- √k Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

HRA Screening Matrix 21: Noordzeekustzone (Netherlands) Special Area of Conservation (SAC)

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and behaviour | |
| | Accidental Pollution | | | Temporary increases in suspended sediments | | |
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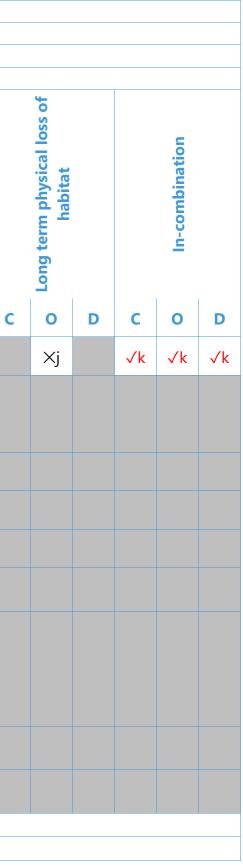
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HRA Screening Matrix 21: Noordzeekustzone (Netherlands) SAC (Cont.)

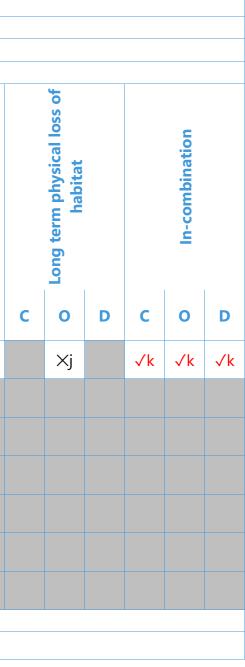
Evidence supporting conclusions.

- Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- \sqrt{d} The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE.
- Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will Хe increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- ×f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further Χq assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally Xh and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities Xi will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- No physical habitat loss within the SAC boundary has been identified within the ES. **No LSE** applies. Xi
- √k Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

HRA Screening Matrix 22: Waddenzee (Netherlands) Special Area of Conservation (SAC)

Name of European site:	Wad	ldenz	ee (N	ether	lands) SAC													
EU Code:	NL1	00000	01																
Distance to Project:	229	km to	o arra	у															
Likely Effects of Project																			_
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			Changes in prey availability and behaviour			Accidental Pollution			Temporary increases in suspended sediments	-	
Stage of Development	С	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	с	ο	D	
Grey seal	√a	Xb	√c	√d	√d	√c	Xe	Xe	×f	×g	×g	×f	Xh	Xh	Xf	Xi	×i	×f	
Harbour seal#																			
Harbour porpoise*																			
Shad																			
River lamprey																			
Sea lamprey																			
Narrow-mouthed whorl snail																			
*Screened out based on 26 km effective dist	urbance range (E	DR) (s	ite loca	ated be	evond	that ra	nae)												

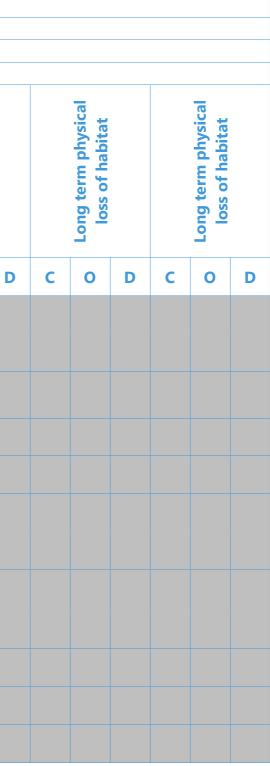
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HRA Screening Matrix 22: Waddenzee (Netherlands) (Cont.)

Name of European site:	Wa	ddenz	ee (N	ether	lands	SAC												
EU Code:	NL1	0000	01															
Distance to Project:	229	km to	o arra	у														
Likely Effects of Project																		
Effect		Increase in underwater noise			Vessel disturbance			Vessel collision risk			unanges in prey availability	&behaviour		Accidental pollution			iemporary moreases in suspended 	sediments
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	D	С	ο	[
Sandbanks slightly covered by sea water all the time																		
Estuaries																		
Mudflats & sandflats not covered by seawater at low tide																		
Salicornia and other annuals colonizing mud and sand																		
Spartina swards																		
Atlantic salt meadows																		
Embryonic shifting dunes																		
Shifting dunes along the shoreline with Ammophila arenaria																		
Fixed coastal dunes with herbaceous vegetation																		
Dunes with Hippophaë rhamnoides																		
Dunes with Salix repens ssp argentea																		
Humid dune slacks																		

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HRA Screening Matrix 22: Waddenzee (Netherlands) (Cont.)

Evidence supporting conclusions.

- Va Site within screening distance of the project for grey seal. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with Hornsea Four. Therefore, the potential for likely significant effects (LSE) is identified.
- ×b The distance between the array boundary and the SAC, together with the small scale and localised potential for effect during operation, results in a conclusion of **no LSE** for grey seal.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is √c appropriate.
- \sqrt{d} The location of the project relative to the at sea usage area of grey seal may result in disturbance of grey seal. Potential for LSE.
- ×e Volume 2, Chapter 4: Marine Mammals (APP-A2.4) of the Environmental Statement (ES) considers marine mammal collision risk, finding that it is not expected that Hornsea Four will increase the risk of mortality in marine mammals from collisions. Therefore, **no LSE** has been identified for the project alone.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate. Χf
- Given the large foraging range of grey seal, and the conclusions of the ES regarding fish and benthic ecology, the potential effect is considered to be negligible. Confirmed as not needing further Χq assessment within ES Volume 2, Chapter 4: Marine Mammals (APP-A2.4). No LSE identified.
- ×h While connectivity between the project and this site is possible, the potential for significant effects to this SAC population is considered to decrease with the severity of effects experienced locally and distance. With reference to the activities proposed, Hornsea Four has very limited potential for the accidental release of significant amounts of vessel fuel or oil. Small scale releases could occur in the unlikely event of non-compliance to legislation, codes of conduct or best practice. Any such events would be small-scale, temporary and subject to significant dilution and quickly dissipated to non-significant levels in the open coastal environment. No LSE is concluded on the basis the project has very low potential for significant releases of contaminants and the low risk of exposure to members of this SAC population.
- Grey seal frequently occur in relatively turbid environments and are thus adapted to locating prey in such conditions. The construction, operation & maintenance and decommissioning activities Xi will be localised and intermittent in nature and the extent and duration of any increase in suspended sediment (and subsequent deposition) being negligible, no LSE applies.
- Xj No physical habitat loss within the SAC boundary has been identified within the ES. No LSE applies.
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √k

HRA Screening Matrix 23: Greater Wash Special Protection Area (SPA)

Name of European site:	Grea	ter Wa	sh SPA															
EU Code:	UK9	020329																
Distance to Project:	63.4	km fro	m array,	0.4 km	to ECC													
Likely Effects of Project										1								
Effect		Direct disturbance			Changes in prey availability &	Denaviour		Indirect impacts through effects on	preveo		Collision risk			Barrier effect			In-combination	
Stage of Development	С	Ο	D	С	0	D	С	ο	D	С	ο	D	С	Ο	D	С	0	D
Red-throated diver	√a	√b	√c	×d		×e		×d			×f			×g		√h	√h	√h
Common scoter	√a	√b	√c	×d	_	×e	_	×d			×f	-		×g		√h	√h	√h
Little gull	Xi	Xi	×i	×d		×e		×d			√j			×g		×k	√h	×k
Sandwich tern																		
Common tern																		
Little tern																		

Evidence supporting conclusions.

- A sensitive species to cable laying vessels, only during construction in the Export Cable Corridor (ECC), close to the SPA. Therefore, a finding of potential LSE is appropriate.
- √b A sensitive species, maintenance vessels may pass close to or through the SPA. Therefore, a finding of potential LSE is appropriate.
- Vc The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate.
- ×d No changes in prey availability or behaviour predicted directly or indirectly as main construction and O&M activities are in array area and not within SPA, which is 63.4 km away. No LSE is identified
- Xe The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- ×f Not recorded in array area and a species that flies low to the water so is not at risk from collision. **No LSE** is identified.
- ×g Species is only present during the non-breeding bio-season and the array area is not a 'barrier' between roosting and feeding areas for this species. The potential for LSE is therefore discounted.
- Vh Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- Not sensitive to construction or maintenance and operation or decommissioning activities when on migration. No LSE is identified. Xi
- Potentially present in numbers during migration and proportion fly at potential collision height (PCH). Potential for LSE identified. √i
- ×k Potential effects were not considered to require further assessment during the construction and decommissioning phase in-combination with other plans or projects. This is due to Hornsea Four having no overlap with relevant phases of other projects that would occur at the same time.

End of Matrix 23

HRA Screening Matrix 24: Flamborough and Filey Coast SPA

Name of European site:	Flam	ıboro	ugh a	nd Fi	ley Co	oast S	PA											
EU Code:	UK9	0061)1															
Distance to Project:	63 k	m to	array,	2.5 t	o EEC													
Likely Effects of Project																		
Effect		Direct disturbance and displacement			availability and	behaviour	and a second second second		prey species		Collision risk			Barrier effect			In-combination	
Stage of Development	С	0	D	С	0	D	С	Ο	D	С	ο	D	С	Ο	D	С	0	D
Fulmar (component of seabird assemblage)	Xa	Хb	Xc	$\times d$		Хe		×f			×g			×h		×i	Xj	×i
Kittiwake	Xa	Xb	Xc	Xd		Хe		×f			√k			Хh		×i	√	Xi
Herring gull (component of seabird assemblage)	Xa	Xb	Xc	Xd		Хe		×f			√m			Xh		×i	√	Xi
Gannet	√n	√o	√p	Xd		Хe		×f			√q			Xh		√	√	√ I
Guillemot	√n	√o	√p	$\times d$		Хe		×f			×f			√r		$\sqrt{1}$	√	√ I
Razorbill	√n	√o	√p	×d		Хe		×f			×f			√r		√ I	√ I	√ I
Puffin (component of seabird assemblage)	√n	√o	√р	×d		Хe		×f			×f			√r		√ I	√ I	٧I
Seabird assemblage (excluding named components above)																		

Evidence supporting conclusions

×a Not sensitive to construction activities within the Hornsea Four array area that would lead to displacement. No potential for LSE identified.

×b Not sensitive to operation and maintenance activities within the Hornsea Four array area that would lead to displacement or barrier effects. Therefore, **no LSE** is concluded.

×c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.

×d Not sensitive to insignificant effects on prey species within the Hornsea Four array area (as identified by the findings reported in the project's Environmental Statement - Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2) indirectly during the operation and maintenance phase.

×e The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.

×f Not sensitive to insignificant effects on prey species within the Hornsea Four array area (as identified by the findings reported in the project's Environmental Statement - Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2) indirectly during the operation and maintenance phase. No potential for LSE.

×g A species that flies low to the water with very low risk of collision from Hornsea Four. **No LSE** identified.

×h Species known to have a large foraging range, which would not be susceptible to a barrier effect. No LSE is identified.

Cont. on next page

HRA Screening Matrix 24: Flamborough and Filey Coast SPA (cont.)

Evidence supporting conclusions (cont.)

- Potential effects were not considered to require further assessment during the construction and decommissioning phase in-combination with other plans or projects. This is due to Hornsea Four Xi having no overlap with relevant phases of other projects that would occur at the same time.
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to an in-combination effects Хj
- Present in moderate densities within the Hornsea Four array area and proportion fly at potential collision height (PCH) during both the breeding and non-breeding bio-seasons. Potential for LSE. √k
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. $\sqrt{|}$
- Present in very low densities within the Hornsea Four array area, though a proportion fly at PCH. Collision risk estimated to be extremely low and would likely be trivial or inconsequential but √m screened in on precautionary basis.
- Moderate sensitivity to sensitivity to construction activities within the Hornsea Four array area, potential LSE identified. √n
- Moderate sensitivity to operation and maintenance activities within Hornsea Four array area potential LSE identified during both breeding and non-breeding seasons. √o
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate. √p
- Present in moderate densities within the Hornsea Four array area and proportion fly at potential collision height (PCH) during both the breeding and non-breeding bio-seasons. Potential for LSE. √q
- Auks species may forage beyond array area and may be sensitive to flying through so may be susceptible to barrier effect, potential LSE identified. √r



HRA Screening Matrix 25: Northumbria Coast SPA

Name of European site:	North	umbria	Coast SI	PA										
EU Code:	UK900	6131												
Distance to Project:	151.7	<mark>km to</mark> ai	r ray. 10 2	2.6 k to	ECC									
Likely Effects of Project														
Effect		Direct disturbance and displacement			Changes in prey availability and hehaviour			Indirect impacts through the effects on prev species			Collision risk			Barrier effect
Stage of Development	С	ο	D	С	0	D	С	ο	D	С	Ο	D	С	ο
Arctic tern		Xa		Xb		Xc		×d			√e			×f
Little tern														
Turnstone														
Purple sandpiper														

Evidence supporting conclusions.

- ×a Not sensitive to construction, operation and maintenance or decommissioning activities associated with potential displacement from Hornsea Four array area and potential connectivity limited to only during migratory bio-seasons whilst on passage.
- ×b Not sensitive to insignificant changes in prey availability and behaviour across entire array area ((as identified by the findings reported in the project's Environmental Statement Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2) directly during the construction phase, as potential connectivity limited to only during the migratory bio-seasons whilst on passage.
- ×c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE** is appropriate.
- Xd Not sensitive to insignificant effects on prey species within the array area (as identified by the findings reported in the project's Environmental Statement Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2) indirectly during the operation and maintenance phase as potential connectivity limited to only during the migratory bio-seasons whilst on passage.
- Ve Potential connectivity to array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- ×f Not sensitive to barrier effect from Hornsea Four, as no connectivity during more sensitive breeding bio-season and potential connectivity only during migratory bio-seasons whilst on passage when one off movements are not considered to be of any consequence to birds when migrating large distances through the North Sea.
- ×q Potential effects were not considered to require further assessment during the construction and decommissioning phase in-combination with other plans or projects. This is due to Hornsea Four having no overlap with relevant phases of other projects that would occur at the same time.
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √h

		In-combination	
D	С	0	D
	×g	√h	×g

HRA Screening Matrix 26: Humber Estuary SPA

Name of European site: Humber Estuary SPA Distance to Project:			to ar		2.2 k	m to	ECC																	
Likely Effects of Project				,, .																				
Effect		Temporary habitat loss/ disturbance		Temporary	disturbance / damage to habitats	(onshore)		severance of	habitats	Dicturbanco	(airborne noise and	visual) (onshore)	lavacivo non-	native species	(onshore)		Accidential release of contaminants	(onshore)		Collision risk			In-combination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	ο	D	С	0	D
Shelduck (NB)	×a	Xa	×a	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Xb	Xb	Хc	Xc	Xc	Xc	Xc	Xc		√d		×e	√f	×e
Marsh harrier (B)																								
Hen harrier (NB)	Xa	Xa	×a	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Xb	Xb	Хc	Xc	Xc	Xc	Xc	Xc		√d		×е	√f	×e
Avocet (B + NB)	Xa	Xa	×a	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xc	Xc	Xc		√d		Xe	√f	×e
Golden plover (NB)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xc	Xc	Xc		√d		Xe	√f	×e
Knot (NB)	Xa	Xa	×a	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb	×c	Xc	Xc	Xc	Хc	Xc		√d		Хe	√f	×e
Dunlin (NB)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xc	Xc	Xc		√d		Хe	√f	×e
Ruff (NB)	Xa	Xa	×a	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb	Хc	Xc	Хc	Xc	Хc	Xc		√d		×e	√f	×e
Black-tailed godwit (NB)	Xa	Xa	×a	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb	Хc	Xc	Xc	Xc	Хc	Xc		√d		Хe	√f	×e
Bar-tailed godwit (NB)	Xa	Xa	×a	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb	Хc	Xc	Xc	Xc	Хc	Xc		√d		Хe	√f	×e
Redshank (NB)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xc	Xc	Xc		√d		Xe	√f	×e
Little tern (B)																								
Bittern (B + NB)																								
Waterbird assemblage (excluding named components above)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Хb	Хb	×b	Xc	Хc	Xc	Хc	Xc	Xc		√d		Xe	√f	×g

Cont. on next page

HRA Screening Matrix 26: Humber Estuary SPA (Cont.)

Evidence supporting conclusions.

- Xa The site does not physically overlap with the onshore Hornsea Four boundaries and therefore does not result in loss of habitat, disturbance, damage or fragmentation
- Хb Although it is possible that these species may use habitat within the onshore Hornsea Four boundaries, given the expansive landscape of similar habitat in the project surrounds and immediately adjacent to the SPA. It is very unlikely that birds will expend large amounts of valuable energy flying over suitable habitat in order to use areas that may be affected by Hornsea Four that are more than 7 km away. Therefore, it is reasonable to conclude that there are no likely significant effects.
- ×c The majority of water courses that could be affected by the construction and operation of the onshore elements of Hornsea Four drain to the River Hull and then eventually to the Humber. Construction of the project will involve the storage and handling of small volumes of potentially harmful materials. In the event of accidental pollution of a watercourse, and no mitigating action by Hornsea Four, a small volume of polluting material would need to travel approximately ten to tens of kilometres of watercourse before reaching the Humber SPA. A combination of the small volume of material and natural action over the time it takes to travel to the Humber will result in minimal risk of harm to the site. **No LSE** applies.
- Vd Estimated that very small potential impacts / effects on all migratory waterbird species and hen harrier from individual developments in the North Sea. However, in order to provide a quantification of any potential impacts and effects these species are screened in.
- ×e Potential effects were not considered to require further assessment during the construction and decommissioning phase in-combination with other plans or projects. This is due to Hornsea Four having no overlap with relevant phases of other projects that would occur at the same time
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √f



HRA Screening Matrix 27: Coquet Island SPA

Name of European site:	Coq	uet ls	land S	SPA														
EU Code:	UK9	00603	81															
Distance to Project:	167	km to	o arra	у														
Likely Effects of Project																		
Effects		Disturbance displacement		Changed in avoid	availability and	behaviour	Indivot importe	through the effects	on prey species		Collision risk			Barrier			In-combination	
Stage of Development	С	0	D	С	0	D	С	Ο	D	С	Ο	D	С	0	D	С	0	D
Kittiwake (un-named component of the seabird assemblage)		Xa		Хb		Xc		×d			√e			×f		×g	√h	×g
Sandwich tern		Xa		Хb		Xc		imesd			√i			×f		×g	√h	×g
Common tern		Xa		Хb		Xc		$\times d$			√i			×f		×g	√h	×g
Arctic tern		Xa		Хb		Xc		imesd			√i			×f		×g	√h	×g
Roseate tern		Xa		Хb		Xc		×d			√e			×f		×g	√h	×g
Puffin (component of the seabird assemblage)	√j	√k	٧I	Хb		Xc		×d			Xi			×f		√h	√h	√h
Seabird assemblage (excluding named components above)																		

Evidence supporting conclusions.

- ×a Species not known to be sensitive to disturbance and displacement from operation and maintenance activities associated with offshore wind farms. A finding of **no LSE** applies.
- ×b Very minor, localised effects are predicted for prey species within (and around) the array area (as identified by the findings reported in the project's Environmental Statement Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2) during the construction phase. This far-ranging species is unlikely to be sensitive to indirect effects on foraging resource in the context noting the vast resources in the wider habitat available.
- ×c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of **no LSE**
- ×d Throughout all project phases, all impacts to Fish and Shellfish (APP-A2.3) receptors were found to have either negligible, minor adverse or minor beneficial effects. Effects on prey species are reported in the project's Environmental Statement - Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2). Indirect impacts on seabirds are not therefore anticipated. No LSE.
- Ve Species present in Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- ×f Not sensitive to barrier effect from Hornsea Four, as no connectivity during more sensitive breeding bio-season and potential connectivity only during migratory bio-seasons whilst on passage when one off movements are not considered to be of any consequence to birds when migrating large distances through the North Sea.
- ×q Potential effects were not considered to require further assessment during the construction and decommissioning phase in-combination with other plans or projects. This is due to Hornsea Four having no overlap with relevant phases of other projects that would occur at the same time.

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HRA Screening Matrix 27: Coquet Island SPA (Cont.)

Evidence supporting conclusions.

- Vh Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- Vi Potential connectivity to array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- Moderate sensitivity to sensitivity to construction activities within the Hornsea Four array area, potential LSE identified. √j
- Vk Moderate sensitivity to operation and maintenance activities within Hornsea Four array area potential LSE identified during both breeding and non-breeding seasons.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate. $\sqrt{|}$



HRA Screening Matrix 28: Farne Islands SPA

Name of European site:	Farne	Islands	SPA															
EU Code:	UK900)6021																
Distance to Project:	198 kı	n to ar	ray															
Likely Effects of Project																		
Effect		Disturbance displacement			Changes in prey availability and			Indirect impacts through effects on prev species			Collision risk			Barrier			In-combination	
Stage of Development	С	0	D	С	0	D	С	Ο	D	С	0	D	С	ο	D	С	0	D
Kittiwake (component of the seabird assemblage)		Xa		×b		Xc		×d			√e			×f		×g	√h	×g
Sandwich tern		Xa	_	×b		Xc		×d			٧I	_		×f		×g	√h	×g
Common tern		Xa		×b		Xc		×d			√ I			×f		×g	√h	×g
Arctic tern		Xa		×b		Xc		×d			٧I			×f		×g	√h	×g
Roseate tern																		
Guillemot	√i	√j	√k	×b		Xc		×d			×I			×f		√h	√h	√h
Puffin (component of the seabird assemblage)	√i	√j	√k	×b		Xc		×d			×I			×f		√h	√h	√h
Seabird assemblage (excluding named components above)																		

Evidence supporting conclusions.

Xa Species not known to be sensitive to disturbance and displacement from operation and maintenance activities associated with offshore wind farms. A finding of **no LSE** applies

- ×b Very minor, localised effects are predicted for prey species within (and around) the array area (as reported in the project's Environmental Statement Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2) during the construction phase. This far-ranging species is unlikely to be sensitive to indirect effects on foraging resource in the context noting the vast resources in the wider habitat available.
- ×c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase.
- ×d Throughout all project phases, all impacts to Fish and Shellfish (APP-A2.3) receptors were found to have either negligible, minor adverse or minor beneficial effects. Effects on prey species are reported in the project's Environmental Statement - Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2). Indirect impacts on seabirds are not therefore anticipated. No LSE.
- Ve Present in Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- ×f Not sensitive to barrier effect from Hornsea Four, as no connectivity during more sensitive breeding bio-season and potential connectivity only during migratory bio-seasons whilst on passage when one off movements are not considered to be of any consequence to birds when migrating large distances through the North Sea.

Cont. on next page

HRA Screening Matrix 28: Farne Islands SPA (Cont.)

Evidence supporting conclusions

- ×g Potential effects were not considered to require further assessment during the construction and decommissioning phase in-combination with other plans or projects. This is due to Hornsea Four having no overlap with relevant phases of other projects that would occur at the same time.
- Vh Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- Moderate sensitivity to sensitivity to construction activities within the Hornsea Four array area, potential LSE identified. √i
- Moderate sensitivity to operation and maintenance activities within Hornsea Four array area potential LSE identified during both breeding and non-breeding seasons. √j
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of potential LSE is appropriate. √k
- A species that flies low to the water with a very low risk of collision. \times I



HRA Screening Matrix 29: Teesmouth and Cleveland Coast SPA

Name of European site:	Teesmo	outh and	Clevela	nd Coas	t SPA (as	extend	led in Ja	n 2020)						
EU Code:	UK9006	5061												
Distance to Project:	134 km	to array												
Likely Effects of Project														
Effect		Direct disturbance displacement			Changes in prey availability and behaviour			Indirect impacts through effects on prey species			Collision risk			Barrier effects
Stage of Development	С	ο	D	С	ο	D	с	ο	D	с	ο	D	С	ο
Sandwich tern	Xa	×a	Xa	Xb		Xc		×d			√e			×f
Common tern	×a	Xa	×a	×b		Xc		×d			√e			×f
Avocet														
Ruff														
Knot														
Redshank														
Little tern														
Waterbird assemblage (excluding named components above)														

Evidence supporting conclusions.

- Not sensitive to construction, operation and maintenance or decommissioning activities associated with potential displacement from Hornsea Four array area and potential connectivity limited t Хa only during migratory bio-seasons whilst on passage.
- Not sensitive to insignificant changes in prey availability and behaviour across entire array area (as identified in the Environmental Statement Volume 2, Chapter 3: Fish and Shellfish (APP-Хb A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology) directly during the construction phase, as potential connectivity limited to only during the migratory bio-seasons whilst on passage.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Хc

		In-combination	
D	С	0	D
	×g ×g	√h	×g
	×g	√h	×g ×g

- $\times d$ Not sensitive to insignificant effects on prey species within the array area indirectly (as identified by the findings reported in the project's Environmental Statement - Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2) during the operation and maintenance phase as potential connectivity limited to only during the migratory bio-seasons whilst on passage.
- √e Potential connectivity to array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- ×f Not sensitive to barrier effect from Hornsea Four, as no connectivity during more sensitive breeding bio-season and potential connectivity only during migratory bio-seasons whilst on passage when one off movements are not considered to be of any consequence to birds when migrating large distances through the North Sea.
- Potential effects were not considered to require further assessment during the construction and decommissioning phase in-combination with other plans or projects. This is due to Hornsea Four Xg having no overlap with relevant phases of other projects that would occur at the same time.
- Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified. √h

End of Matrix 29



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HRA Screening Matrix 30: St Abb's Head and Fast Castle (UK) SPA

Name of European site:	St Abb'	s Head aı	nd Fast	Castle (UK) SPA										
EU Code:	UK9004	271													
Distance to Project:	269 km	to array													
Likely Effects of Project															
Effect		Direct disturbance displacement				on prey species		Collision risk			Barrier effect			combination	
Stage of Development	С	0	D	С	0	D	С	Ο	D	С	0	D	С	ο	D
Kittiwake (component of the seabird assemblage)		Xa						√b						√c	
Herring gull (component of the seabird assemblage)		Xa						×d						Xe	
Guillemot (component of the seabird assemblage)		√f						×g						√h	
Razorbill (component of the seabird assemblage)		√f						×g						√h	
Seabird assemblage (excluding named components above)															

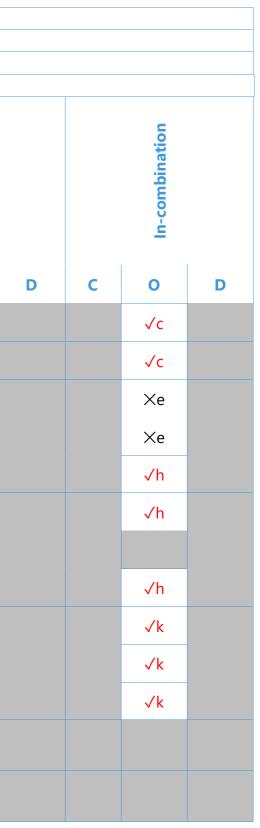
Evidence supporting conclusions.

- Species not known to be sensitive to disturbance and displacement from operation and maintenance activities associated with offshore wind farms. No LSE identified. Xa
- Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to √b mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms √c in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Xd Present in very low densities within the Hornsea Four array area, though a proportion fly at PCH. Collision risk assessment estimated extremely low potential mortality rates that would be trivial or inconsequential to any colony, particularly those at such a distance.
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to an in-combination effects Хe
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. √f However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- A species that flies low to the water with very low risk of collision. Χq
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √h effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and razorbill are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.

HRA Screening Matrix 31: Forth Islands (UK) SPA

Name of European site:	Forth I	slands (U	JK) SPA									
EU Code:	UK9004											
Distance to Project:	272 km	n to array	/									
Likely Effects of Project												
Effect		Direct disturbance and displacement			Indirect impacts through the effects on prev species			Collision risk			Barrier effect	
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	ο	
Gannet		Xa						√b				
Kittiwake (component of the seabird assemblage)		Xa						√b				
Lesser black-backed gull		Xa						×d				
Herring gull (component of the seabird assemblage)		Xa	-					×d				
Common tern		×f	-					√g				
Arctic tern		×f						√g				
Roseate tern												
Sandwich tern		×f						√g				
Guillemot (component of the seabird assemblage)		√i						×j				
Razorbill (component of the seabird assemblage)		√i						×j				
Puffin		√i						×j				
Shag												
Seabird assemblage (excluding named components above)												

Cont. on next page



HRA Screening Matrix 31: Forth Islands (UK) (Cont.)

Evidence supporting conclusions.

- Not sensitive to operation and maintenance from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the Хa breeding season. Potential for LSE is discounted.
- Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing √b of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms √c in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, gannet and kittiwake are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Present in very low densities within the Hornsea Four array area, though a proportion fly at PCH. Collision risk assessment estimated extremely low potential mortality rates that would be trivial or Χd inconsequential to any colony, particularly those at such a distance.
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to an in-combination effects. Xe
- Χf Not sensitive to operation and maintenance activities associated with potential displacement from the Hornsea Four array area and potential connectivity limited to only during migratory bioseasons whilst on passage.
- Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and √g inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and √h therefore any contribution to an in-combination effect would be trivial and inconsequential. However, common tern, Arctic tern and sandwich tern are screened in on precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. √i However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- A species that flies low to the water with very low risk of collision. **No LSE** is identified. Xi
- √k Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot, razorbill and puffin are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.

HRA Screening Matrix 32: Outer Firth of Forth and St Andrew's Complex proposed Special Protection Area (pSPA)

Name of European site: Outer Firth of Forth and St Andrew's	Complex p	SPA													
EU Code:	UK9004	4411													
Distance to Project:	241 km	to array													
Likely Effects of Project													1		
Effect		Direct disturbance displacement			Indirect impacts through effects on	prey species		Collision risk			Barrier effect			In-combination	
Stage of Development	С	0	D	С	0	D	С	0	D	С	Ο	D	С	0	D
Eider															
Slavonian grebe															
Gannet		×a						√b						√c	
Kittiwake (component of the seabird assemblage)		×a						√b						√c	
Little gull															
Herring gull (component of the seabird assemblage)		×a						×d						×е	
Common tern*															
Arctic tern*															
Guillemot (component of the seabird assemblage)		√f						×g						√h	
Puffin (component of the seabird assemblage)		√f						×g						√h	
Red-throated diver															
Shag															
Seabird assemblage (excluding named components above)															
Waterbird assemblage															

*Breeding location in adjacent SPAs (in this instance the Forth Islands SPA).

Cont. on next page



HRA Screening Matrix 32: Outer Firth of Forth and St Andrew's Complex pSPA (cont.)

Evidence supporting conclusions.

- ×a Not sensitive to operation and maintenance from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season. Potential for LSE is discounted.
- Vb Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Vc Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, gannet and kittiwake are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Present in very low densities within the array area, though a proportion fly at PCH. Collision risk assessment estimated extremely low potential mortality rates that would be trivial or Xd inconsequential to any colony, particularly those at such a distance.
- ×e Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to an in-combination effects.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. √f However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- ×q A species that flies low to the water with very low risk of collision. No LSE identified.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √h effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and puffin are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



HRA Screening Matrix 33: Fowlsheugh SPA

Name of European site:	Fowlsh	neugh Sl	PA								
EU Code:	UK900	2271									
Distance to Project:	341 km	n to arra	y								
Likely Effects of Project											
Effect		Direct disturbance displacement			Indirect impacts through effects on	prey species		Collision risk			Barrier effect
Stage of Development	С	0	D	С	0	D	С	0	D	С	0
Fulmar (component of seabird assemblage)		Xa						Xb			
Kittiwake		Xa						√d			
Herring gull (component of seabird assemblage)		Xa						×f			
Guillemot		√h						Хb			
Razorbill (component of seabird assemblage)		√h						×b			

Evidence supporting conclusions.

- ×a Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season. LSE is discounted.
- ×b A species that flies low to the water with very low risk of collision. **No LSE** identified.
- ×c Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects.
- Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing √d of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Ve Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- ×f Present in very low densities within the Hornsea Four array area, though a proportion fly at PCH. Preliminary estimations have concluded in this context that there is extremely low potential for mortality rates that would be trivial or inconsequential to any colony, particularly those at such a distance. No LSE identified at this stage.
- Xq Only very minor, immaterial impacts would occur to this species from the identified pathways. Over these scales, these pathways are considered too weak to contribute to a material degree to incombination effects.
- Vh Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- √i Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and razorbill are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.

		In-combination	
D	С	0	D
D	С		D
D	С		D
D	С		D
D	C	o ×c √e ×g √i √i	D

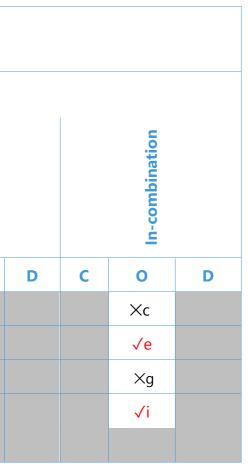
HRA Screening Matrix 34: Buchan Ness to Collieston Coast SPA

Name of European site: Buchan Ness to Collieston Coast SPA	Buchan Ness to Collieston Coast SPA											
EU Code:	UK9002491											
Distance to Project:	381 kr	n to arra	у									
Likely Effects of Project												
Effect	Direct disturbance displacement				Indirect impacts through effects	on bred sheries		Collision risk		Barrier effect		
Stage of Development	С	ο	D	С	ο	D	С	Ο	D	С	ο	
Fulmar (component of the seabird assemblage)		Xa						×b				
Kittiwake (component of the seabird assemblage)		Xa						√d				
Herring gull (component of the seabird assemblage)		Xa						×f				
Guillemot (component of the seabird assemblage)		√h						×f				
Shag (component of the seabird assemblage)												

Evidence supporting conclusions.

- ×a Not sensitive to operation and maintenance from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- ×b A species that flies low to the water with very low risk of collision.
- ×c Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects.
- Vd Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Ve Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- ×f Present in very low densities within the Hornsea Four array area, though a proportion fly at PCH. Collision risk assessment estimated extremely low potential mortality rates that would be trivial or inconsequential to any colony, particularly those at such a distance.
- ×q Only very minor and immaterial impacts would occur to this species from the identified pathways. Over these scales, these pathways are too weak to contribute to a material degree to incombination effects.
- Vh Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √i effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.









HRA Screening Matrix 35: Troup, Pennan and Lion's Heads SPA

Name of European site:	Troup	, Pennan	and Lio	n's Hea	ds SPA							
EU Code:	UK900	02471										
Distance to Project:	423 kı	423 km to array										
Likely Effects of Project												
Effect	Direct disturbance and displacement			Indirect impacts through the effects on prey species				Collision risk		Barrier effect		
Stage of Development	С	0	D	С	0	D	С	Ο	D	С	0	
Fulmar (component of the seabird assemblage)		Xa						×b				
Kittiwake		Xa						√d	-			
Herring gull (component of the seabird assemblage)		Xa						×f				
Guillemot		√h						Хb				
Razorbill (component of the seabird assemblage)		√h						×b				

Evidence Supporting Conclusions.

- ×a Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- ×b A species that flies low to the water with very low risk of collision.
- ×c Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects.
- Vd Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Ve Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Χf Present in very low densities within the Hornsea Four array area, though a proportion fly at PCH. Collision risk assessment estimated extremely low potential mortality rates that would be trivial or inconsequential to any colony, particularly those at such a distance.
- ×q Only very minor and immaterial impacts would occur to this species from the identified pathways. Over these scales, these pathways are too weak to contribute to a material degree to in-combination effects.
- Vh Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Vi Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and razorbill are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.

		tion	
		In-combination	
D	С	0	D
		Xc	
		×c √e ×g √i	
		×g	
		√i	
		√i	

HRA Screening Matrix 36: East Caithness Cliffs SPA

Distance to Project:	500 kr	n to arr	ay									
Likely Effects of Project												
Effect		Direct disturbance displacement			Indirect impacts through effects			Collision risk			Barrier effect	Т
Stage of Development	С	0	D	С	0	D	С	0	D	С	Ο	
Fulmar (component of the seabird assemblage)		Xa						Хb				
Kittiwake		Xa						√d				
Herring gull		Xa						×f				
Great black-backed gull (component of the seabird assemblage)		Xa						×f				
Guillemot		√h						×f				
Razorbill		√h						×f				
Shag												
Cormorant (component of the seabird assemblage)												
Peregrine												

Evidence Supporting Conclusions.

- ×a Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- ×b A species that flies low to the water with very low risk of collision.
- ×c Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects.
- Vd Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Ve Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons. Potential for collision risk alone and with other OWF in the UK North Sea. Connectivity is limited due to mixing of wider North Sea populations. Therefore, any effect is likely to be trivial & inconsequential. However, LSE is identified on a precautionary basis to assess the likelihood of an AEoI in-combination
- ×f Present in very low densities within the Hornsea Four array area, though a proportion fly at PCH. Collision risk assessment estimated extremely low potential mortality rates that would be trivial or inconsequential to any colony, particularly those at such a distance.

Cont. on next page



		In-combination	
D	С	Ο	D
		Xc	
		√e	
		×g	
		×g ×g	
		√i √i	
		√i	

HRA Screening Matrix 36: East Caithness Cliffs SPA (Cont.)

Evidence supporting conclusions.

- ×g Only very minor, immaterial impacts to this species from the identified pathways. Over these scales, these pathways are too weak to contribute to a material degree to in-combination effects.
- Vh Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √i effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and razorbill are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



HRA Screening Matrix 37: North Caithness Cliffs SPA

Name of European site:	North	Caithne	ss Cliffs	SPA									
EU Code:	UK900)1181											
Distance to Project:	534 kr	n to arra	y										
Likely Effects of Project													
Effect	Direct disturbance displacement			Indirect impacts through effects on prey species			Collision risk				Barrier effect		
Stage of Development	С	0	D	С	0	D	С	0	D	С	ο	D	
Fulmar (component of the seabird assemblage)		Xa						×b					
Kittiwake (component of the seabird assemblage)		Xa						√d					
Guillemot		√f						Хb					
Razorbill (component of the seabird assemblage)		√f						×b					
Puffin (component of the seabird assemblage)		√f						×b					
Peregrine													

Evidence supporting conclusions:

- ×a Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- ×b A species that flies low to the water with very low risk of collision.
- ×c Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects.
- Vd Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Ve Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Vf Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Vq Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot, razorbill and puffin are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



	In-combination	
С	0	D
	Xc	
	√e	
	√e √g √g √g	
	√g	
	√g	

HRA Screening Matrix 38: Copinsay SPA

Name of European site:	Copins	ay SPA									
EU Code:	UK9002151										
Distance to Project:	558 km to array										
Likely Effects of Project											
Effect		Direct disturbance displacement			Indirect impacts through effects on prey species			Collision risk			Barrier effect
Stage of Development	с	ο	D	С	ο	D	С	ο	D	С	ο
Fulmar (component of the seabird assemblage)		Xa						×b			
Kittiwake (component of the seabird assemblage)		Xa						√d			
Great black-backed gull (component of the seabird assemblage)		Xa						×f			
Guillemot (component of the seabird assemblage)		√h						×b			

Evidence supporting conclusions:

- Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season. Хa
- A species that flies low to the water with very low risk of collision. Χb
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Хc
- √d Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- √e Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Χf Present in very low densities within the Hornsea Four array area, though a proportion fly at PCH. Preliminary estimations in this context predict extremely low potential mortality rates that would be trivial or inconsequential to any colony, particularly those at such a distance. These findings will be confirmed by collision risk modelling.
- Vh Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Only very minor, immaterial impacts to this species from the identified pathways. Over these scales, these pathways are too weak to contribute to a material degree to in-combination effects. Xq
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √i effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.

End of Matrix 38

		In-combination	
D	С	0	D
		Xc	
		√e ×g √i	
		√i	

HRA Screening Matrix 39: Hoy SPA

Name of European site:	Hoy SPA	L Contraction of the second se													
EU Code:	UK9002	141													
Distance to Project:	558 km	to array													
Likely Effects of Project	1														
Effect		Direct disturbance displacement			Indirect impacts through effects	on prey species		Collision risk			Barrier effect			In-combination	
Stage of Development	С	Ο	D	С	ο	D	С	ο	D	С	ο	D	С	Ο	D
Fulmar (component of the seabird assemblage)		Xa						×b						Xc	
Great skua		×d						√e						√f	
Arctic skua (component of the seabird assemblage)		×d						√e						√f	
Kittiwake (component of the seabird assemblage)		Xa						√g						√h	
Great black-backed gull (component of the seabird assemblage)		Xa						×i						×j	
Guillemot (component of the seabird assemblage)		√k						Хb						√ I	
Puffin (component of the seabird assemblage)		√k						×b						√ I	
Red throated diver															
Peregrine															

Evidence supporting conclusions:

×a Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.

×b A species that flies low to the water with very low risk of collision.

Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Хc

Not sensitive to O&M activities associated with potential displacement from the array area and potential connectivity limited to only during migratory bio-seasons whilst on passage. $\times d$

Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and √e inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.

Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and √f therefore any contribution to an in-combination effect would be trivial and inconsequential. However, great skua and Arctic skua are screened in on a precautionary basis.

Vg Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.

Cont. on next page

HRA Screening Matrix 39: Hoy SPA (cont.)

Evidence supporting conclusions (Cont.)

- Vh Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- ×i Present in low densities and proportion fly at PCH during the non-breeding bio-seasons, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential.
- ×j Only very minor, immaterial impacts to this species from the identified pathways. Over these scales, these pathways are too weak to contribute to a material degree to in-combination effects.
- Vk Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an $\sqrt{|}$ effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and puffin are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



HRA Screening Matrix 40: Marwick Head SPA

Name of European site:	Marv	vick Head	I SPA									
EU Code:	UK90	UK9002121										
Distance to Project:	595 k	m to arra	ay									
Likely Effects of Project												
Effect		Direct disturbance and displacement			Indirect impacts through the effects on prey species			Collision risk			Barrier effect	
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	Ο	
Kittiwake (component of the seabird assemblage)		Xa						√b				
Guillemot		√d						×e				

Evidence supporting conclusions:

×a Not sensitive to O&M displacement and disturbance activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.

- Vb Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Vc Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Vd Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Xe A species that flies low to the water with very low risk of collision.
- √f Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



		In-combination	
D	с	ο	D
		√c	
		√f	

HRA Screening Matrix 41: Rousay SPA

Name of European site:	Rousa	y SPA														
EU Code:	UK900	02371														
Distance to Project:	595 ki	m to arı	ray													
Likely Effects of Project																
Effect		Direct disturbance displacement Indirect impacts through effects on prey species				Direct disturbance displacement			ndirect impacts through effects on prey species			Collision risk		Barrier effect		
Stage of Development	С	0	D	С	0	D	С	0	D	С	0	0				
Fulmar (component of the seabird assemblage)		Xa						×b								
Arctic skua (component of the seabird assemblage)		×d						√e								
Kittiwake (component of the seabird assemblage)		Xa						√g								
Arctic tern		Xc						√e								
Guillemot (component of the seabird assemblage)		√i						Хb								

Evidence supporting conclusions:

Not sensitive to O&M disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season. Xa

×b A species that flies low to the water with very low risk of collision.

- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Хc
- Not sensitive to O&M activities associated with potential displacement from the Hornsea Four array area. Potential connectivity limited to only during migratory bio-seasons whilst on passage. $\times d$
- Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and √e inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- √f Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and therefore any contribution to an in-combination effect would be trivial and inconsequential. However, Arctic skua and Arctic tern are screened in on a precautionary basis.
- √q Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Vh Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. √i However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √i effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.

		In-combination	
D	С	0	D
		Xc	
		√f	
		√h	
		√f	
		√j	

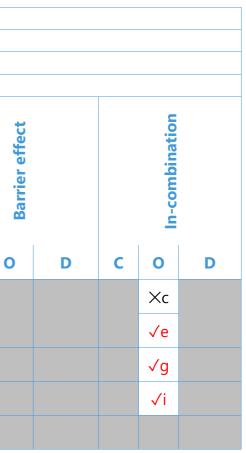
HRA Screening Matrix 42: Calf of Eday SPA

Name of European site:	Calf o	of Eday	SPA								
EU Code:	UK90	02431									
Distance to Project:	595 k	m to ar	ray								
Likely Effects of Project											
Effect		Direct disturbance displacement	-		Indirect impacts through effects on prev species	-		Collision risk			
Stage of Development	С	Ο	D	С	ο	D	С	Ο	D	С	C
Fulmar (component of the seabird assemblage)		Xa						×b			
Kittiwake (component of the seabird assemblage)		Xa	-					√d			
Great black-backed gull (component of the seabird assemblage)		Xa						√f			
Guillemot (component of the seabird assemblage)		√h						Хb			
Cormorant (component of the seabird assemblage)											

Evidence supporting conclusions:

- Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season. Xa
- A species that flies low to the water with very low risk of collision. Xb
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Хc
- Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to √d mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms √e in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Present in very low densities within the array area, though a proportion fly at PCH. Collision risk assessment estimated extremely low potential mortality rates that would be trivial or inconsequential √f to any colony, particularly those at such a distance. However, great black-backed gull is screened in on a precautionary basis, due to the Calf of Eday SPA having the largest colony of great blackbacked gulls within the Northern boundary of the UK North Sea.
- Present in very low densities within the array area, though a proportion fly at PCH. Collision risk assessment estimated extremely low potential mortality rates that would be trivial or inconsequential √q to any colony, particularly those at such a distance. However, great black-backed gull is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis, due to the Calf of Eday SPA having the largest colony of great black-backed gulls within the Northern boundary of the UK North Sea.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. √h However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.

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HRA Screening Matrix 42: Calf of Eday SPA (cont.)

Evidence supporting conclusions (cont.)

Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √i effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



HRA Screening Matrix 43: West Westray SPA

Name of European site:	West	Westray	SPA												
EU Code:	UK900	02101													
Distance to Project:	605 ki	m to arra	ay												
Likely Effects of Project															
Effect		Direct disturbance and displacement			Indirect impacts through the effects on prey species			Collision risk			Barrier effect			In-combination	
Stage of Development	С	ο	1	С	0	D	С	Ο	D	С	Ο	D	С	Ο	D
Fulmar (component of the seabird assemblage)		×a						×b						Xc	
Arctic skua (component of the seabird assemblage)		×d						√e						√f	
Kittiwake (component of the seabird assemblage)		×a						√g						√h	
Arctic tern		×d						√e						√f	
Guillemot		√i						×b						√j	
Razorbill (component of the seabird assemblage)		√i						Хb						√j	

Evidence supporting conclusions:

- ×a Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- ×b A species that flies low to the water with very low risk of collision.
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Хc
- ×d Not sensitive to O&M activities associated with potential displacement from the Hornsea Four array area. Potential connectivity limited to only during migratory bio-seasons whilst on passage.
- Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and √e inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and √f therefore any contribution to an in-combination effect would be trivial and inconsequential. However, Arctic skua and Arctic tern are screened in on a precautionary basis.
- Vg Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.

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HRA Screening Matrix 43: West Westray SPA (cont.)

Evidence supporting conclusions (cont.):

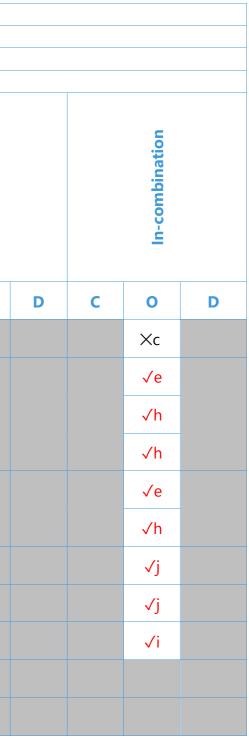
- Vh Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Vi Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Vi Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and razorbill are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



HRA Screening Matrix 44: Fair Isle SPA

Name of European site:	Fair Isl	e SPA									
EU Code:	UK900	2091									
Distance to Project:	607 kn	n to array	у								
Likely Effects of Project											
Effect		Direct disturbance displacement Indirect impacts through effects on prey species				Collision risk			Barrier effect		
Stage of Development	С	0	D	С	ο	D	С	ο	D	С	ο
Fulmar (component of the seabird assemblage)		Xa						×b			
Gannet (component of the seabird assemblage)		Xa						√d			
Great skua (component of the seabird assemblage)		×f						√g			
Arctic skua (component of the seabird assemblage)		×f						√g			
Kittiwake (component of the seabird assemblage)		Xa						√d			
Arctic tern (component of the seabird assemblage)		×f						√g			
Guillemot		√i						×b			
Razorbill (component of the seabird assemblage)		√i						×b			
Puffin (component of the seabird assemblage)		√i						×b			
Shag (component of the seabird assemblage)											
Fair Isle wren											

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HRA Screening Matrix 44: Fair Isle SPA (Cont.)

Evidence supporting conclusions:

- ×a Not sensitive to operation and maintenance from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- ×b A species that flies low to the water with very low risk of collision.
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Xc
- Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing √d of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Ve Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, gannet and kittiwake are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- ×f Not sensitive to operation and maintenance from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- √g Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and inconsequential when considering one off migratory movements through OWFs, but screened in on precautionary basis.
- Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and therefore any contribution to an in-combination effect would be trivial and inconsequential. However, great skua, Arctic skua and Arctic tern are screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. √i However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √i effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot, razorbill and puffin are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.

HRA Screening Matrix 45: Sumburgh Head SPA

Name of European site:	Sumbu	irgh He	ad SPA									
EU Code:	UK900	2511										
Distance to Project:	639 kn	n to arra	ay									
Likely Effects of Project										_		
Effect	Direct disturbance displacement Indirect impacts through effects on prey species					Indirect impacts through effects on prey species Collision risk				Barrier effect		
Stage of Development	с	ο	D	С	0	D	С	Ο	D	С	ο	
Fulmar (component of the seabird assemblage)		Xa						Xb				
Kittiwake (component of the seabird assemblage)		×a						√d				
Arctic tern		×f						√g				
Guillemot (component of the seabird assemblage)		√i						×b				

Evidence supporting conclusions:

- ×a Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- ×b A species that flies low to the water with very low risk of collision.
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Xc
- Vd Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Ve Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Χf Not sensitive to O&M activities associated with potential displacement from the Hornsea Four array area. Potential connectivity limited to only during migratory bio-seasons whilst on passage.
- Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and √g inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and therefore any contribution to an in-combination effect would be trivial and inconsequential. However, Arctic tern is screened in on a precautionary basis.
- √i Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √j effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis

		In-combination	
D	С	0	D
		Xc	
		√e	
		√h	
		√j	

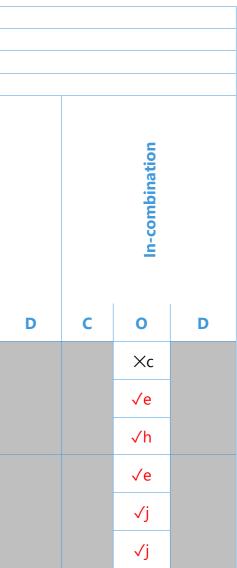
HRA Screening Matrix 46: Noss SPA

Name of European site:	Noss S	PA									
EU Code:	UK900	2081									
Distance to Project:	667 kn	n to arra	/								
Likely Effects of Project											
Effect		Direct disturbance and displacement			Indirect impacts through the effects on prey species			Collision risk			Barrier effect
Stage of Development	С	ο	D	С	ο	D	С	ο	D	С	ο
Fulmar (component of the seabird assemblage)		Xa						×b			
Gannet		×a						√d			
Great skua		×f						√g			
Kittiwake (component of the seabird assemblage)		Xa						√d			
Guillemot		√i						Xb			
Puffin (component of the seabird assemblage)		√i						×b			

Evidence supporting conclusions:

- Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season. Xa
- Хb A species that flies low to the water with very low risk of collision.
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Xc
- Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to √d mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms √e in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, gannet and kittiwake are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Not sensitive to O&M activities associated with potential displacement from the Hornsea Four array area. Potential connectivity limited to only during migratory bio-seasons whilst on passage. Χf
- Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and √g inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.

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HRA Screening Matrix 46: Noss (Cont.)

Evidence supporting conclusions (Cont.)

- Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and therefore any contribution to an in-combination effect would be trivial and inconsequential. However, great skua is screened in on a precautionary basis.
- Vi Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Vj Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and puffin are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



HRA Screening Matrix 47: Foula SPA

Name of European site:	Foula	SPA									
EU Code:	UK900	2061									
Distance to Project:	678 km	n to arra	ay								
Likely Effects of Project				1						1	
Effect		Direct disturbance displacement			Indirect impacts through effects on prev species			Collision risk			Barrier effect
Stage of Development	С	ο	D	С	Ο	D	С	Ο	D	С	ο
Fulmar (component of the seabird assemblage)		×a						×b			
Great skua		×d						√e			
Arctic skua (component of the seabird assemblage)		×d						√e			
Kittiwake (component of the seabird assemblage)		Xa						√g			
Arctic tern		×d						√e			
Guillemot		√i						×b			
Razorbill (component of the seabird assemblage)		√i						×b			
Puffin		√i						×b			
Leach's storm petrel											
Red throated diver											
Shag											

Cont. on next page

		In-combination	
D	С	0	D
		Хc	
		√f	
		√f	
		√h	
		√f	
		√j	
		√j √j √j	
		√j	

HRA Screening Matrix 47: Foula

Evidence supporting conclusions.

- Хa Not sensitive to operation and maintenance from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- A species that flies low to the water with very low risk of collision. Χb
- Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Xc
- Not sensitive to operation and maintenance from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the $\times d$ breeding season.
- Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and √e inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and √f therefore any contribution to an in-combination effect would be trivial and inconsequential. However, great skua, Arctic skua and Arctic tern are screened in on a precautionary basis.
- Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing √g of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- √h Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, kittiwake is screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. √i However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an √j effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot, razorbill and puffin are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.

HRA Screening Matrix 48: Fetlar SPA

Name of European site:	Fetlar	SPA									
EU Code:	UK900	2031									
Distance to Project:	712 kn	n to arra	ay								
Likely Effects of Project											
Effect		Direct disturbance displacement			Indirect impacts through effects on			Collision risk			Barrier effect
Stage of Development	С	0	D	С	0	D	С	0	D	С	0
Fulmar (component of the seabird assemblage)		Xa						Хb			
Great skua		×d						√e			
Arctic skua (component of the seabird assemblage)		×d						√e			
Arctic tern		×d						√e			
Red-necked Phalarope											
Dunlin											
Whimbrel											

Evidence supporting conclusions.

Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season. Xa

A species that flies low to the water with very low risk of collision. Хb

Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects. Хc

Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season. Xd

- Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and √e inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- √f Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and therefore any contribution to an in-combination effect would be trivial and inconsequential. However, great skua, Arctic skua and Arctic tern are screened in on a precautionary basis

End of Matrix 48

		In-combination	
D	С	Ο	D
		Xc	
		√f √f	
		√f	
		√f	

HRA Screening Matrix 49: Hermaness, Saxa Vord and Valla Field SPA

Name of European site:	Herm	aness, S	Saxa Vo	rd and	Valla Fie	ld SPA						
EU Code:	UK90	02011										
Distance to Project:	733 km to array											
Likely Effects of Project												
Effect		Direct disturbance displacement Indirect impacts through effects on prey species					Collision risk		Barrier effect			
Stage of Development	С	Ο	D	С	Ο	D	С	Ο	D	С	ο	
Fulmar (component of the seabird assemblage)		×a						×b				
Gannet		×a						√d				
Great skua		×f						√g				
Kittiwake (component of the seabird assemblage)		×a						√d				
Guillemot (component of the seabird assemblage)		√i						Хb				
Puffin		√i						×b				
Red throated diver												
Shag (component of the seabird assemblage)												

Evidence supporting conclusions.

- ×a Not sensitive to O&M from disturbance and displacement activities during non-breeding season and too distant from array area to be the cause of an effect during the breeding season.
- ×b A species that flies low to the water with very low risk of collision.
- ×c Based on low species sensitivity to impacts and over these scales, the pathways are considered too weak to contribute to a material degree to in-combination effects.
- Vd Present in the Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- Ve Present in moderate densities within Hornsea Four and proportion fly at PCH during the non-breeding bio-seasons so potential for collision risk from Hornsea Four and other offshore wind farms in the UK North Sea, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, gannet and kittiwake are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.
- ×f Not sensitive to O&M activities associated with potential displacement from the Hornsea Four array area. Potential connectivity limited to only during migratory bio-seasons whilst on passage.

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		In-combination	
		hina	
		-con	
		L L	
D	С	Ο	D
		Хc	
		√e	
		√h	
		√e	
		√e √j √j	
		√j	

HRA Screening Matrix 49: Hermaness, Saxa Vord and Valla Field SPA (Cont.)

Evidence supporting conclusions.

- Vg Potential connectivity to the Hornsea Four array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and inconsequential when considering one off migratory movements through OWFs but screened in on precautionary basis.
- Analysis of migratory apportionment assessments provided evidence of very small potential impacts / effects on this migratory seabird species alone from developments in the North Sea and therefore any contribution to an in-combination effect would be trivial and inconsequential. However, great skua is screened in on a precautionary basis.
- Moderate sensitivity to disturbance and displacement from operation and maintenance activities associated with Hornsea Four, though potential for an effect only during non-breeding season. √i However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- √j Moderate sensitivity to disturbance and displacement from operation and maintenance activities from Hornsea Four and other offshore wind farms within the UK North Sea with potential for an effect during non-breeding season, though connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential. However, guillemot and puffin are screened in to assess the likelihood of an AEoI in-combination on a precautionary basis.



HRA Screening Matrix 50: Hornsea Mere SPA

Name of European site:	Horn	sea Mei	re SPA								
EU Code:	UK90	06171									
Distance to Project:	12.9	km to o	ffshore	EEC							
Likely Effects of the Project											
Effect	Direct disturbance and displacement		Indirect impacts through the effects on prey species				Collision Risk	Barrier effect			
Stage of Development	С	ο	D	С	ο	D	С	Ο	D	С	Ο
Gadwall								√a			
Mute swan											

Evidence supporting conclusions (Cont.)

- Va Estimated that very small potential impacts / effects on migratory gadwall from individual developments in the North Sea. However, in order to provide a quantification of any potential impacts and effects these species are screened in.
- Vb Estimated that very small potential impacts / effects on all migratory gadwall in-combination from developments in the North Sea. However, in order to provide a quantification of any potential impacts and effects these species are screened in.



	In-combination									
D	С	Ο	D							
		√b								

HRA Screening Matrix 51: Northumberland Marine SPA

Name of European site:	Northumberland Marine SPA																		
EU Code:	UK9	020325																	
Distance to Project:	187	km fror	n array,	144 km	to ECC														
Likely Effects of Project										1			1			1			
Effect	Direct disturbance and displacement				Changes in prey availability & behaviour			Indirect impacts through effects on prey species			Collision risk			Barrier effect			In-combination		
Stage of Development	С	Ο	D	с	ο	D	с	0	D	С	0	D	С	ο	D	С	0	D	
Kittiwake (component of the seabird assemblage)		×a		Хb		Xc		×d			√e			×f		×g	√h	×g	
Common tern		×a		×b		Xc		×d			√i			×f		×g	√h	×g	
Arctic tern		Xa		×b		Xc		×d			√i			×f		×g	√h	×g	
Roseate tern		Xa		Хb		Xc		×d			√i			×f		×g	√h	×g	
Sandwich tern		×a		Xb		Xc		×d	-		√i			×f		×g	√h	×g	
Little tern																			
Guillemot	√j	√j	√k	×b		Xc		×d			×I			×f		√h	√h	√h	
Puffin	√j	√j	√k	×b		Xc		×d			×I			×f		√h	√h	√h	
Seabird assemblage (excluding named components above)																			

Evidence supporting conclusions.

- Species not known to be sensitive to disturbance and displacement from operation and maintenance activities associated with offshore wind farms. A finding of **no LSE** applies. Xa
- ×b Very minor, localised effects are predicted for prey species within (and around) the array area (as reported in the project's Environmental Statement Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2) during the construction phase. This far-ranging species is unlikely to be sensitive to indirect effects on foraging resource in the context noting the vast resources in the wider habitat available.
- The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Хc
- Throughout all project phases, all impacts to Fish and Shellfish (APP-A2.3) receptors were found to have either negligible, minor adverse or minor beneficial effects. Effects on prey species are $\times d$ reported in the project's Environmental Statement - Volume 2, Chapter 3: Fish and Shellfish (APP-A2.3) and Volume 2 Chapter 2, Benthic and Intertidal Ecology (APP-A2.2). Indirect impacts on seabirds are not therefore anticipated. No LSE.

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HRA Screening Matrix 51: Northumberland Marine SPA (Cont.)

Evidence supporting conclusions.

- Ye Present in Hornsea Four array area in moderate densities and proportion fly at potential collision height (PCH) during the non-breeding bio-seasons. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- ×f Not sensitive to barrier effect from Hornsea Four, as no connectivity during more sensitive breeding bio-season and potential connectivity only during migratory bio-seasons whilst on passage when one off movements are not considered to be of any consequence to birds when migrating large distances through the North Sea.
- ×g Potential effects were not considered to require further assessment during the construction and decommissioning phase in-combination with other plans or projects. This is due to Hornsea Four having no overlap with relevant phases of other projects that would occur at the same time.
- Vh Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- Vi Potential connectivity to array area during migratory bio-seasons, with limited effect as species known to migrate closer to coast and any risk is highly likely to be trivial and inconsequential when considering one off migratory movements through OWFs, but screened in on precautionary basis.
- ✓j Moderate sensitivity to disturbance and displacement from construction and operation and maintenance activities associated with Hornsea Four, though potential for an effect only during nonbreeding season. However, connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be trivial and inconsequential, though screened in on a precautionary basis.
- √k The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase.
- ×I A species that flies low to the water with a very low risk of collision.

END OF SCREENING MATRICES

