



FIVE ESTUARIES OFFSHORE WIND FARM

VOLUME 5, REPORT 4.3: HABITATS REGULATIONS ASSESSMENT SCREENING MATRICES – REVISION D (CLEAN)

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D	March-25	Deadline 8	GoBe	GoBe	VE OWFL



CONTENTS

1	Matrix key.....	8
2	Index to matrices.....	9
3	Effects considered.....	13
3.1	Lesser Black-Backed Gull Proposed Compensation Site (PCS) at Orford Ness ..	151
4	References.....	166



MATRICES

HRA Screening Matrix 1: Vlaamse Banken (Special Area of Conservation (SAC))	35
HRA Screening Matrix 2: Thanet Coast (SAC)	37
HRA Screening Matrix 3: Bancs des Flandres (SAC)	38
HRA Screening Matrix 4: Margate and Long Sands (SAC)	40
HRA Screening Matrix 5: Alde, Ore and Butley Estuaries (SAC)	41
HRA Screening Matrix 6: Orfordness – Shingle Street (SAC)	42
HRA Screening Matrix 7: Essex Estuaries SAC	43
HRA Screening Matrix 8: Deben Estuary Ramsar	44
HRA Screening Matrix 9: Deben Estuary SPA	45
HRA Screening Matrix 10: Dengie (Mid-Essex Coast Phase 1) SPA	46
HRA Screening Matrix 11: Dengie (Mid-Essex Coast Phase 1) Ramsar	47
HRA Screening Matrix 12: Stour and Orwell Estuaries Ramsar	48
HRA Screening Matrix 13: Colne Estuary (Mid-Essex Coast Phase 2) Ramsar	49
HRA Screening Matrix 14: Alde-Ore Estuary Ramsar	50
HRA Screening Matrix 15: Foulness (Mid-Essex Coast Phase 5) Ramsar	51
HRA Screening Matrix 16: Berwickshire and North Northumberland Coast SAC	52
HRA Screening Matrix 17: Humber Estuary SAC	53
HRA Screening Matrix 18: Humber Estuary Ramsar	54
HRA Screening Matrix 19: Moray Firth SAC	55
HRA Screening Matrix 20: Southern North Sea SAC	56
HRA Screening Matrix 21: Wash and North Norfolk Coast SAC	57
HRA Screening Matrix 22: Transboundary sites for Harbour porpoise	58
HRA Screening Matrix 23: Transboundary Sites for Seals	60
HRA Screening Matrix 24: Outer Thames Estuary SPA	62
HRA Screening Matrix 25: Alde-Ore Estuary SPA	64
HRA Screening Matrix 26: Minsmere-Walberswick SPA	66
HRA Screening Matrix 27: Minsmere-Walberswick Ramsar	68
HRA Screening Matrix 28: Hamford Water SPA	70
HRA Screening Matrix 29: Thanet Coast and Sandwich Bay SPA	71
HRA Screening Matrix 30: Greater Wash SPA	72
HRA Screening Matrix 31: Colne Estuary (Mid-Essex Coast Phase 2) SPA	73
HRA Screening Matrix 32: Foulness (Mid-Essex Coast Phase 5) SPA	74
HRA Screening Matrix 33: Breydon Water SPA	75
HRA Screening Matrix 34: Blackwater Estuary SPA	76
HRA Screening Matrix 35: Blackwater Estuary Ramsar	77
HRA Screening Matrix 36: Medway Estuary and Marshes SPA	79
HRA Screening Matrix 37: Dungeness, Romney Marsh and Rye Bay SPA	80
HRA Screening Matrix 38: North Norfolk Coast SPA	81
HRA Screening Matrix 39: North Norfolk Coast Ramsar	82
HRA Screening Matrix 40: The Wash SPA	83
HRA Screening Matrix 41: Gibraltar Point SPA	84
HRA Screening Matrix 42: Humber Estuary SPA	84
HRA Screening Matrix 43: Flamborough and Filey Coast SPA	86
HRA Screening Matrix 44: Teesmouth and Cleveland Coast SPA	88
HRA Screening Matrix 45: Northumbria Coast SPA	89
HRA Screening Matrix 46: Northumbria Coast Ramsar	90
HRA Screening Matrix 47: Northumberl and Marine SPA	91



HRA Screening Matrix 48: Coquet Island SPA.....	92
HRA Screening Matrix 49: Farne Islands SPA	93
HRA Screening Matrix 50: Aberdaron Coast and Bardsey Island SPA	95
HRA Screening Matrix 51: Lindisfarne SPA.....	96
HRA Screening Matrix 52: Skomer Skokholm and the Seas off Pembrokeshire	97
HRA Screening Matrix 53: St Abb's Head to Fast Castle SPA	98
HRA Screening Matrix 54: Grassholm SPA.....	99
HRA Screening Matrix 55: Imperial Dock Lock, Leith SPA.....	100
HRA Screening Matrix 56: Forth Islands SPA	101
HRA Screening Matrix 57: Ailsa Craig SPA.....	102
HRA Screening Matrix 58: Fowlsheugh SPA.....	103
HRA Screening Matrix 59: Isles of Scilly SPA	104
HRA Screening Matrix 60: Ythan Estuary, of Sands of Forvie and Meikle Loch SPA.....	105
HRA Screening Matrix 61: Ythan Estuary, Sands of Forvie and Meikle Loch Ramsar	106
HRA Screening Matrix 62: Buchan Ness to Collieston Coast SPA.....	107
HRA Screening Matrix 63: Rathlin Island SPA	108
HRA Screening Matrix 64: Loch of Strathbeg SPA.....	109
HRA Screening Matrix 65: Troup, Pennan and Lion's Heads SPA.....	110
HRA Screening Matrix 66: Inner Moray Firth SPA.....	111
HRA Screening Matrix 67: Cromarty Firth SPA	112
HRA Screening Matrix 68: Rum SPA	113
HRA Screening Matrix 69: East Caithness Cliffs SPA	114
HRA Screening Matrix 70: North Caithness Cliffs SPA	115
HRA Screening Matrix 71: Copinsay SPA	116
HRA Screening Matrix 72: Mingulay and Berneray SPA	117
HRA Screening Matrix 73: Hoy SPA.....	118
HRA Screening Matrix 74: Auskerry (UK) SPA.....	119
HRA Screening Matrix 75: Handa SPA.....	120
HRA Screening Matrix 76: Shiant Isles SPA.....	121
HRA Screening Matrix 77: Cape Wrath SPA.....	122
HRA Screening Matrix 78: Calf of Eday SPA.....	123
HRA Screening Matrix 79: Rousay SPA.....	124
HRA Screening Matrix 80: Marwick Head SPA	125
HRA Screening Matrix 81: Fair Isle SPA	126
HRA Screening Matrix 82: West Westray SPA.....	127
HRA Screening Matrix 83: Papa Westray (North Hill and Holm) SPA	128
HRA Screening Matrix 84: Sule Skerry and Sule Stack SPA.....	129
HRA Screening Matrix 85: Sumburgh Head SPA	130
HRA Screening Matrix 86: Mousa SPA	131
HRA Screening Matrix 87: Noss SPA.....	132
HRA Screening Matrix 88: Flannan Isles SPA.....	133
HRA Screening Matrix 89: St Kilda SPA.....	134
HRA Screening Matrix 90: North Rona and Sula Sgeir SPA	135
HRA Screening Matrix 91: Foula SPA	136
HRA Screening Matrix 92: Papa Stour SPA	137
HRA Screening Matrix 93: Fetlar SPA.....	138
HRA Screening Matrix 94: Ronas Hill-North Roe and Tingon SPA	139
HRA Screening Matrix 95: Hermaness, Saxa Vord and Valla Field SPA.....	140
HRA Screening Matrix 96: Ramna Stacks and Gruney SPA.....	141



HRA Screening Matrix 97: Southern Waters of Gibraltar SPA.....	142
HRA Screening Matrix 98: Vlake van de Raan	143
HRA Screening Matrix 99: Westerschelde & Saeftinghe	144
HRA Screening Matrix 100: Voordelta	145
HRA Screening Matrix 101: Hamford Water SAC.....	146
HRA Screening Matrix 102: Hamford Water Ramsar	147
HRA Screening Matrix 103: Stour and Orwell Estuaries SPA and Ramsar	148
HRA Screening Matrix 104: Abberton Reservoir SPA	149
HRA Screening Matrix 105: Abberton Reservoir Ramsar	150
HRA Screening Matrix 106: Alde-Ore Estuary Ramsar and the PCS	151
HRA Screening Matrix 107: Alde-Ore Estuary SPA and the PCS	154
HRA Screening Matrix 108: Orfordness – Shingle Street SAC and the PCS.....	156
HRA Screening Matrix 109: Outer Thames Estuary SPA and the PCS.....	157
HRA Screening Matrix 110: Alde-Ore Butley Estuaries SAC and the PCS.....	158
HRA Screening Matrix 111: Southern North Sea SAC and the PCS	159
HRA Screening Matrix 112: Sandlings SPA and the PCS	160
HRA Screening Matrix 113: Staverton Park & The Thicks Wantisden SAC and the PCS ..	161
HRA Screening Matrix 114: Minsmere - Walberswick RAMSAR and the PCS.....	162
HRA Screening Matrix 115: Minsmere – Walberswick SPA and the PCS	163
HRA Screening Matrix 116: Minsmere to Walberswick Heaths & Marshes SAC and the PCS	165
Table 2.1 Index to matrices	9
Table 3.1: Potential effects on the European site considered in the matrices.....	13



DEFINITION OF ACRONYMS

Term	Definition
EMF	Electromagnetic Field
ECC	Export Cable Corridor
HRA	Habitats Regulations Assessment
INNS	Invasive Non-Native Species
LSE	Likely Significant Effect
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Impact Report
PINS	Planning Inspectorate
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SPA	Special Protected Area
VE	Five Estuaries
VEOWFL	Five Estuaries Offshore Windfarm Limited
WTG	Wind Turbine Generator
ZoI	Zone of Influence

UNITS

Units	Definition
km	Kilometre
cm	Centimetre
m	Metre
ha	Hectare
kg	Kilogram



1 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)



2 INDEX TO MATRICES

2.1.1 This appendix presents the Screening matrices for Five Estuaries Offshore Wind Farm (OWF, hereafter 'VE') prompted by Five Estuaries Offshore Windfarm Limited (hereafter 'the Applicant') in accordance with the structure and format specified in PINS Advice Note 10 (version 8, from November 2022).

Table 2.1 Index to matrices

Matrix Number	European site included within the assessment
1	Vlaamse Banken SAC
2	Thanet Coast SAC
3	Bancs des Flandres SAC
4	Margate and Long Sands (SAC)
5	Alde, Ore and Butley Estuaries SAC
6	Orfordness – Shingle Street SAC
7	Essex Estuaries SAC
8	Deben Estuary Ramsar
9	Dengie (Mid-Essex Coast Phase 1) Ramsar
10	Stour and Orwell Estuaries Ramsar
11	Colne Estuary (Mid-Essex Coast Phase 2) Ramsar
12	Alde-Ore Estuary Ramsar
13	Foulness (Mid-Essex Coast Phase 5) Ramsar
14	Berwickshire and North Northumberland Coast SAC
15	Humber Estuary SAC
16	Humber Estuary Ramsar
17	Moray Firth SAC
18	Southern North Sea SAC
19	Wash and North Sea SAC
20	Transboundary sites for Harbour porpoise
21	Transboundary Sites for Seals
22	Outer Thames Estuary SPA
23	Alde-Ore Estuary SPA
24	Minsmere- Walberswick SPA
25	Hamford Water SPA



Matrix Number	European site included within the assessment
26	Thanet Coast and Sandwich Bay SPA
27	Greater Wash SPA
28	Colne Estuary (Mid-Essex Coast Phase 2) SPA
29	Foulness (Mid-Essex Coast Phase 5) SPA
30	Breydon Water SPA
31	Blackwater Estuary SPA
32	Medway Estuary and Marshes SPA
33	Dungeness, Romney Marsh and Rye Bay SPA
34	North Norfolk Coast SPA
35	North Norfolk Coast Ramsar
36	The Wash SPA
37	Gibraltar Point SPA
39	Humber Estuary SPA
40	Flamborough and Filey Coast SPA
41	Northumbria Coast SPA
42	Northumbria Coast Ramsar
43	Northumberland and Marine SPA
44	Coquet Island SPA
45	Farne Islands SPA
46	Aberdaron Coast and Bardsey Island SPA
47	Lindisfarne SPA
48	Skomer Skokholm and the Seas off Pembrokeshire
49	St Abb's Head to Fast Castle SPA
50	Grassholm SPA
51	Imperial Dock Lock, Leith SPA
52	Forth Islands SPA
53	Ailsa Craig SPA
54	Fowlsheugh SPA
55	Isles of Scilly SPA
56	Ythan Estuary, of Sands of Forvie and Meikle Loch SPA
57	Ythan Estuary, Sands of Forvie and Meikle Loch Ramsar
58	Buchan Ness to Collieston Coast SPA



Matrix Number	European site included within the assessment
59	Rathlin Island SPA
60	Loch of Strathbeg SPA
61	Troup, Pennan and Lion's Heads SPA
62	Inner Moray Firth SPA
63	Cromarty Firth SPA
64	Rum SPA
65	East Caithness Cliffs SPA
66	North Caithness Cliffs SPA
67	Copinsay SPA
68	Mingulay and Berneray SPA
69	Hoy SPA
70	Auskerry (UK) SPA
71	Handa SPA
72	Shiant Isles SPA
73	Cape Wrath SPA
74	Calf of Eday SPA
75	Rousay SPA
76	Marwick Head SPA
77	Fair Isle SPA
78	West Westray SPA
79	Papa Westray (North Hill and Holm) SPA
80	Sule Skerry and Sule Stack SPA
81	Sumburgh Head SPA
82	Mousa SPA
83	Noss SPA
84	Flannan Isles SPA
85	St Kilda SPA
86	North Rona and Sula Sgeir SPA
87	Foula SPA
88	Papa Stour SPA
89	Fetlar SPA
90	Ronas Hill-North Roe and Tingon SPA



Matrix Number	European site included within the assessment
91	Hermaness, Saxa Vord and Valla Field SPA
92	Ramna Stacks and Gruney SPA
93	Southern Waters of Gibraltar SPA
94	Vlakte van de Raan
95	Westerschelde & Saeftinghe
96	Voordelta
97	Hamford Water SAC
98	Hamford Water Ramsar
99	Stour and Orwell Estuaries SPA
100	Abberton Reservoir SPA
101	Abberton Reservoir Ramsar
102	Hamford Water Ramsar
103	Stour and Orwell Estuaries SPA and Ramsar
104	Abberton Reservoir SPA
105	Abberton Reservoir Ramsar
Proposed Compensation Site at Orford Ness	
106	Alde-Ore Estuary Ramsar
107	Alde-Ore Estuary SPA
108	Orfordness – Shingle Street SAC
109	Outer Thames Estuary SPA
110	Alde-Ore Butley Estuaries SAC
111	Southern North Sea SAC
112	Sandlings SPA
113	Staverton Park & The Thicks Wantisden SAC
114	Walberswick Ramsar
115	Walberswick SPA
116	Minsmere to Walberswick Heaths & Marshes SAC



3 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 VE are provided in Table 3.1 below.

Table 3.1: Potential effects on the European site considered in the matrices

Potential effects on the European site considered in the matrices	
Designations	Impacts Considered in Matrices
Vlaamse Banken SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Underwater noise Collision risk Changes to prey Disturbance at haul out
Thanet Coast SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Bancs des Flandres SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Underwater noise Collision risk Changes to prey Disturbance at haul out Barrier effect



Potential effects on the European site considered in the matrices

Margate and Long Sands (SAC)	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Alde, Ore and Butley Estuaries SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Orfordness – Shingle Street SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Essex Estuaries SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Deben Estuary Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk
Deben Estuary Ramsar	Changes in prey availability and behaviour



Potential effects on the European site considered in the matrices

	Direct disturbance and displacement Barrier effects Changes to physical processes
Dengie (Mid-Essex Coast Phase 1) SPA	Collision risk
Dengie (Mid-Essex Coast Phase 1) Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk
Stour and Orwell Estuaries Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk
Alde-Ore Estuary Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk



Potential effects on the European site considered in the matrices

	Changes to prey Barrier effect
Foulness (Mid-Essex Coast Phase 5) Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Berwickshire and North Northumberland Coast SAC	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbances Accidental pollution Disturbance at haul out
Humber Estuary SAC	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Humber Estuary Ramsar	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Moray Firth SAC	Underwater noise Collision risk Changes to prey Accidental pollution
Southern North Sea SAC	Underwater noise Collision risk



Potential effects on the European site considered in the matrices

	Physical habitat loss/ disturbance Changes to prey Accidental pollution
Wash and North Sea SAC	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution and water quality Disturbance at haul out
Doggersbank (Netherlands) SAC	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Klaverbank SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Noordzeekustone SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
SBZ 1 SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution



Potential effects on the European site considered in the matrices

	Disturbance at haul out
SBZ 2 SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
SBZ 3 SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Voordelta SCI	Underwater noise Collision risk Changes to prey Accidental pollution and water quality Physical habitat loss/ disturbance Disturbance at haul out
Waddenzee SCI	Underwater noise Collision risk Changes to prey Accidental pollution and water quality Physical habitat loss/ disturbance Disturbance at haul out
Westerschelde & Saeftinghe	Underwater noise Collision risk Changes to prey Accidental pollution and water quality Physical habitat loss/ disturbance Disturbance at haul out
Outer Thames Estuary SPA	Changes in prey availability and behaviour



Potential effects on the European site considered in the matrices

	- Disturbance and displacement - Direct disturbance and displacement - Barrier effect - Habitat loss - Collision risk
Alde-Ore Estuary SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect - Collision risk
Minsmere-Walberswick SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect - Collision risk
Minsmere-Walberswick Ramsar	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effects - Collision risk
Hamford Water SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect - Collision risk - Pollution (water quality) - Pollution (air quality) - Decreases in water quantity - Loss of foraging and roosting habitat outside of the SPA
Thanet Coast and Sandwich Bay SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect
Greater Wash SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect - Collision risk



Potential effects on the European site considered in the matrices

Colne Estuary (Mid-Essex Coast Phase 2) SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect - Collision risk - Physical habitat loss/ disturbance - Suspended sediment/ deposition - Accidental pollution - INNS - Changes to physical processes
Foulness (Mid-Essex Coast Phase 5) SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect
Breydon Water SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect - Collision risk - Loss of foraging and roosting habitat outside the SPA - Disturbance/ displacement of birds outside SPA - Water quality - Decreases in water quantity - Decreases in air quality
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar	- Changes in prey availability and behaviour - Direct disturbance and displacement - Barrier effect - Collision risk - Loss of foraging and roosting habitat outside the SPA - Disturbance/ displacement of birds outside



Potential effects on the European site considered in the matrices

	Water quality Decreases in water quantity Decreases in air quality
Medway Estuary and Marshes SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Dungeness, Romney Marsh and Rye Bay SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
North Norfolk Coast SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
The Wash SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Gibraltar Point SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Humber Estuary SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Flamborough and Filey Coast SPA	Changes in prey availability and behaviour Collision risk Direct disturbance and displacement Barrier effect In-combination
Teesmouth and Cleveland Coast SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effects
Northumbria Coast SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect



Potential effects on the European site considered in the matrices

Northumbria Coast Ramsar	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Northumberland and Marine SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Coquet Island SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Farne Islands SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Aberdaron Coast and Bardsey Island SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Lindisfarne SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Skomer Skokholm and the Seas off Pembrokeshire	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
St Abb's Head to Fast Castle SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Grassholm SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Imperial Dock Lock, Leith SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Forth Islands SPA	Changes in prey availability and behaviour



Potential effects on the European site considered in the matrices

	Direct disturbance and displacement Barrier effect Collision risk
Ailsa Craig SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Fowlsheugh SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Isles of Scilly SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Ythan Estuary, of Sands of Foryie and Meikle Loch SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Ythan Estuary, Sands of Foryie and Meikle Loch Ramsar	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Buchan Ness to Collieston Coast SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Rathlin Island SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Loch of Strathbeg SPA	Changes in prey availability and behaviour



Potential effects on the European site considered in the matrices

	Direct disturbance and displacement Barrier effect Collision risk
Troup, Pennan and Lion's Heads SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Inner Moray Firth SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Cromarty Firth SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Rum SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
East Caithness Cliffs SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
North Caithness Cliffs SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Copinsay SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Mingulay and Berneray SPA	Changes in prey availability and behaviour



Potential effects on the European site considered in the matrices

	Direct disturbance and displacement Barrier effect Collision risk
Hoy SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Auskerry (UK) SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Handa SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Shiant Isles SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Cape Wrath SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Calf of Eday SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Rousay SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Marwick Head SPA	Changes in prey availability and behaviour



Potential effects on the European site considered in the matrices

	Direct disturbance and displacement Barrier effect Collision risk
Fair Isle SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
West Westray SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Papa Westray (North Hill and Holm) SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Sule Skerry and Sule Stack SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Sumburgh Head SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Mousa SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Noss SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Flannan Isles SPA	Changes in prey availability and behaviour



Potential effects on the European site considered in the matrices

	Direct disturbance and displacement Barrier effect Collision risk
St Kilda SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
North Rona and Sula Sgeir SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Foula SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Papa Stour SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Fetlar SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Ronas Hill-North Roe and Tingon SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Hermaness, Saxa Vord and Valla Field SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Ramna Stacks and Gruney SPA	Changes in prey availability and behaviour



Potential effects on the European site considered in the matrices

	Direct disturbance and displacement Barrier effect Collision risk
Southern Waters of Gibraltar SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Vlakte van de Raan	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution INNS EMF Underwater noise Changes to prey
Westerschelde & Saeftinghe	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution INNS EMF Underwater noise Changes to prey
Voordelta	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution INNS EMF Underwater noise Changes to prey
Hamford Water SAC	Impacts on supporting populations, food plant and potential habitat outside of the SAC Water quality: pollution from site run-off affecting habitat quality Decreases in water quality



Potential effects on the European site considered in the matrices	
	Decreases in air quality In-combination
Hamford Water Ramsar	Disturbance of birds outside the Ramsar Water quality: pollution from site run-off affecting prey availability Decreases in water quantity
Stour and Orwell Estuaries SPA	Disturbance of birds outside of the SPA Water quality: pollution from site run-off affecting prey availability Decreases in water quantity Decreases in air quality Loss of foraging and roosting habitat outside the Ramsar In-combination
Abberton Reservoir SPA	Disturbance of birds outside of the SPA Water quality: pollution from site run-off affecting habitat quality Decrease in air quality Loss of foraging and roosting habitat outside the Ramsar In-combination
Abberton Reservoir Ramsar	Disturbance of birds outside the Ramsar Water quality: pollution from site run-off affecting prey availability Decrease in air quality Loss of foraging and roosting habitat outside the Ramsar In-combination
Proposed Compensation Site at Orford Ness	
Alde-Ore Estuary Ramsar	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants



Potential effects on the European site considered in the matrices

	Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Alde-Ore Estuary SPA	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Orfordness – Shingle Street SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways



Potential effects on the European site considered in the matrices

	Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Outer Thames Estuary SPA	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Alde-Ore Butley Estuaries SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition



Potential effects on the European site considered in the matrices

	Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Southern North Sea SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Sandlings SPA	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality



Potential effects on the European site considered in the matrices

	Changes in water flows caused by fence lines across ditches In-combination
Staverton Park & The Thicks Wantisden SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Walberswick Ramsar	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination



Potential effects on the European site considered in the matrices

Walberswick SPA	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Minsmere to Walberswick Heaths & Marshes SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination



HRA Screening Matrix 1: Vlaamse Banken (Special Area of Conservation (SAC))

Name of European site: Vlaamse Banken SAC																																	
EU Code:			BEMNZ000																														
Distance to Project:			34.75 km to array area																														
Likely Effects of Project																																	
Effect			Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Underwater noise			Collision risk			Changes to prey			Disturbance at haul out			
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D				
Reefs			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa				
Sandbanks which are slightly covered by sea water all the time			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa				
Harbour porpoise									Xb		Xb										Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb				
Harbour seal; and Grey seal			✓c	Xd	✓c				Xd	Xd	Xd											✓e	Xd	✓e	✓f	✓f	✓f	✓g	✓g	✓g	✓h	✓h	✓h
River lamprey; and Sea Lamprey			Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi				Xj	Xj	Xj				Xi	Xi	Xi				
Twaite shad			Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi				✓k		✓k										

Evidence supporting conclusions:

- Xa There is no potential for LSE as the sit sits beyond the benthic subtidal study area as defined by the secondary Zone of Influence (Zoi) and therefore has been screened out.
- Xb There is no potential for LSE. The site has been screened out based on a lack of evidence to suggest connectivity (site not within 26km of VE).
- ✓c The location of the project relative to the at sea usage area of seals together with connectivity to the SAC indicates the potential for seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).
- Xd No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.
- ✓e Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and underwater noise associated with VE.
- ✓f The location of the project relative to the at sea usage area of seals together with connectivity to the SAC may result in increased collision risk of seals (with vessels associated with activity relating to VE).
- ✓g Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and changes in prey associated with VE.
- ✓h It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

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- Xi No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site.
- Xj The range between the array areas and designated site combined with the low sensitivity of lamprey to underwater noise (Popper et al., 2014) mean that there is no potential for LSE for these species at this site.
- ✓k The range between the array areas and designated site combined with the high sensitivity of Twaite Shad to underwater noise (Popper et al., 2014) mean that there is a potential for LSE for this species at this site during pile driving and UXO clearance.

End of Matrix 1



HRA Screening Matrix 2: Thanet Coast (SAC)

Name of European site:		Thanet Coast SAC																	
EU Code:		UK0013107																	
Distance to Project:		56.14 km to array area																	
Likely Effects of Project																			
Effect		Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Reefs		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa
Submerged or partially submerged sea caves		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa

Evidence supporting conclusions:

Xa There is no potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZOI and therefore has been screened out.

End of Matrix 2



HRA Screening Matrix 3: Bancs des Flandres (SAC)

Name of European site: Bancs des Flandres SAC																																	
EU Code:		FR3102002																															
Distance to Project:		49.11 km to array area																															
Likely Effects of Project																																	
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Underwater noise			Collision risk			Changes to prey			Disturbance at haul out			Barrier effect		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by seawater at low tide	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa															
Harbour porpoise	Xb		Xb				Xb		Xb										Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb						
Harbour seal; and Grey seal	✓c	Xd	✓c				Xd		Xd										✓e	Xd	✓e	✓f	✓f	✓f	✓g	✓g	✓g	✓h	✓h	✓h			
Northern gannet	Xi	Xi	Xi																				Xi		Xi	Xi	Xi					Xi	
Razorbill	Xi	Xi	Xi																						Xi	Xi	Xi						

Evidence supporting conclusions:

Xa There is no potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZOI and therefore has been screened out.

Xb No potential for LSE. The site has been screened out based on a lack of evidence to suggest connectivity (site not within 26km of VE).

✓c The location of the project relative to the at sea usage area of seals together with connectivity to the SAC indicates the potential for seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).

Xd No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.

✓e Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and underwater noise associated with VE.

✓f The location of the project relative to the at sea usage area of seals together with connectivity to the SAC may result in increased collision risk of seals (with vessels associated with activity relating to VE).

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- ✓g Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and changes in prey associated with VE.
- ✓h It is not possible to screen out potential impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.
- Xi The significance of effect at a population level is considered to decrease with distance and the severity of the effect experienced locally. The likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on this site after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 3



HRA Screening Matrix 4: Margate and Long Sands (SAC)

Name of European site: Margate and Long Sands (SAC)																					
EU Code:				UK0030371																	
Distance to Project:				23.61 km to array area																	
Likely Effects of Project																					
Effect				Physical habitat loss/ disturbance			Suspended sediment/			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by sea water all the time				√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage and therefore there is a potential for LSE.

End of Matrix 4



HRA Screening Matrix 5: Alde, Ore and Butley Estuaries (SAC)

Name of European site:				Alde, Ore and Butley Estuaries SAC																	
EU Code:				UK0030076																	
Distance to Project:				37.44 km to array area																	
Likely Effects of Project																					
Effect				Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Estuaries				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa			
Mudflats and sandflats not covered by seawater at low tide				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa			
Atlantic salt meadows				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa			

Evidence supporting conclusions:

Xa There is no potential for LSE as the site sits beyond the benthic subtidal study area as defined by the Zol and therefore has been screened out.

End of Matrix 5



HRA Screening Matrix 6: Orfordness – Shingle Street (SAC)

Name of European site: Orfordness – Shingle Street SAC																					
EU Code:				UK0014780																	
Distance to Project:				37.31 km to array area																	
Likely Effects of Project																					
Effect				Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Coastal lagoons				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		
Annual vegetation of drift lines				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		
Perennial vegetation of stony banks				Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb		

Evidence supporting conclusions:

Xa There is no potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZOI and therefore has been screened out.

Xb Feature located outside the reach of waves and at a distance from project boundary. No potential for LSE.

End of Matrix 6



HRA Screening Matrix 7: Essex Estuaries SAC

Name of European site:		Essex Estuaries SAC																	
EU Code:		UK0013690																	
Distance to Project:		64.27 km to array area																	
Likely Effects of Project																			
Effect		Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Estuaries		√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Mudflats and sandflats not covered by seawater at low tide		√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Salicornia and other annuals colonizing mud and sand		√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Spartina swards		√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Atlantic salt meadows		√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Mediterranean and thermo-Atlantic halophilous scrubs		√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Sandbanks which are slightly covered by sea water all the time		√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage and therefore there is a potential for LSE.

End of Matrix 7



HRA Screening Matrix 8: Deben Estuary Ramsar

Name of European site: Deben Estuary Ramsar																							
EU Code:			UK11018																				
Distance to Project:			48.32 km to array area																				
Likely Effects of Project																							
Effect			Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Ramsar criterion 2: <i>Vertigo angustior</i>			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Wintering population of: Dark-bellied brent goose																					✓b		

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

√b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 8



HRA Screening Matrix 9: Deben Estuary SPA

Name of European site: Deben Estuary Ramsar												
EU Code:	UK11018											
Distance to Project:	48.32 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Avocet	Xa	Xa	Xa	Xb	Xb	Xb	Xb	Xb	Xb		✓c	
Wintering population of: Dark-bellied brent goose											✓c	

Evidence supporting conclusions:

- Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.
- Xb Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone. The SPA is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.
- ✓c While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 9



HRA Screening Matrix 10: Dengie (Mid-Essex Coast Phase 1) SPA

Name of European site:		Dengie (Mid-Essex Coast Phase 1) SPA		
EU Code:	UK9009242			
Distance to Project:	73.63 km to array area			
Likely Effects of Project				
Effect	Collision risk			
Stage of Development	C	O	D	
Dark-bellied brent goose		√a		
Grey plover		√a		
Knot		√a		

Evidence supporting conclusions:

- √a While this SPA is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 10



HRA Screening Matrix 11: Dengie (Mid-Essex Coast Phase 1) Ramsar

Name of European site:		Dengie (Mid-Essex Coast Phase 1) Ramsar																				
EU Code:		UK9009242																				
Distance to Project:		73.63 km to array area																				
Likely Effects of Project																						
Effect		Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Criterion 1 – saltmarsh		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Criterion 2 – rare plant species and invertebrates		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Criterion 3 – saltmarsh species		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Wintering population of: Dark-bellied brent goose; Grey plover; and Knot.																					✓b	

Evidence supporting conclusions:

- Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZOI and therefore has been screened out.
- ✓b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 11



HRA Screening Matrix 12: Stour and Orwell Estuaries Ramsar

Name of European site:				Stour and Orwell Estuaries Ramsar																				
EU Code:				UK9009121																				
Distance to Project:				54.67 km to array area																				
Likely Effects of Project																								
Effect				Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Criterion 2: Zostera noltei; and Spartina maritima				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Other noteworthy and nationally important flora species: Puccinellia rupestris; Sarcocornia perennis; Limonium humile; and Zostera angustifolia				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Noteworthy invertebrate fauna of national importance: Phaonia fusca; Haematopota grandis (Meigen); Arctosa fulvolineata; and Baryphyma duffeya				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Wintering populations of: Black-tailed godwit; Dark-bellied brent goose; Dunlin; Grey plover; Knot; Pintail; Redshank; Important passage populations of Redshank; and Waterbird assemblage																						√b		

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZOI and therefore has been screened out.

√b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 12



HRA Screening Matrix 13: Colne Estuary (Mid-Essex Coast Phase 2) Ramsar

Name of European site:		Colne Estuary (Mid-Essex Coast Phase 2) Ramsar																				
EU Code:		UK9015022																				
Distance to Project:		67 km to array area																				
Likely Effects of Project																						
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Criterion 1 – saltmarsh	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa				
Criterion 2 – 12 species of nationally scarce plants and invertebrate species	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa				
Criterion 3 – full and representative sequences of saltmarsh plant communities covering range of variation in Britain	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa				
Dark-bellied brent goose; Redshank; and Waterbird assemblage																				√b		

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

✓b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 13



HRA Screening Matrix 14: Alde-Ore Estuary Ramsar

Name of European site:		Alde-Ore Estuary Ramsar																										
EU Code:		UK11002																										
Distance to Project:		37.31 km to array area																										
Likely Effects of Project																												
Effect		Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk			Changes to prey			Barrier effect		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Criterion 2 – a number of nationally-scarce plant species and British Red Data Book invertebrates		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa									
Criterion 3 – full and representative sequences of saltmarsh plant communities covering range of variation in Britain		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa									
Lesser black-backed gull			Xb																		√c		Xd	Xd	Xd		Xb	
Wintering populations of: Avocent and Redshank																					√e							

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZOI and therefore has been screened out.

Xb This species has no /very low vulnerability to displacement or disturbance and barrier effects to OWF and vessel disturbance (Bradbury et al., 2014; Fliessbach et al., 2019). Therefore, LSE can be discounted in relation to this effect alone.

✓c This Ramsar is within the MMF +1SD for lesser black-backed gull and therefore may have connectivity during the breeding season. This species has a very high vulnerability to collision risk with turbines (Bradbury et al., 2014). Given the proximity of VE to the Ramsar, effects cannot be screened out at this stage alone. Therefore, there is potential for LSE.

Xd The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

✓e While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 14



HRA Screening Matrix 15: Foulness (Mid-Essex Coast Phase 5) Ramsar

Name of European site:				Foulness (Mid-Essex Coast Phase 5) Ramsar																	
EU Code:				861																	
Distance to Project:				67.34 km to array area																	
Likely Effects of Project																					
Effect				Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Criterion 1 – saltmarsh				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa		Xa
Criterion 2 – a number of nationally-scarce plant species and British Red Data Book Invertebrates				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa		Xa
Criterion 3 – full and representative sequences of saltmarsh plant communities covering range of variation in Britain				Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa		Xa

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the secondary ZOI and therefore has been screened out.

End of Matrix 15



HRA Screening Matrix 16: Berwickshire and North Northumberland Coast SAC

Name of European site:				Berwickshire and North Northumberland Coast SAC																	
EU Code:				UK0017072																	
Distance to Project:				445.90 km to array area																	
Likely Effects of Project																					
Effect				Underwater noise			Collision risk			Changes to prey			Habitat loss			Disturbance at haul out			Accidental pollution		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal				√a	Xb	√a	√c	√c	√c	√d	√d	√d	√e	Xb	√e	√f	√f	√f	Xb	Xb	Xb

Evidence supporting conclusions:

- √a Potential for 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 VE.
- Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.
- √c The location of the project relative to the sea usage area of grey seal together with connectivity to the SAC may result in increased collision risk of grey seal (with vessels associated with activity relating to VE).
- √d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and changes in prey associated with VE.
- √e The location of the project relative to the at sea usage area of grey seal together with connectivity to the SAC indicates the potential for grey seal habitat loss (caused by potential for disturbance and barrier effects as a result of increases in underwater noise).
- √f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 16



HRA Screening Matrix 17: Humber Estuary SAC

Name of European site:		Humber Estuary SAC																	
EU Code:		UK0030170																	
Distance to Project:		203.22 km to array area																	
Likely Effects of Project																			
Effect		Underwater noise			Collision risk			Changes to prey			Physical habitat loss/ disturbance			Disturbance at haul out			Accidental pollution		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal		√a	Xb	√a	√c	√c	√c	√d	√d	√d	√e	Xb	√e	√f	√f	√f	Xb	Xb	Xb

Evidence supporting conclusions:

- √a Potential for site connectivity is indicated from seal use at sea data. Therefore, there is potential for some level of interaction between grey seal and underwater noise associated with VE.
- Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of potential change.
- √c The location of the project relative to the at sea usage area of grey seal together with connectivity to the SAC may result in increased collision risk of grey seal (with vessels associated with activity relating to VE).
- √d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and changes in prey associated with VE.
- √e The location of the project relative to the at sea usage area of grey seal together with connectivity to the SAC indicates the potential for grey seal habitat loss (caused by potential for disturbance and barrier effects as a result of increases in underwater noise).
- √f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 17



HRA Screening Matrix 18: Humber Estuary Ramsar

Name of European site:				Humber Estuary Ramsar																	
EU Code:				663																	
Distance to Project:				197.19 km to array area																	
Likely Effects of Project																					
Effect				Underwater noise			Collision risk			Changes to prey			Physical habitat loss/ disturbance			Disturbance at haul out			Accidental pollution and water quality		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal				√a	Xb	√a	√c	√c	√c	√d	√d	√d	√e	Xb	√e	√f	√f	√f	Xb	Xb	Xb

Evidence supporting conclusions:

- ✓a Potential for 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 VE.
- Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.
- ✓c The location of the project relative to the at sea usage area of grey seal together with connectivity to the Ramsar may result in increased collision risk of grey seal (with vessels associated with activity relating to VE).
- ✓d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and changes in prey associated with VE.
- ✓e The location of the project relative to the at sea usage area of grey seal together with connectivity to the Ramsar indicates the potential for grey seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).
- ✓f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this Ramsar since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 18



HRA Screening Matrix 19: Moray Firth SAC

Name of European site:		Moray Firth SAC											
EU Code:		UK0019808											
Distance to Project:		725.82 km to array area											
Likely Effects of Project													
Effect		Underwater noise			Collision risk			Changes to prey			Accidental pollution		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D
Bottlenose dolphin		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa

Evidence supporting conclusions:

Xa No potential for LSE. The site has been screened out based on a lack of evidence to suggest connectivity.

End of Matrix 19



HRA Screening Matrix 20: Southern North Sea SAC

Name of European site:		Southern North Sea SAC														
EU Code:		UK0030395														
Distance to Project:		0 km to array area														
Likely Effects of Project																
Effect	Underwater noise			Collision risk			Physical habitat loss/ disturbance			Changes to prey			Accidental pollution			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Harbour porpoise	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a	

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage and therefore there is a potential for LSE.

End of Matrix 20



HRA Screening Matrix 21: Wash and North Norfolk Coast SAC

Name of European site:				Wash and North Norfolk Coast SAC																	
EU Code:				UK0017075																	
Distance to Project:				126.35 km to array area																	
Likely Effects of Project																					
Effect				Underwater noise			Collision risk			Changes to prey			Physical habitat loss/ disturbance			Disturbance at haul out			Accidental pollution and water quality		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Harbour seal				√a	Xb	√a	√c	√c	√c	√d	√d	√d	√e	Xb	√e	√f	√f	√f	Xb	Xb	Xb

Evidence supporting conclusions

- √a Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between harbour seal and underwater noise associated with VE.
- Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.
- √c The location of the project relative to the at sea usage area of harbour seal together with connectivity to the SAC may result in increased collision risk of harbour seal (with vessels associated with activity relating to VE).
- √d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between harbour seal and changes in prey associated with VE.
- √e The location of the project relative to the at sea usage area of harbour seal together with connectivity to the SAC indicates the potential for harbour seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).
- √f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 21



HRA Screening Matrix 22: Transboundary sites for Harbour porpoise

Name of European site: Transboundary sites for harbour porpoise																	
EU Code:			Various														
Distance to Project:			Various														
Likely Effects of Project																	
Effect			Underwater noise			Collision risk			Changes to prey			Physical habitat loss/ disturbance			Accidental pollution and water quality		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Bancs des Flandres SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
Vlaamse Banken SAC			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
Doggersbank (Netherlands) SAC			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
Klaverbank SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
Noordzeekustone SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
SBZ 1 SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
SBZ 2 SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
SBZ 3 SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
Vlakte van de Raan SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
Voordelta SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
Waddenzee SCI			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
Westerschelde & Saeftinghe			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa
			*Note that some sites may be considered separately for other feature(s), notably seals														

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Evidence supporting conclusions:

Xa No potential for LSE. The sites have been screened out based on a lack of evidence to suggest connectivity.

[End of Matrix 22](#)



HRA Screening Matrix 23: Transboundary Sites for Seals

Name of European site: Transboundary sites for seals (Harbour seal; and Grey seal)																		
EU Code:	Various																	
Distance to Project:	Various																	
Likely Effects of Project																		
Effect	Underwater noise			Collision risk			Changes to prey			Accidental pollution and water quality			Physical habitat loss/ disturbance			Disturbance at haul out		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Bancs des Flandres SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
Vlaamse Banken SAC	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
Doggersbank (Netherlands) SAC	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
Klaverbank SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
Noordzeekustone SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
SBZ 1 SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
SBZ 2 SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
SBZ 3 SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
Vlakte van de Raan SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
Voordelta SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
Waddenzee SCI	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
Westerschelde & Saeftinghe	✓a	X b	✓a	✓c	✓c	✓c	✓d	✓d	✓d	X b	X b	X b	✓e	X b	✓e	✓ f	✓ f	✓ f
*Note that some sites may be considered separately for other feature(s), notably harbour porpoise																		

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Evidence supporting conclusions:

- ✓a Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and underwater noise associated with VE.
- Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.
- ✓c The location of the project relative to the at sea usage area of seals together with connectivity to the SAC may result in increased collision risk of seals (with vessels associated with activity relating to VE).
- ✓d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and changes in prey associated with VE.
- ✓e The location of the project relative to the at sea usage area of seals together with connectivity to the SAC indicates the potential for seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).
- ✓f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 23



HRA Screening Matrix 24: Outer Thames Estuary SPA

Name of European site: Outer Thames Estuary SPA																		
EU Code:				UK9020309A														
Distance to Project:				17.11 km to array area														
Likely Effects of Project																		
Effect				Changes in prey availability and behaviour			Disturbance and displacement			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Red-throated diver				Xa	Xa	Xa	✓b	✓b	✓b	✓b	✓b	✓b		Xa				
Common tern				Xc	Xc	Xc	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xe	Xe	Xe
Little tern				Xf	Xf	Xf		Xg		Xg	Xg	Xg		Xh			Xi	

Evidence supporting conclusions:

- Xa Red-throated divers have a large foraging range, the pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE from VE acting alone can be discounted in relation to changes in prey availability, collision and barrier effects.
- ✓b There is potential for disturbance and displacement of non-breeding red-throated divers within the SPA resulting from work activity/ vessel movements within the offshore ECC. Therefore, there is a potential for LSE. However, the VE array areas is beyond the maximum expected extent of displacement/disturbance for red-throated divers, therefore, LSE from VE acting both alone and in-combination can be discounted in relation to this effect.
- Xc The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.
- Xd This species has a very low vulnerability to disturbance from vessel movements associated with construction and decommissioning activity (Fliessbach et al., 2019). This species also has a low vulnerability to displacement (Bradbury et al. 2014) and barrier effect. Additionally, the ECC overlaps <1% (0.892%) of the Outer Thames Estuary SPA and therefore any displacement from this area during construction will have a negligible effect on habitat availability and prey resource. Therefore, LSE from VE acting alone can be discounted in relation to these effects.
- Xe This species has been screened out owing to low numbers recorded within the array (abundance estimate of 3.52 recorded in one month only across the two survey years).
- Xf The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.
- Xg Little tern in Outer Thames Estuary SPA breed on Scroby Sands intertidal sand bank, located 79 km from the ECC. This is well outside of the reported foraging ranges for the species (Thaxter ., 2012, 6.3+-2.4 km (MMF+-SD); Woodward ., 2019, 5 km (MMF)). In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). The species can thus be considered highly unlikely to have connectivity with the VE ECC, and as such, LSE can be discounted in relation to both alone and in-combination effects.

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- Xh Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone.
- Xi Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.

End of Matrix 24



HRA Screening Matrix 25: Alde-Ore Estuary SPA

Name of European site:				Alde-Ore Estuary SPA								
EU Code:				UK9009112								
Distance to Project:				37.31 km to array area								
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Lesser black-backed gull	Xa	Xa	Xa		Xb			Xb			✓c	
Sandwich tern	Xa	Xa	Xa		Xd			Xd			Xd	
Little tern	Xa	Xa	Xa	Xg	Xg	Xg		Xg			Xh	
Avocet	Xa	Xa	Xa	Xg	Xg	Xg		Xg			✓i	
Redshank	Xa	Xa	Xa	Xg	Xg	Xg		Xg			✓i	
Ruff	Xa	Xa	Xa	Xg	Xg	Xg		Xg			✓i	
Marsh Harrier	Xa	Xa	Xa	Xg	Xg	Xg		Xg			Xj	

Evidence supporting conclusions:

- Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.
- Xb This species has no very low vulnerability to displacement or disturbance and barrier effects from OWF and vessel disturbance (Bradbury et al., 2014; Fliessbach et al., 2019). Therefore, LSE can be discounted in relation to this effect alone.
- ✓c This SPA is within the MMF+1SD for lesser back-backed gull and therefore there may be connectivity during the breeding season for this species as it has a very high vulnerability to collision risk with turbines (Bradbury et al., 2014). Therefore, there is potential for LSE, consider collision risk with turbines for all seasons within the RIAA.
- Xd This species has been screened out owing to low numbers recorded within the array; only two individuals were recorded throughout the entire two survey years (both birds recorded in year one, in April and October respectively, no birds recorded in year two). Furthermore, Alde Ore Estuary SPA is beyond mean max foraging range (but within mean max foraging range +-1SD) of the VE array.

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- ✓e This SPA is within MMF+1SD for sandwich tern of the array areas and therefore may have connectivity during the breeding season. As this species is vulnerable to displacement, barrier effects cannot be ruled out. Therefore, there is a potential for LSE.
- ✓f This species has moderate vulnerability to collision risk with turbines (Bradbury et al. 2014). Given the proximity VE to the SPA, effects cannot be screened out at this stage alone. Therefore, there is a potential for LSE.
- Xg Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone. The SPA is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.
- Xh Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.
- ✓i While this SPA is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.
- Xj Alde-Ore Estuary SPA lies directly to the west of the VE array. With migratory marsh harrier migrating to Southern Europe and sub-Saharan Africa (i.e. in a southerly direction) (Wright et al., 2012), it can be considered highly unlikely that migrating marsh harrier from this SPA have connectivity with the VE array located to the east, and as such, LSE can be discounted in relation to both alone and in-combination effect.

End of Matrix 25



HRA Screening Matrix 26: Minsmere-Walberswick SPA

Name of European site:				Minsmere-Walberswick SPA													
EU Code:				UK9009101													
Distance to Project:				41.75 km to array area													
Likely Effects of Project																	
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk							
Stage of Development				C	O	D	C	O	D	C	O	D					
Little tern				Xa	Xa	Xa	Xb	Xb	Xb		Xa				Xc		
Wintering populations of: Avocet																✓d	
Marsh Harrier																Xe	
Nightjar																Xf	
Waterbirds: Bittern; Gadwall; Greater white-fronted goose; Hen harrier; Shoveler; Teal																✓g	

Evidence supporting conclusions:

- Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.
- Xb This SPA is outside of the MMF+1SD for little tern from the array areas area, therefore, there is unlikely to be connectivity during the breeding season. Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts during all phases alone. The SPA is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.
- Xc Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.
- ✓d While this SPA is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.
- Xe Minsmere-Walberswick SPA lies directly to the west of the VE array. With migratory marsh harrier migrating to Southern Europe and sub-Saharan Africa (i.e. in a southerly direction) (Wright et al. 2012), it can be considered highly unlikely that migrating marsh harrier from this SPA have connectivity with the VE array located to the east, and as such, LSE can be discounted in relation to both alone and in-combination effects

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Xf Minsmere-Walberswick SPA lies directly to the west of the VE array. Nightjar migrate south to winter in the Democratic Republic of Congo, and tracking data has shown that migrating individuals move in a clear southerly direction (Evens et al., 2017). For that reason, it can be considered highly unlikely to that migrating nightjar from this SPA have connectivity with the VE array located to the east, and as such, LSE can be discounted in relation to both alone and in-combination effects.

✓g Risk of collision on migration.

End of Matrix 26



HRA Screening Matrix 27: Minsmere-Walberswick Ramsar

Name of European site:				Minsmere-Walberswick Ramsar									
EU Code:													
Distance to Project:				41.88 km to array area									
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	
Little tern	Xa	Xa	Xa	Xb	Xb	Xb		Xa		Xc	Xc	Xc	
Black headed gull	Xd	Xd	Xd	Xd	Xd	Xd					Xd		
Mediterranean gull	Xd	Xd	Xd	Xd	Xd	Xd					Xd		
Bittern	Xd	Xd	Xd	Xd	Xd	Xd					✓e		
Gadwall	Xd	Xd	Xd	Xd	Xd	Xd					✓e		
Teal	Xd	Xd	Xd	Xd	Xd	Xd					✓e		
Shoveler	Xd	Xd	Xd	Xd	Xd	Xd					✓e		
Marsh harrier	Xd	Xd	Xd	Xd	Xd	Xd					✓e		
Avocet	Xd	Xd	Xd	Xd	Xd	Xd					✓e		
Bearded tit	Xd	Xd	Xd	Xd	Xd	Xd					✓e		

Evidence supporting conclusions:

- Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.
- Xb This Ramsar is outside of the MMF+1SD for little tern from the array areas area, therefore, there is unlikely to be connectivity during the breeding season. Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts during all phases alone. The Ramsar is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.

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- Xc Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.
- Xd This Ramsar is outside of the MMF+1SD for these species from the array areas area, therefore, there is unlikely to be connectivity during the breeding season. Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts during all phases alone. The Ramsar is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.
- ✓e While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al. (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 27



HRA Screening Matrix 28: Hamford Water SPA

Name of European site:		HAMFORD WATER SPA																								
EU Code:		UK9009131																								
Distance to Project:		51.04 km to array area																								
Likely Effects of Project																										
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			Pollution (water quality)			Pollution (air quality)			Decreases in water quantity			Loss of foraging and roosting habitat outside the SPA				
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D		
Little tern	Xa	Xa	Xa	Xb	Xb	Xb		Xc		Xd	Xd	Xd														
Wintering populations of: Avocet; Black-tailed godwit; Dark-bellied brent goose; Grey plover; Redshank; Ringed plover; Shelduck, Teal				✓e	✓ e	✓ e							✓f		✓f	✓g		✓g	✓h			✓h				

Evidence supporting conclusions:

- Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.
- Xb The SPA is within MMF+1SD of the offshore ECC. Therefore, effects cannot be screened out at this stage for displacement in the offshore ECC. Therefore, there is a potential for LSE.
- Xc Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone.
- Xd Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.
- √e Risk of impacts from disturbance during construction, operation and decommissioning for wintering bird species which occur in or adjacent to the ECC.
- √f The surface water in the onshore ECC partly drains into the Stour Estuary, giving rise to a low risk of impacts on water quality such as changes natural turbidity, concentration of aqueous contaminants, dissolved oxygen and inorganic nitrogen, with knock-on effects for wintering and passage birds.
- √g Potential for LSE on all qualifying features which occur within or near the ECC (currently known to be avocet, black-tailed godwit, dark-bellied brent goose, redshank, shelduck, teal and others in the waterbird assemblage, if these form part of the SPA population).
- √h The surface water in the ECC partly drains into Hamford Water, giving rise to a low risk of impacts on water quality, such as changes in natural turbidity, concentration of aqueous contaminants, dissolved oxygen and inorganic nitrogen, with knock-on effects for wintering birds.

End of Matrix 28



HRA Screening Matrix 29: Thanet Coast and Sandwich Bay SPA

Name of European site:				Thanet Coast and Sandwich Bay SPA								
EU Code:				UK9012071								
Distance to Project:				57.64 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Little tern				Xa	Xa	Xa	Xb	Xb	Xb		Xb	

Evidence supporting conclusions:

- Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.
- Xb Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone. The SPA is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.

End of Matrix 29



HRA Screening Matrix 30: Greater Wash SPA

Name of European site:				Greater Wash SPA									
EU Code:				UK9020329									
Distance to Project:				62.77 km to array area									
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa					
Common tern	Xb	Xb	Xb	Xb	Xb	Xb		Xb					
Little tern	Xc	Xc	Xc	Xc	Xc	Xc		Xc					
Little gull	Xd		Xd	Xe	Xe	Xe						Xd	

Evidence supporting conclusions:

- Xa This SPA is not within the MMF+1SD for sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD for common tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.
- Xc This SPA is not within the MMF+1SD for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.
- Xd This species has been screened out based on the fact that Greater Wash SPA is located >62 km north of both the VE array and ECC. As the species breeds north of the SPA, there is no interaction with the VE array and ECC
- Xe Following Bradbury 2014, little gull has moderate collision vulnerability but very low displacement risk.

End of Matrix 30



HRA Screening Matrix 31: Colne Estuary (Mid-Essex Coast Phase 2) SPA

Name of European site:		Colne Estuary (Mid-Essex Coast Phase 2) SPA																										
EU Code:		UK9009243																										
Distance to Project:		66.51 km to array area																										
Likely Effects of Project																												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			INNS			Changes to physical processes			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa																				
Over winter: Dark-bellied brent goose; Pochard; Redshank; Ringed plover; Waterbird assemblage											√b																	
Ramsar criterion 1													Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	
Ramsar criterion 2													Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	
Ramsar criterion 3													Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	

Evidence supporting conclusions:

- Xa This SPA is not within the MMF+1SD for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.
- √b While this SPA/ Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.
- Xc No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the secondary Zone of Influence (ZoI) and therefore has been screened out.

End of Matrix 31



HRA Screening Matrix 32: Foulness (Mid-Essex Coast Phase 5) SPA

Name of European site:				Foulness (Mid-Essex Coast Phase 5) SPA								
EU Code:				UK9009246								
Distance to Project:				67.36 km to array area								
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects					
Stage of Development				C	O	D	C	O	D	C	O	D
Sandwich tern				Xa	Xb	Xa	Xa	Xb	Xa		Xb	
Common tern				Xa	Xb	Xa	Xa	Xb	Xa		Xb	
Little tern				Xc	Xc	Xc	Xc	Xc	Xc		Xc	

Evidence supporting conclusions:

- Xa These species have very low vulnerability to disturbance from vessel movements associated with construction and decommissioning activity (Fliebsbach et al., 2019). Therefore, LSE can be discounted in relation to C&D disturbance and displacement effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas for sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to O&M effects alone.
- Xc This SPA is not within the MMF+1SD for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 32



HRA Screening Matrix 33: Breydon Water SPA

Name of European site:				Breydon Water SPA								
EU Code:				UK9009181								
Distance to Project:				72.55 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Common tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for common tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 33



HRA Screening Matrix 34: Blackwater Estuary SPA

Name of European site:		Blackwater Estuary (Mid-Essex Coast Phase 4) SPA																										
EU Code:		UK9009245																										
Distance to Project:		77.55 km to array area																										
Likely Effects of Project																												
Effect		Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			Loss of foraging and roosting habitat outside the SPA			Disturbance / displacement of birds outside SPA			Water quality			Decreases in water quantity			Decreases in air quality		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Little tern		Xa	Xa	Xa	Xa	Xa	Xa		Xa																			
Non-breeding: Black-tailed godwit; Dark-bellied Brent goose; Dunlin; and Grey plover.												√b																
Non-breeding: Black-tailed godwit; Dark-bellied Brent goose; Dunlin; Grey plover; Hen harrier; Waterbird assemblage; Breeding; Pochard; Ringed Plover														√c	√c	√c	√c	√c	√c	Xd	Xd	Xd	Xd	Xd	Xd	Xe	Xe	Xe

Evidence supporting conclusions:

- Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA collision impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.
- √b While this SPA is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.
- √c The Blackwater Estuary SPA is much further from the ECC than the other sites considered above. Nevertheless, two species that make up its qualifying interest (black-tailed godwit, dark-bellied brent goose and dunlin) have been recorded in the onshore ECC and there is potential for individuals to move between the ECC and the Blackwater Estuary. The risk of effects from loss of habitat and disturbance during construction, operation and decommissioning is much lower but not absent.
- Xd There are no or very weak hydrological links (i.e., linked via the sea only) between the ECC and the Blackwater Estuary and so effects from pollution and dewatering can be discounted.
- Xe Given the distance, air quality effects can be discounted.

End of Matrix 34



HRA Screening Matrix 35: Blackwater Estuary Ramsar

Name of European site: Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar																														
EU Code:			UK9009245																											
Distance to Project:			77.55 km to array area																											
Likely Effects of Project																														
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			Loss of foraging and roosting habitat outside the SPA			Disturbance / displacement of birds outside SPA			Water quality			Decreases in water quantity			Decreases in air quality			Impacts on supporting populations of plants and invertebrates outside the Ramsar		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa																						
Non-breeding: Black-tailed godwit; Dark-bellied Brent goose; Dunlin; Grey plover; Waterbird assemblage											√b																			
Non-breeding: Black-tailed godwit; Dark-bellied Brent goose; Dunlin; Grey plover; Hen harrier; Waterbird assemblage; Breeding; Pochard; Ringed Plover													√c	√c	√c	√c	√c	√c	Xd	Xd	Xd	Xd	Xd	Xd	Xe	Xe	Xe			
Wetland invertebrate assemblage																												√f	√f	√f
Wetland plant assemblage																												√f	√f	√f

Evidence supporting conclusions:



- Xa This Ramsar is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this Ramsar collision impacts on migration are likely to be negligible due to the distance from the Ramsar to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.
- ✓b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.
- ✓c The Blackwater Estuary Ramsar is much further from the ECC than the other sites considered above. Nevertheless, two species that make up its qualifying interest (black-tailed godwit, dark-bellied brent goose and dunlin) have been recorded in the onshore ECC and there is potential for individuals to move between the ECC and the Blackwater Estuary. The risk of effects from loss of habitat and disturbance during construction, operation and decommissioning is much lower but not absent.
- Xd There are no or very weak hydrological links (i.e., linked via the sea only) between the ECC and the Blackwater Estuary and so effects from pollution and dewatering can be discounted.
- Xe Given the distance, air quality effects can be discounted.
- ✓f There is a potential for supporting features to be impacted and therefore LSE is considered.

End of Matrix 35



HRA Screening Matrix 36: Medway Estuary and Marshes SPA

Name of European site:		Medway Estuary and Marshes SPA							
EU Code:		UK9012031							
Distance to Project:		96.42 km to array area							
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little turn; Common tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for common tern and little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 36



HRA Screening Matrix 37: Dungeness, Romney Marsh and Rye Bay SPA

Name of European site:				Dungeness, Romney Marsh and Rye Bay SPA								
EU Code:				UK9012091								
Distance to Project:				103.34 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Little turn; Common tern; and Sandwich tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for common tern, little tern and sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 37



HRA Screening Matrix 38: North Norfolk Coast SPA

Name of European site:				North Norfolk Coast SPA								
EU Code:				UK9009031								
Distance to Project:				126.13 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Little turn; Common tern; and Sandwich tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern, common tern and sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 38



HRA Screening Matrix 39: North Norfolk Coast Ramsar

Name of European site:										North Norfolk Coast Ramsar														
EU Code:																								
Distance to Project:					126.13 km to array area																			
Likely Effects of Project																								
Effect					Changes in prey availability and behaviour					Direct disturbance and displacement					Barrier effects									
Stage of Development					C	O	D	C	O	D	C	O	D	C	O	D								
Little turn; Common tern; and Sandwich tern					Xa	Xa	Xa	Xa	Xa	Xa					Xa									

Evidence supporting conclusions:

Xa This Ramsar is not within the MMF+1SD of the array areas and offshore ECC for common tern, little tern and sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this Ramsar impacts on migration are likely to be negligible due to the distance from the Ramsar to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 39



HRA Screening Matrix 40: The Wash SPA

Name of European site:		The Wash SPA								
EU Code:		UK9008021								
Distance to Project:		146.29 km to array area								
Likely Effects of Project										
Effect		Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development		C	O	D	C	O	D	C	O	D
Little turn; Common tern		Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for common tern and little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 40



HRA Screening Matrix 41: Gibraltar Point SPA

Name of European site:		Gibraltar Point SPA								
EU Code:		UK9008022								
Distance to Project:		170.97 km to array area								
Likely Effects of Project										
Effect		Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development		C	O	D	C	O	D	C	O	D
Little tern		Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

[End of Matrix 41](#)



HRA Screening Matrix 42: Humber Estuary SPA

Name of European site:				Humber Estuary SPA								
EU Code:												
Distance to Project:				197.19 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Little tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 42



HRA Screening Matrix 43: Flamborough and Filey Coast SPA

Name of European site: Flamborough and Filey Coast SPA																		
EU Code:				UK9006101														
Distance to Project:				275.50 km to array area														
Likely Effects of Project																		
Effect				Changes in prey availability and behaviour			Collision risk			Direct Disturbance and Displacement			Barrier effects			In-combination		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake				Xa	Xa	Xa		√b						Xc				
Gannet				√d	√d	√d		√d		√e	√e	√e		Xf		√g	√g	√g
Guillemot										√e	√e	√e						
Razorbill										√e	√e	√e						
Fulmar; Puffin; Herring gull							Xf	Xf	Xf									

Evidence supporting conclusions:

- Xa Despite the Array being within the species MMF+1SD (Woodward et al. 2019) from this site, tracking data (FAME tracking data collected by the RSPB) and habitat utilisation modelling based on tracking data (Cleasby et al. 2020) show no connectivity during the breeding season. However, there is potential for connectivity during the non-breeding season only.
- ✓b This species has high vulnerability to collision risk with turbines (Bradbury et al., 2014). Effects cannot be screened out at this stage alone for this species during the non-breeding season. Therefore, there is a potential for LSE.
- Xc Kittiwakes are not considered to be at risk of disturbance and displacement or barrier effects at offshore wind farms therefore LSE can be ruled out alone.
- ✓d Based on the proximity of the Array and the MMF+1SD of this species (Woodward et al. 2019) from this site, potential for connectivity during the breeding season has been established. Gannets have shown high avoidance during offshore wind farms post-construction monitoring (Dierschke, Furness & Garth, 2016). Gannets have high collision risk (Bradbury et al., 2014). Therefore, there is a potential for LSE for C&D and O&M displacement and collision risk.
- ✓e VE is beyond the MMF +1SD for this species from Flamborough and Filey Coast SPA, there will be no breeding season barrier impact for this population, therefore LSE can be ruled out alone. The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effects alone for the breeding season. However, connectivity during the non-breeding season means that LSE cannot be discounted

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- Xf Gannets are not considered at risk of barrier effects due to their wide ranging habits, and migrating gannets cover very large distances, extending from the North Sea to West Africa, so that slight local effects would be negligible in the context of their large migrations and area use, therefore LSE can be ruled out alone.
- ✓g According to Furness (2015) it is possible for a project in the southern North Sea to have connectivity with this SPA during the non-breeding season. Therefore, since qualifying breeding features may still be afforded protection outside of the breeding season (the conservation objectives of all breeding seabird SPAs include the requirement to maintain abundance) activities that have the potential to significantly reduce abundance should be assessed regardless of time of year. The combined impacts from both collision risk and displacement will be included within the RIAA.
- Xh Peak puffin density in the array areas and 4km buffer was estimated to be 0.01 (0.01); peak fulmar density in the array areas and 4km buffer was estimated to be 0.1; and peak herring gull density in the array areas and 4km buffer was estimated to be 0.14. Given these extremely low densities within the VE site and that these species have very low vulnerabilities to collision and displacement from offshore wind farms (Bradbury et al., 2014) and low vulnerability to vessel traffic (Fliessbach et al., 2019) LSE can be discounted in relation to effects alone.

End of Matrix 43



HRA Screening Matrix 44: Teesmouth and Cleveland Coast SPA

Name of European site:				Teesmouth and Cleveland SPA								
EU Code:				UK9006061								
Distance to Project:				359.98 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Little tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 44



HRA Screening Matrix 45: Northumbria Coast SPA

Name of European site:		Northumbria Coast SPA								
EU Code:		UK9006131A								
Distance to Project:		377.99 km to array area								
Likely Effects of Project										
Effect		Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development		C	O	D	C	O	D	C	O	D
Arctic tern; Little tern			Xa			Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and Arctic tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 45



HRA Screening Matrix 46: Northumbria Coast Ramsar

Name of European site:		Northumbria Coast Ramsar								
EU Code:		UK9006131								
Distance to Project:		377.99 km to array area								
Likely Effects of Project										
Effect		Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development		C	O	D	C	O	D	C	O	D
Little tern			Xa			Xa			Xa	

Evidence supporting conclusions:

Xa This Ramsar is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this Ramsar impacts on migration are likely to be negligible due to the distance from the Ramsar to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 46



HRA Screening Matrix 47: Northumberland Marine SPA

Name of European site:				Northumberland Marine SPA								
EU Code:				UK9006101								
Distance to Project:				419.87 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa	
Kittiwake; Sandwich tern; Common tern; Arctic tern; Guillemot; Little tern; Puffin; Roseate tern; Black-headed gull; Lesser black-backed gull; Herring gull; Razorbill				Xb	Xb	Xb	Xb	Xb	Xb		Xb	

Evidence supporting conclusions:

- Xa For this SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for kittiwake, sandwich tern, common tern, Arctic tern and guillemot. For all other species at this SPA site, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 47



HRA Screening Matrix 48: Coquet Island SPA

Name of European site:				Coquet Island SPA								
EU Code:				UK9006031								
Distance to Project:				443.00 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa	
Kittiwake; Sandwich tern; Common tern; Arctic tern; Guillemot; Little tern; Puffin; Roseate tern; Black-headed gull; Lesser black-backed gull; Herring gull; Razorbill				Xb	Xb	Xb	Xb	Xb	Xb		Xb	
Puffin				Xc	Xc	Xc	Xc	Xc	Xc		Xc	

Evidence supporting conclusions:

- Xa For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for sandwich tern, common tern and Arctic tern. For all other species at this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xc This SPA is not within the MMF+1SD of the array areas and offshore ECC for any of this feature. Peak puffin density in the array areas and 4km buffer was estimated to be 0.01 (0.01). Given the extremely low density within the VE site it is considered that there is no potential for LSE.

End of Matrix 48



HRA Screening Matrix 49: Farne Islands SPA

Name of European site:				Farne Islands SPA					
EU Code:				UK9006021					
Distance to Project:				472.54 km to array area					
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa	
Kittiwake; Herring gull; Gannet; Arctic tern; Common tern; Sandwich tern; Roseate tern	Xb	Xb	Xb	Xb	Xb	Xb		Xb	
Puffin	Xc	Xc	Xc	Xc	Xc	Xc		Xc	
Guillemot; Razorbill;	Xd	Xd	Xd	√e	√e	√e		Xd	

Evidence supporting conclusions:

- Xa For this SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for any of these features. For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xc This SPA is not within the MMF+1SD of the array areas and offshore ECC for any of these features; however, since breeding features are afforded protection outside of the breeding season and there is the potential for these features to winter in southern North Sea (even in very small numbers), there is the potential for connectivity between this SPA and VE, expect for puffin since peak puffin density in the array areas and 4km buffer was estimated to be 0.01 (0.01). Given the extremely low density within the VE site it is considered that there is no potential for LSE on puffin.
- Xd For guillemot and razorbill, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally and for these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible.

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- ✓e VE is beyond the MMF +1SD for this species from Farne Islands SPA, there will be no breeding season barrier impact for this population, therefore LSE can be ruled out alone. The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effects alone for the breeding season. However, connectivity during the non-breeding season means that LSE cannot be discounted.

End of Matrix 49



HRA Screening Matrix 50: Aberdaron Coast and Bardsey Island SPA

Name of European site:				Aberdaron Coast and Bardsey Island SPA								
EU Code:				UK9013121								
Distance to Project:				466.73 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Manx shearwater				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Manx shearwater is 162km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 50



HRA Screening Matrix 51: Lindisfarne SPA

Name of European site:		Lindisfarne SPA								
EU Code:		UK9006011								
Distance to Project:		476.16 km to array area								
Likely Effects of Project										
Effect		Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development		C	O	D	C	O	D	C	O	D
Little tern; Roseate tern		Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and Roseate tern. For these SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 51



HRA Screening Matrix 52: Skomer Skokholm and the Seas off Pembrokeshire

Name of European site:				Skomer Skokholm and the Seas off Pembrokeshire SPA								
EU Code:				UK9014051								
Distance to Project:				478.97 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Manx shearwater				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 52



HRA Screening Matrix 53: St Abb's Head to Fast Castle SPA

Name of European site:				St Abb’s Head to Fast Castle SPA								
EU Code:				UK9004271								
Distance to Project:				515.55 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Kittiwake; Guillemot; Herring gull; and Razorbill				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for kittiwake, guillemot, herring gull and razorbill. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 53



HRA Screening Matrix 54: Grassholm SPA

Name of European site:				Grassholm SPA								
EU Code:				UK9014041								
Distance to Project:				515.55 km to array area								
Likely Effects of Project												
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development				C	O	D	C	O	D	C	O	D
Gannet				Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, when considering that seabirds are likely to travel around land masses to forage, the maximum foraging range for gannet is within proximity of VE (Woodward et al., 2019). Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 54



HRA Screening Matrix 55: Imperial Dock Lock, Leith SPA

Name of European site:			Imperial Dock Lock, Leith SPA											
EU Code:			UK9004451											
Distance to Project:			563.20 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Common tern			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 55



HRA Screening Matrix 56: Forth Islands SPA

Name of European site:				Forth Islands SPA									
EU Code:				UK9004171									
Distance to Project:				547.90 km to array area									
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
Stage of Development				C	O	D	C	O	D	C	O	D	
Arctic tern; Common tern; Gannet; Guillemot; Kittiwake, Lesser black-backed gull; Herring gull; Razorbill; Sandwich tern; Puffin; and Roseate tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa		

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 56



HRA Screening Matrix 57: Ailsa Craig SPA

Name of European site:			Ailsa Craig SPA											
EU Code:			UK9003091											
Distance to Project:			596.44 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Gannet			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 57



HRA Screening Matrix 58: Fowlsheugh SPA

Name of European site:		Fowlsheugh SPA										
EU Code:		UK9002271										
Distance to Project:		611.79 km to array area										
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Razorbill; Herring gull; Kittiwake; and Guillemot	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 58



HRA Screening Matrix 59: Isles of Scilly SPA

Name of European site:		Isles of Scilly SPA													
EU Code:		UK9020288													
Distance to Project:		617.31 km to array area													
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D		
Manx shearwater; and Fulmar		Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa			
Lesser black-backed gull; European shag; Greater black-backed gull. European storm-petrel		Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb			

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA site, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 59



HRA Screening Matrix 60: Ythan Estuary, of Sands of Forvie and Meikle Loch SPA

Name of European site:			Ythan Estuary, of Sands of Foryie and Meikle Loch SPA											
EU Code:			UK9002221											
Distance to Project:			647.67 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Common tern; Sandwich tern; Little tern			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA sites are not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 60



HRA Screening Matrix 61: Ythan Estuary, Sands of Forvie and Meikle Loch Ramsar

Name of European site:													Ythan Estuary, of Sands of Forye and Meikle Loch Ramsar												
EU Code:				UK9002221																					
Distance to Project:				647.67 km to array area																					
Likely Effects of Project																									
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk												
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D							
Sandwich tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa				Xa										

Evidence supporting conclusions:

Xa This Ramsar site are not within the MMF+1SD of the array areas and offshore ECC for these species. For this Ramsar sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 61



HRA Screening Matrix 62: Buchan Ness to Collieston Coast SPA

Name of European site:		Buchan Ness to Collieston Coast SPA											
EU Code:		UK9002491											
Distance to Project:		647.97 km to array area											
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa				Xa	
Herring gull; Kittiwake; and Guillemot	Xb	Xb	Xb	Xb	Xb	Xb		Xb				Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site-specific maximum foraging range from this SPA for Fulmar is 224km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 62



HRA Screening Matrix 63: Rathlin Island SPA

Name of European site:		Rathlin Island SPA											
EU Code:		UK9020011											
Distance to Project:		656.74 km to array area											
Likely Effects of Project													
Effect		Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D
Fulmar		Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 63



HRA Screening Matrix 64: Loch of Strathbeg SPA

Name of European site:			Loch of Strathbeg SPA											
EU Code:			UK9002211											
Distance to Project:			675.36 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 64



HRA Screening Matrix 65: Troup, Pennan and Lion's Heads SPA

Name of European site:				Troup, Pennan and Lion’s Heads SPA											
EU Code:				UK9002471											
Distance to Project:				689.82 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Kittiwake; Guillemot; Razorbill; Herring gull				Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 65



HRA Screening Matrix 66: Inner Moray Firth SPA

Name of European site:			Inner Moray Firth SPA											
EU Code:			UK9020313											
Distance to Project:			733.22 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Common tern			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for this species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 66



HRA Screening Matrix 67: Cromarty Firth SPA

Name of European site:				Cromarty Firth SPA											
EU Code:				UK9001623											
Distance to Project:				746.03 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Common tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for this species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 67



HRA Screening Matrix 68: Rum SPA

Name of European site:				Rum SPA											
EU Code:				UK9001341											
Distance to Project:				767.14 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Manx shearwater				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 68



HRA Screening Matrix 69: East Caithness Cliffs SPA

Name of European site:		East Caithness Cliffs SPA										
EU Code:		UK0030143										
Distance to Project:		772.54 km to array area										
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Herring gull; Great black-backed gull; Kittiwake; Guillemot; and Razorbill	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Fulmar is 240km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 69



HRA Screening Matrix 70: North Caithness Cliffs SPA

Name of European site:		North Caithness Cliffs SPA											
EU Code:		UK9001181											
Distance to Project:		801.84 km to array area											
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D
Fulmar		Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Kittiwake; Guillemot; and Razorbill		Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 70



HRA Screening Matrix 71: Copinsay SPA

Name of European site:			Copinsay SPA											
EU Code:			UK9002151											
Distance to Project:			822.56 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Fulmar			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Great black-backed gull; Kittiwake; and Guillemot			Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Fulmar is 480km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 71



HRA Screening Matrix 72: Mingulay and Berneray SPA

Name of European site:			Mingulay and Berneray SPA											
EU Code:			UK9001121											
Distance to Project:			823.05 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Fulmar			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 72



HRA Screening Matrix 73: Hoy SPA

Name of European site:		Hoy SPA											
EU Code:		UK9002141											
Distance to Project:		826.27 km to array area											
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa				Xa	
Great skua; Great black-backed gull; Kittiwake; Guillemot; and Puffin	Xb	Xb	Xb	Xb	Xb	Xb		Xb				Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 73



HRA Screening Matrix 74: Aukerry (UK) SPA

Name of European site:			Auskerry (UK) SPA											
EU Code:			UK9002381											
Distance to Project:			836.68 to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
European storm petrel; Arctic tern			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 74



HRA Screening Matrix 75: Handa SPA

Name of European site:		Handa SPA											
EU Code:		UK9001241											
Distance to Project:		845.66 to array area											
Likely Effects of Project													
Effect		Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D
Fulmar		Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 75



HRA Screening Matrix 76: Shiant Isles SPA

Name of European site:				Shiant Isles SPA											
EU Code:				UK9001041											
Distance to Project:				845.66 to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 76



HRA Screening Matrix 77: Cape Wrath SPA

Name of European site:				Cape Wrath SPA											
EU Code:				UK9001231											
Distance to Project:				854.49 to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 77



HRA Screening Matrix 78: Calf of Eday SPA

Name of European site: Calf of Eday SPA															
EU Code:				UK9002431											
Distance to Project:				858.73 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Great black-backed gull; Kittiwake; and Guillemot				Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 78



HRA Screening Matrix 79: Rousay SPA

Name of European site:		Rousay SPA											
EU Code:		UK9002371											
Distance to Project:		859.68 km to array area											
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa				Xa	
Guillemot; Arctic tern; and Kittiwake	Xb	Xb	Xb	Xb	Xb	Xb		Xb				Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 79



HRA Screening Matrix 80: Marwick Head SPA

Name of European site:				Marwick Head SPA											
EU Code:				UK9002121											
Distance to Project:				861.96 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake; and Guillemot				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 80



HRA Screening Matrix 81: Fair Isle SPA

Name of European site:		Fair Isle SPA										
EU Code:		UK9002091										
Distance to Project:		865.48 km to array area										
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar; Great skua	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Arctic tern; Kittiwake; Gannet; Guillemot; Razorbill; and Puffin	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Fulmar is 247km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 81



HRA Screening Matrix 82: West Westray SPA

Name of European site:		West Westray SPA										
EU Code:		UK9002101										
Distance to Project:		870.21 km to array area										
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Guillemot; Razorbill; and Arctic tern	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 82



HRA Screening Matrix 83: Papa Westray (North Hill and Holm) SPA

Name of European site:		Papa Westray (North Hill and Holm) SPA											
EU Code:		UK9002111											
Distance to Project:		876.22 km to array area											
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern		Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 83



HRA Screening Matrix 84: Sule Skerry and Sule Stack SPA

Name of European site:		Sule Skerry and Sule Stack SPA										
EU Code:		UK9002181										
Distance to Project:		884.2 km to array area										
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot; Gannet; European storm petrel; Leach’s storm petrel; and Puffin	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 84



HRA Screening Matrix 85: Sumburgh Head SPA

Name of European site: Sumburgh Head SPA															
EU Code:				UK9002511											
Distance to Project:				897.16 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Arctic tern; Kittiwake; Guillemot				Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 85



HRA Screening Matrix 86: Mousa SPA

Name of European site:			Mousa SPA											
EU Code:			UK9002361											
Distance to Project:			912.79 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
European storm petrel; and Arctic tern			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 86



HRA Screening Matrix 87: Noss SPA

Name of European site:		Noss SPA										
EU Code:		UK9002081										
Distance to Project:		923.70 km to array area										
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Great skua; and Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Gannet; Kittiwake; Guillemot; and Puffin	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 87



HRA Screening Matrix 88: Flannan Isles SPA

Name of European site:		Flannan Isles SPA											
EU Code:		UK9001021											
Distance to Project:		928.89 km to array area											
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D
Fulmar		Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 88



HRA Screening Matrix 89: St Kilda SPA

Name of European site:			St Kilda SPA											
EU Code:			UK9020332											
Distance to Project:			932.16 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Fulmar; and Manx shearwater			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Gannet			Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 89



HRA Screening Matrix 90: North Rona and Sula Sgeir SPA

Name of European site:			North Rona and Sula Sgeir SPA											
EU Code:			UK9001011											
Distance to Project:			933.85 km to array area											
Likely Effects of Project														
Effect			Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D
Fulmar			Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Gannet			Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 90



HRA Screening Matrix 91: Foula SPA

Name of European site:		Foula SPA										
EU Code:		UK9002061										
Distance to Project:		937.01 km to array area										
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Leach’s storm petrel; Razorbill; Kittiwake; Guillemot; Arctic tern; Great skua; and Pufifn	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Fulmar is 120km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 91



HRA Screening Matrix 92: Papa Stour SPA

Name of European site:				Papa Stour SPA											
EU Code:				UK9002051											
Distance to Project:				956.56 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for this species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 92



HRA Screening Matrix 93: Fetlar SPA

Name of European site:				Fetlar SPA											
EU Code:				UK9002031											
Distance to Project:				967.72 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Arctic tern; and Great skua				Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 93



HRA Screening Matrix 94: Ronas Hill-North Roe and Tingon SPA

Name of European site:		Ronas Hill-North Roe and Tingon SPA											
EU Code:		UK9002041											
Distance to Project:		972.74 km to array area											
Likely Effects of Project													
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	
Great skua	Xa	Xa	Xa	Xa	Xa	Xa		Xa				Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 94



HRA Screening Matrix 95: Hermaness, Saxa Vord and Valla Field SPA

Name of European site:				Hermaness, Saxa Vord and Valla Field SPA											
EU Code:				UK9002011											
Distance to Project:				989.01 km to array area											
Likely Effects of Project															
Effect				Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D
Fulmar				Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Gannet; Kittiwake; Guillemot; Puffin; and Great skua				Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

- Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.
- Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 95



HRA Screening Matrix 96: Ramna Stacks and Gruney SPA

Name of European site:			Ramna Stacks and Gruney SPA									
EU Code:			UK9002021									
Distance to Project:			986.32 km to array area									
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Leach’s storm petrel	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 96



HRA Screening Matrix 97: Southern Waters of Gibraltar SPA

Name of European site:		Southern Waters of Gibraltar SPA										
EU Code:		UKGIB0002										
Distance to Project:		1835.07 km to array area										
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Man shearwater	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 97



HRA Screening Matrix 98: Vlake van de Raan

Name of European site:		Vlakte van de Raan																				
EU Code:		BEMNZ0005 and NL2008003																				
Distance to Project:		79.28 km to array area																				
Likely Effects of Project																						
Effect		Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Underwater noise			Changes to prey		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Twaite shad, River shad, and Sea Lamprey		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa	Xa	Xa	Xa	Xa	Xa	Xa

Evidence supporting conclusions:

Xa No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site.

End of Matrix 98



HRA Screening Matrix 99: Westerschelde & Saeftinghe

Name of European site:		Westerschelde & Saeftinghe																				
EU Code:		NL9803061																				
Distance to Project:		91.8 km to array area																				
Likely Effects of Project																						
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Underwater noise			Changes to prey			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Twaite shad; and Sea Lamprey	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa	Xa	Xa	Xa	Xa	Xa	Xa	

Evidence supporting conclusions:

Xa No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site.

End of Matrix 99



HRA Screening Matrix 100: Voordelta

Name of European site:			Voordelta																				
EU Code:			NL4000017																				
Distance to Project:			78.5 km to array area																				
Likely Effects of Project																							
Effect			Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Underwater noise			Changes to prey		
Stage of Development			C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Allis shad; Twaite shad; River lamprey and Sea Lamprey			Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa

Evidence supporting conclusions:

Xa No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site.

End of Matrix 100



HRA Screening Matrix 101: Hamford Water SAC

Name of European site:				Hamford Water SAC														
EU Code:				UK0030377														
Distance to Project:				0.71 km to array area														
Likely Effects of Project																		
Effect				Impacts on supporting populations, food plant and potential habitat outside the SAC			Water quality: pollution from site run-off affecting habitat quality			Decreases in water quality			Decrease in air quality			In-combination		
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Fisher’s estuarine moth				√a		√a	√a		√a	√a		√a		√a	√a			√a

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

End of Matrix 101



HRA Screening Matrix 102: Hamford Water Ramsar

Name of European site:		Hamford Water Ramsar							
EU Code:	UK11028								
Distance to Project:	0.72 km to array area								
Likely Effects of Project									
Effect	Disturbance of birds outside the Ramsar			Water quality: pollution from site run-off affecting prey availability			Decreases in water quantity		
Stage of Development	C	O	D	C	O	D	C	O	D
Important wintering populations of: Black-tailed godwit; Dark-bellied brent goose; Redshank; and Ringed plover	√a	√a	√a	√a		√a	√a		

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination, except for little tern as this species breeds and forages in areas that are distant from the ECC and is addressed separately offshore in HRA Screening Matrix 28.

End of Matrix 102



HRA Screening Matrix 103: Stour and Orwell Estuaries SPA and Ramsar

Name of European site: Stour and Orwell Estuaries SPA and RAMSAR																						
EU Code:		UK9009121																				
Distance to Project:		3.10 km to array area																				
Likely Effects of Project																						
Effect		Disturbance of birds outside the SPA			Water quality: pollution from site run-off affecting prey availability			Decreases in water quantity			Decrease in air quality			Loss of foraging and roosting habitat outside the Ramsar			Impacts on supoprting populations of plants and invertebrates outside the Ramsar			In-combination		
Stage of Development		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D				C	O	D
Over winter: Black-tailed godwit; Dark-bellied brent goose; Dunlin; Grey plover Knot; Pintail; Redshank; Waterbird assemblage		√a	√a	√a	√a		√a	√a			√a		√a	√a						√a	√a	√a
On passage: Redshank		√a	√a	√a	√a		√a	√a			√a		√a	√a						√a	√a	√a
During the breeding season: Avocet		√a	√a	√a	√a		√a	√a			√a		√a	√a						√a	√a	√a
Wetland invertebrate assemblage																	√a	√a	√a	√a	√a	√a
Wetland plant assemblage																	√a	√a	√a	√a	√a	√a

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

End of Matrix 103



HRA Screening Matrix 104: Abberton Reservoir SPA

Name of European site:		Abberton Reservoir SPA														
EU Code:		UK9009141														
Distance to Project:		11.4 km to array area														
Likely Effects of Project																
Effect	Disturbance of birds outside the SPA			Water quality: pollution from site run-off affecting habitat quality			Decrease in air quality			Loss of foraging and roosting habitat outside the Ramsar			In-combination			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Breeding: Cormorant	√a	√a	√a	√a		√a	√a		√a	√a			√a	√a	√a	
Goldeneye; Pochard; and Tufted duck																

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

End of Matrix 104



HRA Screening Matrix 105: Abberton Reservoir Ramsar

Name of European site:																	Abberton Reservoir Ramsar																
EU Code:																	UK9009141																
Distance to Project:																	11.4 km to array area																
Likely Effects of Project																																	
Effect																	Disturbance of birds outside the Ramsar			Water quality: pollution from site run-off affecting prey availability			Decrease in air quality			Loss of foraging and roosting habitat outside the Ramsar			In-combination				
Stage of Development																	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D		
Wintering: Gadwall; Shoveler; Wigeon; and Waterbird assemblage																	√a	√a	√a	√a		√a	√a		√a			√a	√a	√a			

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

End of Matrix 105



3.1 LESSER BLACK-BACKED GULL PROPOSED COMPENSATION SITE (PCS) AT ORFORD NESS

HRA Screening Matrix 106: Alde-Ore Estuary Ramsar and the PCS

Name of European site: Alde-Ore Estuary Ramsar																											
EU Code:		UK0030076																									
Distance to Project:		0m to Proposed Compensation Site, 100% overlap																									
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Rare plants	√a	√a	√a	√a	√a	√a				√a	√a	√a	√a	√a	√a		√a			√a			√a		√a	√a	√a
Rare invertebrates	√a	√a	√a	√a	√a	√a				√a	√a	√a	√a	√a	√a		√a			√a			√a		√a	√a	√a
Avocet (breeding)	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a		√a	√a	√a
Lesser black-backed gull (breeding)	Xa	√a	√a	Xa	√a	√a	Xc	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a		√a	√a	√a
Little tern (breeding)	√a	√a	√a	Xa	Xa	Xa	√a	√a	√a	√a	√a	√a	√a	√a	√a		Xa			√a			√a		√a	√a	√a
Marsh harrier (breeding)	√a	√a	√a	√a	√a	√a	√a	√a	√a	Xe	Xe	Xe	√a	√a	√a		√a			Xe			√a		√a	√a	√a
Mediterranean Gull (Breeding)	Xa	Xa	Xa	Xa	Xa	Xa	Xd	Xd	Xd	Xd	Xd	Xd	√a	√a	√a		Xa			Xa			Xa		√a	√a	√a
Sandwich tern (breeding)	Xa	Xa	Xa	Xa	Xa	Xa	Xd	Xd	Xd	Xd	Xd	Xd	√a	√a	√a		Xa			Xa			Xa		√a	√a	√a
Avocet (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a		√a	√a	√a
Common greenshank	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a		√a	√a	√a



Name of European site:	Alde-Ore Estuary Ramsar																						
(non-breeding)																							
Black tailed godwit (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a
Pintail (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a
Shelduck (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a
Shoveler (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a
Spotted redshank (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a
Redshank (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a
Teal (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a			√a
White fronted goose (non-breeding)	Xf	Xf	Xf	Xb	Xb	Xb	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf		Xf			Xf			Xg
Wigeon (non-breeding)	Xf	Xf	Xf	Xb	Xb	Xb	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf		Xf			Xf			Xg

Evidence supporting conclusions:

- √a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.
- Xa This species does not breed in the vicinity of the Proposed Compensation Site and the habitat is not suitable or otherwise unlikely to be used for breeding.
- Xb Birds would take flight before being injured or killed.
- Xc At their closest point, the breeding colonies of Lesser Black-backed gull area c. 3.9km and 0.3km from the PCS respectively, and neither is alongside the access route from Orford. Although birds may be present occasionally, the PCS does not provide good foraging habitat for this species, hydrological links between the PCS and these areas are very weak and, given the distances, there is no scope for works undertaken at the PCS to disturb birds nesting at the two colonies.

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- Xd The Sandwich Tern colony at Orford Ness was on Havergate Island but it was more or less abandoned in 1997, with nesting occurring only in some years with a maximum of 15 pairs in 2003. Given the distance to the location of the colony on Havergate Island (>4km), the works at the PCS could not hinder any efforts to restore the colony. The likely locations of any re-established breeding pairs of Mediterranean Gull are also too distant for works at the PCS to hinder the restoration of the colony.
- Xe Species not sensitive to water quality changes.
- Xf The habitat within the PCS includes ditches and small saline lagoons however these are shallow and support mainly annual vegetation which is not green in winter. Therefore, the ditches and lagoons are not suitable habitat for Wigeon and White-fronted Goose which require green vegetation for foraging in winter and prefer deep, open water for roosting. The works at the PCS would therefore not affect these species.
- Xg No impact pathways have been identified.

End of Matrix 106



HRA Screening Matrix 107: Alde-Ore Estuary SPA and the PCS

Name of European site:		Alde-Ore Estuary SPA																											
EU Code:	UK9009112																												
Distance to Project:	0m to Proposed Compensation Site, 100% overlap																												
Likely Effects of Project																													
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination				
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D		
Avocet (Breeding)	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a				√a		√a	√a	√a	
Lesser black-backed gull (Breeding)	Xa	√a	√a	Xa	√a	√a	Xc	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a				√a		√a	√a	√a	
Little tern (Breeding)	√a	√a	√a	Xa	Xa	Xa	√a	√a	√a	√a	√a	√a	√a	√a	√a		Xa			√a				Xa		√a	√a	√a	
Sandwich tern (Breeding)	Xa	Xa	Xa	Xa	Xa	Xa	Xd	Xd	Xd	Xd	Xd	Xd	√a	√a	√a		Xa			√a				Xa		√a	√a	√a	
Marsh harrier (Breeding)	√a	√a	√a	√a	√a	√a	√a	√a	√a	Xe	Xe	Xe	√a	√a	√a		√a			Xe				√a		√a	√a	√a	
Avocet (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a				√a		√a	√a	√a	
Redshank (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a				√a		√a	√a	√a	
Ruff (non-breeding)	√a	√a	√a	Xb	Xb	Xb	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a				√a		√a	√a	√a	

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

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- Xa This species does not breed in the vicinity of the Proposed Compensation Site and the habitat is not suitable or otherwise unlikely to be used for breeding.
- Xb Birds would take flight before being injured or killed.
- Xc At their closest point, the breeding colonies of Lesser Black-backed gull are c. 3.9km and 0.3km from the PCS respectively, and neither is alongside the access route from Orford. Although birds may be present occasionally, the PCS does not provide good foraging habitat for this species, hydrological links between the PCS and these areas are very weak and, given the distances, there is no scope for works undertaken at the PCS to disturb birds nesting at the two colonies.
- Xd The Sandwich Tern colony at Orford Ness was on Havergate Island but it was more or less abandoned in 1997, with nesting occurring only in some years with a maximum of 15 pairs in 2003. Given the distance to the location of the colony on Havergate Island (>4km), the works at the PCS could not hinder any efforts to restore the colony.
- Xe Species not sensitive to water quality changes.

End of Matrix 107



HRA Screening Matrix 108: Orfordness – Shingle Street SAC and the PCS

Name of European site: Orfordness - Shingle Street SAC																											
EU Code:		UK0014780																									
Distance to Project:		0m to Proposed Compensation Site, 100% overlap																									
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Coastal lagoons	√a	√a	√a							√a	√a	√a	√a	√a	√a		√a			√a			√a		√a	√a	√a
Annual vegetation of drift lines	Xa	Xa	Xa							Xb	Xb	Xb	√a	√a	√a		Xa			Xa			Xa		√a	√a	√a
Perennial vegetation of stony banks	√a	√a	√a							Xc	Xc	Xc	√a	√a	√a		√a			√a			√a		√a	√a	√a

Evidence supporting conclusions:

- √a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.
- Xa Annual vegetation of drift lines does not occur within or near the PCS or the access route.
- Xb Annual vegetation of drift lines is primarily a terrestrial habitat which could not be affected by pollution generated by the small-scale works at the PCS.
- Xc Perennial vegetation of stony banks is primarily a terrestrial habitat which could not be affected by pollution generated by the small-scale works at the PCS.

End of Matrix 108



HRA Screening Matrix 109: Outer Thames Estuary SPA and the PCS

Name of European site: Outer Thames Estuary SPA																											
EU Code:		UK9020309																									
Distance to Project:		72.4m to Proposed Compensation Site																									
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Red throated diver (non-breeding)	Xa	Xa	Xa	Xb	Xb	Xb	Xb	Xb	Xb	Xd	Xd	Xd	Xa	Xa	Xa		Xa			Xd			Xa		Xe	Xe	Xe
Common tern (breeding)	Xa	Xa	Xa	Xc	Xc	Xc	Xc	Xc	Xc	Xd	Xd	Xd	Xa	Xa	Xa		Xa			Xd			Xa		Xe	Xe	Xe
Little tern (breeding)	Xa	Xa	Xa	Xc	Xc	Xc	Xc	Xc	Xc	Xd	Xd	Xd	Xa	Xa	Xa		Xa			Xd			Xa		Xe	Xe	Xe

Evidence supporting conclusions:

- Xa Any effect would be terrestrial or freshwater aquatic and therefore would not affect these species, which do not nest within the PCS and hunt for fish in open water.
- Xb The Red-throated Diver (during winter) is entirely marine and therefore could not suffer mortality or be disturbed by the works, which are entirely on land and screened from the sea by a large shingle bank.
- Xc The named tern colonies on the SPA citation do not include any at Orford Ness and therefore the birds at the colonies could not suffer mortality or be disturbed by the works. Any terns foraging at sea could not be disturbed by the work because the works are entirely on land and screened from the sea by a large shingle bank.
- Xd Surface water from the PCS will ultimately enter the SPA, however this is a very weak impact pathway. Due to the small scale of the works, effects on these bird species foraging at sea can be completely discounted.
- Xe Due to the absence of any real impact pathways, in combination effects can be discounted.

End of Matrix 109



HRA Screening Matrix 110: Alde-Ore Butley Estuaries SAC and the PCS

Name of European site: Alde-Ore & Butley Estuaries SAC																												
EU Code:		UK0030076																										
Distance to Project:		0m to Proposed Compensation Site, adjacent to access track																										
Likely Effects of Project																												
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Estuaries	Xa	Xa	Xa							√a	√a	√a	√a	√a	√a					√a				Xc		√a	√a	√a
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa							√a	√a	√a	√a	√a	√a					√a				Xc		√a	√a	√a
Atlantic salt meadows	Xa	Xa	Xa							Xb	Xb	Xb	√a	√a	√a					√a				Xc		√a	√a	√a

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

Xa There will be no construction activity within this SAC or contact with construction machinery and therefore no risk of damage.

Xb Atlantic salt meadows are not an aquatic habitat and are therefore not vulnerable to pollution at the levels that could occur as a result of the works at the PCS.

Xc The fence line could not affect water flows in the Estuary (and therefore the SAC).

End of Matrix 110



HRA Screening Matrix 111: Southern North Sea SAC and the PCS

Name of European site:																												Southern North Sea SAC																											
EU Code:				UK0030395																																																			
Distance to Project:				2809m to Proposed Compensation Site																																																			
Likely Effects of Project																																																							
Effect				Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination																											
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D																												
Harbour porpoise				X	X	X	X	X	X				X	X	X	X	X	X					X			X		X	X	X																									

Evidence supporting conclusions:

- X There are no ecological connections between the SAC and the PCS, and, although the surface water from the PCS will ultimately enter the North Sea, this is a very weak impact pathway. Due to the small scale of the works, effects on Harbour Porpoise can be discounted.

End of Matrix 111



HRA Screening Matrix 112: Sandlings SPA and the PCS

Name of European site: Sandlings SPA																								
EU Code:		UK9020286																						
Distance to Project:		2620m to Proposed Compensation Site																						
Likely Effects of Project																								
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
European nightjar (breeding)	X	X	X				X	X	X	X	X	X	X	X	X		X			X			X	
Woodlark (breeding)	X	X	X				X	X	X	X	X	X	X	X	X		X			X			X	

Evidence supporting conclusions:

X There are no ecological or hydrological connections between this SPA and the PCS; they are separated by c.2.6km. The qualifying interest bird species are heathland species which do not breed at Orford Ness.

End of Matrix 112



HRA Screening Matrix 113: Staverton Park & The Thicks Wantisden SAC and the PCS

Name of European site: Staverton Park & The Thicks Wantisden SAC																													
EU Code:		UK0012741																											
Distance to Project:		6491m to Proposed Compensation Site																											
Likely Effects of Project																													
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination				
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D		
Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains	X	X	X							X	X	X	X	X	X		X			X				X			X	X	X

Evidence supporting conclusions:

X There are no ecological or hydrological connections between this SAC and the PCS; they are separated by c.6.5km. The qualifying interest habitat does not occur at Orford Ness.

End of Matrix 113



HRA Screening Matrix 114: Minsmere - Walberswick Ramsar and the PCS

Name of European site: Minsmere – Walberswick Ramsar																											
EU Code:		UK11044																									
Distance to Project:		13,065m to Proposed Compensation Site																									
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Great Bittern (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Gadwall (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Eurasian teal (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Northern shoveler (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Marsh harrier (breeding)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)		(√a)			Xb			(√a)		(√a)	(√a)	(√a)
Pied avocet (breeding)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Bearded tit (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)

Evidence supporting conclusions:

(√a) Effects at this Ramsar are indirect only, dependent on effects on the populations at Alde-Ore Estuary SPA and Ramsar, and only if the bird populations at the two locations are linked. Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

Xa This species does not breed in the vicinity of the Proposed Compensation Site and the habitat is not suitable or otherwise unlikely to be used for breeding.

Xb Species not sensitive to water quality changes.

End of Matrix 114



HRA Screening Matrix 115: Minsmere – Walberswick SPA and the PCS

Name of European site: Minsmere – Walberswick SPA																												
EU Code:		UK9009101																										
Distance to Project:		13,065m to Proposed Compensation Site																										
Likely Effects of Project																												
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Eurasian teal (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)				(√a)		(√a)	(√a)	(√a)
Great Bittern (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)				(√a)		(√a)	(√a)	(√a)
European nightjar (breeding)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa				Xa		Xa	Xa	Xa
Northern shoveler (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)				(√a)		(√a)	(√a)	(√a)
Gadwall (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)				(√a)		(√a)	(√a)	(√a)
Pied avocet (breeding)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)				(√a)		(√a)	(√a)	(√a)
Little tern (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)				(√a)		(√a)	(√a)	(√a)

Name of European site:	Minsmere – Walberswick SPA																										
Eurasian marsh harrier (non-breeding)	(√a)	(√a)	(√a)	Xc	Xc	Xc	(√a)	(√a)	(√a)	Xe	Xe	Xe	(√a)	(√a)	(√a)		(√a)			Xe			(√a)		(√a)	(√a)	(√a)
Northern shoveler (non-breeding)	(√a)	(√a)	(√a)	Xc	Xc	Xc	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Gadwall (non-breeding)	(√a)	(√a)	(√a)	Xc	Xc	Xc	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Great white-fronted goose (non-breeding)	Xd	Xd	Xd	Xc	Xc	Xc	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd		Xd			Xd			Xd		Xd	Xd	Xd
Hen harrier (non-breeding)	(√a)	(√a)	(√a)	Xc	Xc	Xc	(√a)	(√a)	(√a)	Xe	Xe	Xe	(√a)	(√a)	(√a)		(√a)			Xe			(√a)		(√a)	(√a)	(√a)

Evidence supporting conclusions:

- (√a) Effects at this SPA are indirect only, dependent on effects on the populations at Alde-Ore Estuary SPA and Ramsar, and only if the bird populations at the two locations are linked. Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.
- Xa These is no suitable habitat for this species at the Alde-Ore Estuary SPA and Ramsar and therefore no possibility of a linked population.
- Xb This species does not breed in the vicinity of the Proposed Compensation Site and the habitat is not suitable or otherwise unlikely to be used for breeding.
- Xc Birds would take flight before being injured or killed.
- Xd The habitat within the PCS includes ditches and small saline lagoons however these are shallow and support mainly annual vegetation which is not green in winter. Therefore, the ditches and lagoons are not suitable habitat for White-fronted Goose which require green vegetation for foraging in winter and prefer deep, open water for roosting. The works at the PCS would therefore not affect this species.
- Xe Species not sensitive to water quality changes.

End of Matrix 115



HRA Screening Matrix 116: Minsmere to Walberswick Heaths & Marshes SAC and the PCS

Name of European site:																												Minsmere to Walberswick Heaths & Marshes SAC																											
EU Code:				UK0012809																																																			
Distance to Project:				13,065m to Proposed Compensation Site																																																			
Likely Effects of Project																																																							
Effect				Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination																											
Stage of Development				C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D																												
Annual vegetation of drift lines				Xa	Xa	Xa							Xb	Xb	Xb	Xa	Xa	Xa		Xa			Xb			Xb		Xc	Xc	Xc																									
Perennial vegetation of stony banks				Xa	Xa	Xa							Xb	Xb	Xb	Xa	Xa	Xa		Xa			Xb			Xb		Xc	Xc	Xc																									
European dry heaths				Xa	Xa	Xa							Xb	Xb	Xb	Xa	Xa	Xa		Xa			Xb			Xb		Xc	Xc	Xc																									

Evidence supporting conclusions:

Xa The works are separated from the SAC by c.13km so there is no possibility of an effect.

Xb The only hydrological connection between the PCS and the SAC is the sea; given the small scale of the works, effects are not possible.

Xc Due to the absence of any real impact pathways, in combination effects can be discounted.

End of Matrix 116



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