

# National Grid NSN Link Limited

nationalgrid

Norway-UK Interconnector

UK Marine Environmental Statement

Appendix Volume 2 - Technical Information

March 2014



**Appendix 2.1: Route Position List (RPL) for the proposed Norway- UK Interconnector**

RPL Number	Decimal Degrees		Longitude (E/W)			Latitude (N/S)		
	Longitude (E/W)	Latitude (N/S)	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
1	6.6	59.559	6	36	0	59	33	32.4
2	6.599	59.559	6	35	56.4	59	33	32.4
3	6.592	59.559	6	35	31.2	59	33	32.4
4	6.591	59.559	6	35	27.6	59	33	32.4
5	6.589	59.558	6	35	20.4	59	33	28.8
6	6.587	59.558	6	35	13.2	59	33	28.8
7	6.585	59.557	6	35	6	59	33	25.2
8	6.575	59.557	6	34	30	59	33	25.2
9	6.571	59.557	6	34	15.6	59	33	25.2
10	6.568	59.557	6	34	4.8	59	33	25.2
11	6.567	59.557	6	34	1.2	59	33	25.2
12	6.565	59.557	6	33	54	59	33	25.2
13	6.563	59.557	6	33	46.8	59	33	25.2
14	6.557	59.556	6	33	25.2	59	33	21.6
15	6.555	59.555	6	33	18	59	33	18
16	6.554	59.555	6	33	14.4	59	33	18
17	6.539	59.556	6	32	20.4	59	33	21.6
18	6.536	59.556	6	32	9.6	59	33	21.6
19	6.534	59.556	6	32	2.4	59	33	21.6
20	6.531	59.555	6	31	51.6	59	33	18
21	6.522	59.554	6	31	19.2	59	33	14.4
22	6.502	59.554	6	30	7.2	59	33	14.4
23	6.496	59.554	6	29	45.6	59	33	14.4
24	6.491	59.555	6	29	27.6	59	33	18
25	6.483	59.554	6	28	58.8	59	33	14.4
26	6.479	59.554	6	28	44.4	59	33	14.4
27	6.477	59.554	6	28	37.2	59	33	14.4
28	6.476	59.555	6	28	33.6	59	33	18
29	6.473	59.554	6	28	22.8	59	33	14.4
30	6.471	59.554	6	28	15.6	59	33	14.4
31	6.464	59.552	6	27	50.4	59	33	7.2
32	6.446	59.551	6	26	45.6	59	33	3.6
33	6.442	59.551	6	26	31.2	59	33	3.6
34	6.439	59.55	6	26	20.4	59	33	0
35	6.435	59.548	6	26	6	59	32	52.8
36	6.431	59.547	6	25	51.6	59	32	49.2
37	6.428	59.547	6	25	40.8	59	32	49.2
38	6.426	59.547	6	25	33.6	59	32	49.2

RPL Number	Decimal Degrees		Longitude (E/W)			Latitude (N/S)		
	Longitude (E/W)	Latitude (N/S)	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
39	6.424	59.546	6	25	26.4	59	32	45.6
40	6.421	59.545	6	25	15.6	59	32	42
41	6.416	59.542	6	24	57.6	59	32	31.2
42	6.408	59.54	6	24	28.8	59	32	24
43	6.402	59.54	6	24	7.2	59	32	24
44	6.393	59.539	6	23	34.8	59	32	20.4
45	6.389	59.538	6	23	20.4	59	32	16.8
46	6.385	59.536	6	23	6	59	32	9.6
47	6.378	59.533	6	22	40.8	59	31	58.8
48	6.372	59.533	6	22	19.2	59	31	58.8
49	6.364	59.531	6	21	50.4	59	31	51.6
50	6.342	59.524	6	20	31.2	59	31	26.4
51	6.288	59.514	6	17	16.8	59	30	50.4
52	6.279	59.514	6	16	44.4	59	30	50.4
53	6.263	59.511	6	15	46.8	59	30	39.6
54	6.248	59.507	6	14	52.8	59	30	25.2
55	6.23	59.499	6	13	48	59	29	56.4
56	6.222	59.491	6	13	19.2	59	29	27.6
57	6.223	59.485	6	13	22.8	59	29	6
58	6.225	59.482	6	13	30	59	28	55.2
59	6.225	59.479	6	13	30	59	28	44.4
60	6.226	59.476	6	13	33.6	59	28	33.6
61	6.226	59.475	6	13	33.6	59	28	30
62	6.226	59.472	6	13	33.6	59	28	19.2
63	6.202	59.458	6	12	7.2	59	27	28.8
64	6.189	59.449	6	11	20.4	59	26	56.4
65	6.166	59.43	6	9	57.6	59	25	48
66	6.165	59.429	6	9	54	59	25	44.4
67	6.159	59.425	6	9	32.4	59	25	30
68	6.156	59.424	6	9	21.6	59	25	26.4
69	6.144	59.424	6	8	38.4	59	25	26.4
70	6.139	59.423	6	8	20.4	59	25	22.8
71	6.135	59.422	6	8	6	59	25	19.2
72	6.127	59.416	6	7	37.2	59	24	57.6
73	6.124	59.412	6	7	26.4	59	24	43.2
74	6.124	59.409	6	7	26.4	59	24	32.4
75	6.124	59.408	6	7	26.4	59	24	28.8
76	6.125	59.407	6	7	30	59	24	25.2
77	6.125	59.406	6	7	30	59	24	21.6
78	6.125	59.405	6	7	30	59	24	18
79	6.123	59.403	6	7	22.8	59	24	10.8

RPL Number	Decimal Degrees		Longitude (E/W)			Latitude (N/S)		
	Longitude (E/W)	Latitude (N/S)	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
80	6.117	59.402	6	7	1.2	59	24	7.2
81	6.108	59.402	6	6	28.8	59	24	7.2
82	6.106	59.403	6	6	21.6	59	24	10.8
83	6.103	59.404	6	6	10.8	59	24	14.4
84	6.101	59.405	6	6	3.6	59	24	18
85	6.1	59.405	6	6	0	59	24	18
86	6.099	59.406	6	5	56.4	59	24	21.6
87	6.098	59.406	6	5	52.8	59	24	21.6
88	6.096	59.407	6	5	45.6	59	24	25.2
89	6.095	59.406	6	5	42	59	24	21.6
90	6.091	59.407	6	5	27.6	59	24	25.2
91	6.089	59.407	6	5	20.4	59	24	25.2
92	6.089	59.407	6	5	20.4	59	24	25.2
93	6.088	59.406	6	5	16.8	59	24	21.6
94	6.087	59.406	6	5	13.2	59	24	21.6
95	6.087	59.405	6	5	13.2	59	24	18
96	6.086	59.404	6	5	9.6	59	24	14.4
97	6.084	59.404	6	5	2.4	59	24	14.4
98	6.083	59.403	6	4	58.8	59	24	10.8
99	6.082	59.402	6	4	55.2	59	24	7.2
100	6.061	59.398	6	3	39.6	59	23	52.8
101	6.056	59.397	6	3	21.6	59	23	49.2
102	6.049	59.394	6	2	56.4	59	23	38.4
103	6.046	59.392	6	2	45.6	59	23	31.2
104	6.045	59.391	6	2	42	59	23	27.6
105	6.042	59.389	6	2	31.2	59	23	20.4
106	6.04	59.386	6	2	24	59	23	9.6
107	6.038	59.385	6	2	16.8	59	23	6
108	6.037	59.383	6	2	13.2	59	22	58.8
109	6.036	59.381	6	2	9.6	59	22	51.6
110	6.033	59.377	6	1	58.8	59	22	37.2
111	6.031	59.376	6	1	51.6	59	22	33.6
112	6.031	59.376	6	1	51.6	59	22	33.6
113	6.031	59.374	6	1	51.6	59	22	26.4
114	6.029	59.373	6	1	44.4	59	22	22.8
115	6.028	59.371	6	1	40.8	59	22	15.6
116	6.027	59.368	6	1	37.2	59	22	4.8
117	6.026	59.364	6	1	33.6	59	21	50.4
118	6.026	59.36	6	1	33.6	59	21	36
119	6.024	59.353	6	1	26.4	59	21	10.8
120	6.017	59.347	6	1	1.2	59	20	49.2

RPL Number	Decimal Degrees		Longitude (E/W)			Latitude (N/S)		
	Longitude (E/W)	Latitude (N/S)	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
121	6.011	59.342	6	0	39.6	59	20	31.2
122	6.009	59.34	6	0	32.4	59	20	24
123	6.009	59.333	6	0	32.4	59	19	58.8
124	6.011	59.327	6	0	39.6	59	19	37.2
125	6.016	59.324	6	0	57.6	59	19	26.4
126	6.017	59.322	6	1	1.2	59	19	19.2
127	6.018	59.32	6	1	4.8	59	19	12
128	6.015	59.318	6	0	54	59	19	4.8
129	6.003	59.314	6	0	10.8	59	18	50.4
130	5.997	59.31	5	59	49.2	59	18	36
131	5.993	59.306	5	59	34.8	59	18	21.6
132	5.989	59.305	5	59	20.4	59	18	18
133	5.985	59.303	5	59	6	59	18	10.8
134	5.98	59.302	5	58	48	59	18	7.2
135	5.967	59.299	5	58	1.2	59	17	56.4
136	5.965	59.298	5	57	54	59	17	52.8
137	5.963	59.298	5	57	46.8	59	17	52.8
138	5.963	59.298	5	57	46.8	59	17	52.8
139	5.963	59.297	5	57	46.8	59	17	49.2
140	5.962	59.296	5	57	43.2	59	17	45.6
141	5.958	59.295	5	57	28.8	59	17	42
142	5.956	59.295	5	57	21.6	59	17	42
143	5.956	59.295	5	57	21.6	59	17	42
144	5.953	59.294	5	57	10.8	59	17	38.4
145	5.951	59.292	5	57	3.6	59	17	31.2
146	5.95	59.292	5	57	0	59	17	31.2
147	5.948	59.29	5	56	52.8	59	17	24
148	5.944	59.287	5	56	38.4	59	17	13.2
149	5.939	59.285	5	56	20.4	59	17	6
150	5.938	59.284	5	56	16.8	59	17	2.4
151	5.934	59.282	5	56	2.4	59	16	55.2
152	5.929	59.281	5	55	44.4	59	16	51.6
153	5.928	59.28	5	55	40.8	59	16	48
154	5.927	59.28	5	55	37.2	59	16	48
155	5.923	59.277	5	55	22.8	59	16	37.2
156	5.92	59.276	5	55	12	59	16	33.6
157	5.916	59.277	5	54	57.6	59	16	37.2
158	5.914	59.276	5	54	50.4	59	16	33.6
159	5.912	59.276	5	54	43.2	59	16	33.6
160	5.906	59.269	5	54	21.6	59	16	8.4
161	5.901	59.266	5	54	3.6	59	15	57.6

RPL Number	Decimal Degrees		Longitude (E/W)			Latitude (N/S)		
	Longitude (E/W)	Latitude (N/S)	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
162	5.899	59.264	5	53	56.4	59	15	50.4
163	5.898	59.261	5	53	52.8	59	15	39.6
164	5.895	59.259	5	53	42	59	15	32.4
165	5.893	59.256	5	53	34.8	59	15	21.6
166	5.889	59.252	5	53	20.4	59	15	7.2
167	5.889	59.252	5	53	20.4	59	15	7.2
168	5.888	59.25	5	53	16.8	59	15	0
169	5.886	59.247	5	53	9.6	59	14	49.2
170	5.878	59.243	5	52	40.8	59	14	34.8
171	5.875	59.242	5	52	30	59	14	31.2
172	5.87	59.239	5	52	12	59	14	20.4
173	5.871	59.236	5	52	15.6	59	14	9.6
174	5.871	59.235	5	52	15.6	59	14	6
175	5.871	59.235	5	52	15.6	59	14	6
176	5.87	59.234	5	52	12	59	14	2.4
177	5.867	59.23	5	52	1.2	59	13	48
178	5.865	59.228	5	51	54	59	13	40.8
179	5.863	59.225	5	51	46.8	59	13	30
180	5.861	59.224	5	51	39.6	59	13	26.4
181	5.859	59.219	5	51	32.4	59	13	8.4
182	5.858	59.218	5	51	28.8	59	13	4.8
183	5.852	59.215	5	51	7.2	59	12	54
184	5.85	59.214	5	51	0	59	12	50.4
185	5.849	59.213	5	50	56.4	59	12	46.8
186	5.849	59.211	5	50	56.4	59	12	39.6
187	5.847	59.209	5	50	49.2	59	12	32.4
188	5.845	59.207	5	50	42	59	12	25.2
189	5.845	59.207	5	50	42	59	12	25.2
190	5.842	59.206	5	50	31.2	59	12	21.6
191	5.841	59.206	5	50	27.6	59	12	21.6
192	5.836	59.206	5	50	9.6	59	12	21.6
193	5.833	59.205	5	49	58.8	59	12	18
194	5.83	59.204	5	49	48	59	12	14.4
195	5.824	59.204	5	49	26.4	59	12	14.4
196	5.818	59.203	5	49	4.8	59	12	10.8
197	5.803	59.203	5	48	10.8	59	12	10.8
198	5.778	59.203	5	46	40.8	59	12	10.8
199	5.766	59.201	5	45	57.6	59	12	3.6
200	5.762	59.201	5	45	43.2	59	12	3.6
201	5.758	59.202	5	45	28.8	59	12	7.2
202	5.743	59.201	5	44	34.8	59	12	3.6

RPL Number	Decimal Degrees		Longitude (E/W)			Latitude (N/S)		
	Longitude (E/W)	Latitude (N/S)	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
203	5.734	59.202	5	44	2.4	59	12	7.2
204	5.722	59.2	5	43	19.2	59	12	0
205	5.715	59.199	5	42	54	59	11	56.4
206	5.704	59.198	5	42	14.4	59	11	52.8
207	5.669	59.194	5	40	8.4	59	11	38.4
208	5.659	59.191	5	39	32.4	59	11	27.6
209	5.654	59.19	5	39	14.4	59	11	24
210	5.648	59.189	5	38	52.8	59	11	20.4
211	5.641	59.19	5	38	27.6	59	11	24
212	5.632	59.192	5	37	55.2	59	11	31.2
213	5.625	59.192	5	37	30	59	11	31.2
214	5.61	59.188	5	36	36	59	11	16.8
215	5.595	59.179	5	35	42	59	10	44.4
216	5.5	59.125	5	30	0	59	7	30
217	5.476	59.115	5	28	33.6	59	6	54
218	5.453	59.103	5	27	10.8	59	6	10.8
219	5.438	59.1	5	26	16.8	59	6	0
220	5.426	59.098	5	25	33.6	59	5	52.8
221	5.423	59.098	5	25	22.8	59	5	52.8
222	5.412	59.098	5	24	43.2	59	5	52.8
223	5.409	59.099	5	24	32.4	59	5	56.4
224	5.406	59.099	5	24	21.6	59	5	56.4
225	5.401	59.099	5	24	3.6	59	5	56.4
226	5.37	59.093	5	22	12	59	5	34.8
227	5.309	59.083	5	18	32.4	59	4	58.8
228	5.303	59.082	5	18	10.8	59	4	55.2
229	5.257	59.01	5	15	25.2	59	0	36
230	5.145	58.941	5	8	42	58	56	27.6
231	4.867	58.794	4	52	1.2	58	47	38.4
232	4.381	58.532	4	22	51.6	58	31	55.2
233	4.294	58.489	4	17	38.4	58	29	20.4
234	4.18	58.422	4	10	48	58	25	19.2
235	4.166	58.414	4	9	57.6	58	24	50.4
236	4.139	58.399	4	8	20.4	58	23	56.4
237	4.103	58.379	4	6	10.8	58	22	44.4
238	3.931	58.284	3	55	51.6	58	17	2.4
239	2.408	57.407	2	24	28.8	57	24	25.2
240	2.38	57.393	2	22	48	57	23	34.8
241	2.152	57.302	2	9	7.2	57	18	7.2
242	1.906	57.19	1	54	21.6	57	11	24
243	1.854	57.16	1	51	14.4	57	9	36

RPL Number	Decimal Degrees		Longitude (E/W)			Latitude (N/S)		
	Longitude (E/W)	Latitude (N/S)	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
244	1.834	57.139	1	50	2.4	57	8	20.4
245	1.823	57.132	1	49	22.8	57	7	55.2
246	1.766	57.106	1	45	57.6	57	6	21.6
247	1.738	57.097	1	44	16.8	57	5	49.2
248	1.604	57.055	1	36	14.4	57	3	18
249	1.404	56.965	1	24	14.4	56	57	54
250	1.347	56.908	1	20	49.2	56	54	28.8
251	1.338	56.901	1	20	16.8	56	54	3.6
252	1.338	56.901	1	20	16.8	56	54	3.6
253	1.33	56.896	1	19	48	56	53	45.6
254	1.251	56.84	1	15	3.6	56	50	24
255	1.206	56.803	1	12	21.6	56	48	10.8
256	1.204	56.802	1	12	14.4	56	48	7.2
257	1.202	56.801	1	12	7.2	56	48	3.6
258	1.199	56.8	1	11	56.4	56	48	0
259	1.198	56.799	1	11	52.8	56	47	56.4
260	1.093	56.71	1	5	34.8	56	42	36
261	1.091	56.709	1	5	27.6	56	42	32.4
262	1.088	56.708	1	5	16.8	56	42	28.8
263	1.085	56.707	1	5	6	56	42	25.2
264	1.083	56.706	1	4	58.8	56	42	21.6
265	1.053	56.686	1	3	10.8	56	41	9.6
266	1.035	56.66	1	2	6	56	39	36
267	0.854	56.496	0	51	14.4	56	29	45.6
268	0.691	56.429	0	41	27.6	56	25	44.4
269	0.464	56.357	0	27	50.4	56	21	25.2
270	0.431	56.34	0	25	51.6	56	20	24
271	-0.009	56.003	0	0	32.4	56	0	10.8
272	-0.156	55.822	0	9	21.6	55	49	19.2
273	-0.224	55.774	0	13	26.4	55	46	26.4
274	-0.335	55.701	0	20	6	55	42	3.6
275	-0.493	55.604	0	29	34.8	55	36	14.4
276	-0.651	55.507	0	39	3.6	55	30	25.2
277	-0.838	55.362	0	50	16.8	55	21	43.2
278	-1.118	55.245	-1	7	4.8	55	14	42
279	-1.225	55.217	-1	13	30	55	13	1.2
280	-1.314	55.189	-1	18	50.4	55	11	20.4
281	-1.439	55.154	-1	26	20.4	55	9	14.4
282	-1.445	55.154	-1	26	42	55	9	14.4
283	-1.505	55.159	-1	30	18	55	9	32.4
284	-1.523	55.158	-1	31	22.8	55	9	28.8



## Appendix 2.2: Habitats Regulations Assessment Signposting

A Habitats Regulations Screening Assessment report is included within the Norway-UK Interconnector project application and covers both offshore and onshore elements within the UK

<b>Norway – UK Interconnector Project Appropriate Assessment Signposting Document for the Northumberland Natura 2000 Sites</b>			
<b>Conservation Objectives</b>	<b>Chapter Issue Discussed</b>	<b>Page</b>	<b>Sections If Relevant</b>
<b>Northumberland Shore SSSI</b>			
Turnstone ( <i>Arenaria interpres</i> )	9, 12	Chapter 9 pages 5 – 9	9.4.1, 10.1.2
		Chapter 12 pages 4, 5, 6	12.4.1
Purple Sandpiper ( <i>Calidris maritima</i> )	9, 12	Chapter 9 pages 5,7, 8, 9, 10 ,16	9.4.1, 10.1.2
		Chapter 12 pages 4, 5, 6, 10,	12.4.1, 12.5.1
Sanderling ( <i>Calidris alba</i> )	9, 12	Chapter 9 pages 5, 7	9.4.1
		Chapter 12 pages 4, 5, 6	12.4.1
Golden Plover ( <i>Pluvialis apricaria</i> )	9, 12	Chapter 9 pages 5,7	9.4.1
		Chapter 12 pages 4, 5	12.4.1
Ringed Plover ( <i>Charadrius hiaticula</i> )	9, 12	Chapter 9 pages 5, 9, 10 ,16	9.4.1, 10.1.2
		Chapter 12 pages 4, 5,	12.4.1
Redshank ( <i>Tringa totanus</i> )	9, 12	Chapter 9 pages 5, 9, 10 ,16	9.4.1, 10.1.2
		Chapter 12 pages 4, 6, 7	9.4.1
<b>Creswell and Newbiggin Shore</b>			
Geological Importance	7, 9	Chapter 7 page 5	7.4.2
		Chapter 9 pages 5, 8	9.4.1
<b>Northumbria Coast SPA</b>			
Little Tern ( <i>Sterna albifrons</i> )	9, 12	Chapter 9 pages 5, 7, 9, 16	9.4.1, 10.1.2
		Chapter 12 pages 4, 5, 7,8,11	12.4.1, 12.4.2, 12.5.1
Turnstone ( <i>Arenaria interpres</i> )	9, 12	Chapter 9 pages 6, 7, 8	9.4.1, 10.1.2
		Chapter 12 pages 4, 5, 6	12.4.1
Purple Sandpiper ( <i>Calidris maritima</i> )	9, 12	Chapter 9 pages 7,8	9.4.1
		Chapter 12 pages 4,	12.4.1, 12.5.1

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Conservation Objectives	Chapter Issue Discussed	Page	Sections If Relevant
		5, 6, 10	
<b>Coquet Island SPA</b>			
Arctic Tern ( <i>Sterna paradisaea</i> )	9, 12	Chapter 9 pages 8, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 pages 8	12.4.2
Common Tern ( <i>Sterna hirundo</i> )	9, 12	Chapter 9 pages 8,9, 10, 16	9.4.1, 10.1.2
		Chapter 12 pages 8	12.4.2
Roseate Tern ( <i>Sterna dougallii</i> )	9, 12	Chapter 9 pages 8, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 pages 8	12.4.2
Sandwich Tern ( <i>Sterna sandvicensis</i> )	9, 12	Chapter 9 pages 8, 9	9.4.1
		Chapter 12 page 8	12.4.2
Puffin ( <i>Fratercula arctica</i> )	9, 12	Chapter 9 pages 9, 10, 11, 16	9.4.1, 10.1.2
		Chapter 12 pages 8, 9	12.4.2
<b>Berwickshire and North Northumberland Coast</b>			
Mudflats and sandflats not covered by seawater at low tide	9	Chapter 9 pages 8	9.4.1
Large shallow inlets and bays	9	Chapter 9 pages 8	9.4.1
Reefs	9	Chapter 9 pages 8, 14, 18	9.4.1
Submerged or partially submerged seacaves	9	Chapter 9 pages 8	9.4.1, 10.1.1, 10.2.1
Grey Seal ( <i>Halichoerus grypus</i> )	9, 13	Chapter 9 pages 7,8,15,16	9.4.1, 10.1.2/13.3
		Chapter 13 pages: 3, 6, 7, 8, 9, 8, 9	13.3, 13.3.2, 13.4
<b>Teesmouth and Cleveland Coast SPA</b>			
Little Tern ( <i>Sterna albifrons</i> )	9, 12	Chapter 9 pages 5, 7, 9, 16	9.4.1, 10.1.2
		Chapter 12 pages 4,	12.4.1, 12.4.2, 12.5.1

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Conservation Objectives	Chapter Issue Discussed	Page	Sections If Relevant
		5, 7,8,11	
Sandwich Tern ( <i>Sterna sandvicensis</i> )	9, 12	Chapter 9 pages 8, 9	9.4.1
		Chapter 12 pages 8	12.4.2
Ringed Plover ( <i>Charadrius hiaticula</i> )	9, 12	Chapter 9 pages 5, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 pages 4, 5,	12.4.1
Knot ( <i>Calidris canutus</i> )	9, 12	Chapter 9 pages 5, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 pages 4,6	12.4.1
Redshank ( <i>Tringa totanus</i> )	9, 12	Chapter 9 pages 5, 7, 9, 16	9.4.1, 10.1.2
		Chapter 12 pages 4, 6, 7	9.4.1
<b>Farne Islands SPA</b>			
Arctic Tern ( <i>Sterna paradisaea</i> )	9, 12	Chapter 9 pages 8, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 page 8	12.4.2
Common Tern ( <i>Sterna hirundo</i> )	9, 12	Chapter 9 pages 8,9, 10, 16	9.4.1, 10.1.2
		Chapter 12 page 8	12.4.2
Roseate Tern ( <i>Sterna dougallii</i> )	9, 12	Chapter 9 pages 8, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 page 8	12.4.2
Sandwich Tern ( <i>Sterna sandvicensis</i> )	9, 12	Chapter 9 pages 8, 9	9.4.1
		Chapter 12 page 8	12.4.2
Guillemot ( <i>Uria aalge</i> )	9, 12	Chapter 9 pages 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 pages 8, 9	9.4.1
Puffin ( <i>Fratercula arctica</i> )	9, 12	Chapter 9 pages 9, 10, 11, 16	9.4.1, 10.1.2
		Chapter 12 pages 8, 9	12.4.2
<b>Lindisfarne SPA</b>			
Little Tern ( <i>Sterna albifrons</i> )	9, 12	Chapter 9 pages 5, 7, 9, 16	9.4.1, 10.1.2

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Conservation Objectives	Chapter Issue Discussed	Page	Sections If Relevant
		Chapter 12 pages 4, 5, 7,8,11	12.4.1, 12.4.2, 12.5.1
Bar-tailed Godwit ( <i>Limosa lapponica</i> )	9, 12	Chapter 9 pages 5, 10, 16	9.4.1, 10.1.2
		Chapter 12 page 4	12.4.1
Golden plover ( <i>Pluvialis apricaria</i> )	9, 12	Chapter 9 pages 5,7	9.4.1
		Chapter 12 pages 5, 6	9.4.1
Whooper Swan ( <i>Cygnus cygnus</i> )	9, 12	Chapter 9 pages 10, 16	9.4.1, 10.1.2
Ringed Plover ( <i>Charadrius hiaticula</i> )	9, 12	Chapter 9 pages 5, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 pages 4, 5,	12.4.1
Grey Plover ( <i>Pluvialis squatarola</i> )	9, 12	Chapter 9 pages 0, 16	9.4.1, 10.1.2
Greylag Goose ( <i>Anser anser</i> )	9, 12	1 Chapter 9 pages 0, 16	9.4.1, 10.1.2
Knot ( <i>Calidris canutus</i> )	9, 12	Chapter 9 pages 5, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 page 6	12.4.1
Light-bellied Brent Goose ( <i>Branta bernicla hrota</i> )	9, 12	Chapter 9 pages 10, 16	9.4.1, 10.1.2
Wigeon ( <i>Anas penelope</i> )	9, 12	Chapter 9 pages 10, 16	9.4.1, 10.1.2
<b>Forth Islands SPA</b>			
Arctic Tern ( <i>Sterna paradisaea</i> )	9, 12	Chapter 9 pages 8, 9, 10, 16	9.4.1, 10.1.2
		Chapter 12 page 8	12.4.2
Common Tern ( <i>Sterna hirundo</i> )	9, 12	Chapter 9 pages 8,9 , 10, 16	9.4.1, 10.1.2
		Chapter 12 page 8	12.4.2
Roseate Tern ( <i>Sterna dougallii</i> )	9, 12	Chapter 9 pages 8, 9 , 10, 16	9.4.1, 10.1.2
		Chapter 12 page 8	12.4.2
Sandwich Tern ( <i>Sterna sandvicensis</i> )	9, 12	Chapter 9 pages 8, 9	9.4.1
		Chapter 12 page 8	12.4.2

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<b>Conservation Objectives</b>	<b>Chapter Issue Discussed</b>	<b>Page</b>	<b>Sections If Relevant</b>
Gannet ( <i>Morus bassanus</i> )	9, 12	Chapter 9 pages 10, 11, 13, 16	9.4.1, 10.1.2
		Chapter 12 pages 5, 7, 9	12.4.2
Lesser Black-backed Gull ( <i>Larus fuscus</i> )	9, 12	Chapter 9 pages 10, 16	9.4.1, 10.1.2
		Chapter 12 pages 8,9	12.4.4
Shag ( <i>Phalacrocorax aristotelis</i> )	9, 12	Chapter 9 pages 11, 16	9.4.1, 10.1.2
Flamborough Head and Bempton Cliffs SPA			
Kittiwake ( <i>Rissa tridactyla</i> )	9, 12	Chapter 9 pages 9, 11, 16	9.4.1, 10.1.2
		Chapter 12 pages 8, 9	12.4.2

Appendix 2.3 Assessment of Impact Significance

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
7	Physical Environment																		
7	Installation	Cable installation	Changes to seabed bathymetry, bedforms and sediments	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor	Rock placement will only be used where cable burial is not possible, and the profile of rock berms will be designed to minimise the potential for scour to occur.	Possible	Immediate Area	Low	Short-term	Low		Minor	Not Significant
7	Installation	Cable installation	Changes to geological features of conservation interest	Medium	Unlikely	Immediate Area	Low	Short-term	Negligible	None	No mitigation measures	-	-	-	-	-		None	Significant
7	Installation	Cable installation	Changes to the metocean regime	Negligible	Unlikely	Immediate Area	Low	Short-term	Negligible	None	No mitigation measures	-	-	-	-	-		None	Significant
7	Installation	Cable installation	Changes to the sediment regime and coastal processes	Low	Unlikely	Immediate Area	Low	Short-term	Negligible	None	No mitigation measures	-	-	-	-	-		None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
				Medium	Possible	Immediate Area	Low	Short-term	Low	Minor		Possible	Immediate Area	Low	Short-term	Low		Minor	Not Significant
7	Operation	Cable operation	Changes to seabed bathymetry, bedforms and sediments	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor	Rock placement will only be used where cable burial is not possible, and the profile of rock berms will be designed to minimise the potential for scour to occur.	Possible	Immediate Area	Low	Short-term	Low		Minor	Not Significant
7	Operation	Cable operation	Changes to geological features of conservation interest	Medium	Unlikely	Immediate Area	Low	Short-term	Negligible	None	No mitigation measures	-	-	-	-	-		None	Not Significant
7	Operation	Cable operation	Changes to the metocean regime	Negligible	Unlikely	Immediate Area	Low	Short-term	Negligible	None	No mitigation measures	-	-	-	-	-		None	Not Significant
7	Operation	Cable operation	Changes to seabed temperature	Low	Possible	Immediate Area	Low	Short-term	Low	None	No mitigation measures	-	-	-	-	-		None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
7	Operation	Cable operation	Sea level rise and climate change	Low	Possible	Immediate Area	Low	Short-term	Low	Minor	Restoration of the intertidal area after installation and/or maintenance by backfilling will restore the beach profile to the existing baseline condition.	Possible	Immediate Area	Low	Short-term	Low		Minor	Not Significant
8	<b>Water and Sediment Quality</b>																		
8	Installation	Jetting & burial	Sediment disturbance	Low	Possible	Immediate Area	Low	Short-term	Low	None	Micro-routing to avoid disposal sites and drill cuttings piles.	Unlikely	Immediate Area	Low	Short-term	Negligible	Following mitigation measures, it is not anticipated that the Norway-UK Interconnector project will have any significant impacts on the objectives of the WFD and MSFD.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
8	Installation	Rock placement	Sediment disturbance	Low	Possible	Immediate Area	Low	Short-term	Medium	Minor	Micro-routing to avoid disposal sites and drill cuttings piles.	Unlikely	Immediate Area	Low	Short-term	Negligible	Following mitigation measures, it is not anticipated that the Norway-UK Interconnector project will have any significant impacts on the objectives of the WFD and MSFD.	None	Not Significant
8	Installation	Trenching / jetting	Sediment deposition	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor	No mitigation measures	-	-	-	-	-	there will be no significant toxicological effects from deposition of drill cuttings .	Minor	Not Significant
8	Installation	Vessel operation during installation	Contamination from vessel discharges	Low	Possible	Immediate Area	Low	Short-term	Low	None	All vessels associated with cable installation will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations. All vessels will have shipboard oil pollution emergency plans (SOPEPS) in operation.	Possible	Immediate Area	Low	Short-term	Negligible	With mitigation measures in place, no significant residual impacts are anticipated	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
8	Installation	Cable installation	Introduction of non native species from the disposal of ballast waters.	Medium	Unlikely	Localised	Low	Long - term	Low	Minor	Installation vessels will follow IMO ballast water management guidelines, and/or European interim strategies (prior to the entry into force of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (EMSA, 2008)), developed to reduce the risk of the introduction of non-native species into the marine environment.	Unlikely	Localised	Low	Long - term	Negligible	With mitigation measures in place, no significant residual impacts are anticipated	None	Not Significant
8	Installation	Cable installation	Accidental hydrocarbon or chemical spill from installation vessel	High	Possible	Wider environment	Medium	Medium-term	Low	Moderate	All vessels associated with cable installation will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations. All vessels will have shipboard oil pollution emergency plans (SOPEPS) in operation.	Possible	Immediate Area	Low	Long - term	Negligible	With mitigation measures in place, no significant residual impacts are anticipated	Minor	Not significant
9	<b>Protected Sites and Species</b>																		

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
9	Installation	Cable burial - trenching	Direct disturbance/ removal of intertidal protected habitat – Northumberland Shore SSSI and Coquet to St Marys rMCZ	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor	<p>Installation activities will be undertaken outside of the period October - March, to avoid overwintering birds using the area.</p> <p>Restoration of intertidal habitat by backfilling will occur after trenching.</p> <p>Construction works in the intertidal area will be restricted to a designated working area within which all construction activity and plant/vehicle movement will take place.</p>	Unlikely	Immediate Area	Low	Short-term	Negligible	Mitigation by design in avoiding protected features and PAIH in the intertidal area. The most sensitive area of the SSSI site (rocky outcrops to the south and north) has been avoided.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
9	Installation	Cable burial - jetting	Direct disturbance/ removal of subtidal protected habitat (jetting) –Coquet to St Marys rMCZ	Low	Unlikely	Immediate Area	Low	Short-term	Low	None	No mitigation measures	.	.	.	.	.	Careful route survey and design has enabled any potential broadscale habitats or under boulder communities to be identified and avoided. No mitigation measures are able to reduce the impact further.	None	Not Significant
9	Installation	Cable burial - jetting	Direct disturbance/ removal of subtidal protected habitat – Swallow Sands MCZ	High	Possible	Immediate Area	Low	Short-term	Negligible	Minor	No mitigation measures	.	.	.	.	.	Careful route survey and design has enabled any potential broadscale habitats or under boulder communities to be identified and avoided. No mitigation measures are able to reduce the impact further.	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
9	Installation	Cable burial - jetting	Direct removal of subtidal protected habitat - East of Gannet & Montrose Fields pMPA	High	Possible	Immediate Area	Low	Short-term	Negligible	Minor	No mitigation measures	-	-	-	-	-	Restoration of habitats will take place after the cable is laid by back filling with the same sediment. Recolonisation is expected to occur quickly.	Minor	Not Significant
9	Installation	Cable burial	Disturbance of protected habitat - anchor placement	Low	Unlikely	Immediate Area	Low	Short-term	Low	None	No mitigation measures	-	-	-	-	-	Anchor disturbance will be minimal and is not expected to have a residual impact.	None	Not Significant
9	Installation	Rock placement	Change of habitat due to cable protection - Swallow Sands MCZ	High	Low	Immediate Area	Low	Short-term	Negligible	Minor	No mitigation measures	-	-	-	-	-	Careful route design has minimised the requirement for rock placement. Impacts will be localised. The impact may produce a positive effect to diversity within the protected area in the long term.	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
9	Installation	Rock placement	Change of habitat due to cable protection - EGM pMPA	High	Low	Immediate Area	High	Short-term	Negligible	Minor	No mitigation measures	-	-	-	-	-	Careful route design has minimised the requirement for rock placement. Impacts will be localised. The impact may produce a positive effect to diversity within the protected area in the long term.	Minor	Not Significant
9	Installation	Rock placement	Increase in deposition from suspended sediments	Medium	Low	Immediate Area	Low	Short-term	Low	Minor	No mitigation measures	-	-	-	-	-		Minor	Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
9	Installation	Vessel activity	Introduction of non-native species from installation vessel ballast waters	High	Unlikely	Localised	Medium	Short-term	Negligible	Minor	Installation vessels will follow IMO ballast water management guidelines and/or European interim strategies (prior to the entry into force of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (EMSA 2008)), developed to reduce the risk of the introduction of non-native species into the marine environment.	Unlikely	Localised	Low	Short-term	Negligible	Complying with IMO guidelines will minimise the likelihood of the impact occurring.	Minor	Not Significant
9	Installation	Vessel activity	Accidental hydrocarbon or chemical release from installation vessel	High	Possible	Localised	Low	Short-term	Low	Moderate	All vessels associated with cable installation will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations. All vessels will have shipboard oil pollution emergency plans (SOPEPS) in operation.	Unlikely	Localised	Low	Short-term	Negligible	Complying with MARPOL regulations will minimise the likelihood of spill from installation vessels.	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
9	Installation	Vessel activity	Pollution from discharge of grey water from installation vessel	High	Unlikely	Localised	Low	Short-term	Negligible	Minor	All vessels associated with cable installation will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations.	Unlikely	Localised	Low	Short-term	Negligible	Complying with MARPOL regulations will minimise the likelihood of pollution from installation vessels.	Minor	Not Significant
10	<b>Benthic and Intertidal Ecology</b>																		
10	Installation	Cable burial	Loss or disturbance of intertidal species and habitat	Low	High	Localised	Low	Short-term	Negligible	None	Any deployment of equipment or vessels onto the seabed (e.g. anchors, intertidal cable-lay vessels) will be kept to a minimum. Restoration of intertidal habitat by backfilling will occur after construction. Construction works in the intertidal area will be restricted to a designated working area within which all construction activity and plant/vehicle movement will take place.	-	-	-	-	-	No rare or protected species were encountered during the intertidal survey. Recoverability of intertidal species in sandy sediment is predicted to be high.	None	Not significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
10	Installation	Cable burial and rock placement	Direct loss/disturbance to benthic species and habitat (general)	Low	High	Localised	Low	Short-term	Negligible	None	Any deployment of equipment or vessels onto the seabed (e.g. anchors of cable-lay vessels) will be kept to a minimum.	.	.	.	.	.	Recoverability of benthic species is high with rapid re-colonisation occurring after installation.	None	Not Significant
10	Installation	Cable burial and rock placement	Direct loss/disturbance to OSPAR listed habitats e.g. <i>Arctica islandica</i> and sea pens and burrowing megafauna in circalittoral fine mud	Medium	Possible	Localised	Low	Short-term	Low	Minor	Any deployment of equipment or vessels onto the seabed (e.g. anchors of cable-lay vessels) will be kept to a minimum.	Low	Localised	Low	Short term	low	Disturbance will be very localised and is not expected to affect the wider extent of this species and biotope.	Minor	Not significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
10	Installation	Cable burial and rock placement	Direct loss/disturbance to rocky reef habitat	High	Low	Localised	Low	Short term	Medium	Moderate	Any deployment of equipment or vessels onto the seabed (e.g. anchors of cable-lay vessels) will be kept to a minimum.  The Annex I habitats of stony reef will be marked as exclusion areas, and where possible the installation contractor will be required to avoid these in cable installation and anchor deployment.	Low	Localised	Low	Short term	Low	Impacts to stony reef habitat will be very localised and mitigation measures including micro-routing to avoid the best examples of reef, mean the residual effect as been assessed as minor.	Minor	Not significant
10	Installation	Cable burial and rock placement	Smothering from displaced sediment	Low	Definite	Localised	Low	Short term	Low	None	None proposed.	-	-	-	-	-	Many of the benthic species including crustaceans, bivalves and infaunal polychaetes will be able to re-burrow or move up through sediment if lightly buried and recruitment will also occur from adjacent areas	None	Not significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
10	Installation	Cable burial and rock placement	Sediment suspension and deposition	Low	Possible	Localised	Low	Short term	Negligible	None	None proposed.	-	-	-	-	-	Benthic organisms present along the much of the proposed cable route will be well adapted to mobilised sediment and rapidly changing suspended sediment levels and are therefore in the range of natural fluctuations. Impacts will be localised and temporary	None	Not significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
10	Installation	Cable burial and rock placement	Smothering from cable protection	Low	Possible	Localised	Low	Permanent	Medium	Minor	None proposed.	Possible	Localised	Low	Sort term	Medium	Rocks or mattresses are likely to be rapidly colonised by sessile epifaunal organisms such as sponges, hydroids, bryozoans and soft corals, along with accompanying motile epifauna such as crustaceans and gastropod molluscs. As such, this will represent an increase in local diversity and abundance, particularly in areas of lower diversity, such as mobile sands	Minor	Not significant
10	Installation	Cable burial and rock placement	Smothering from cable protection on rocky reef habitat	High	Low	Localised	Low	Permanent	Medium	Moderate	The Annex I habitats of stony reef will be marked as exclusion areas, and where possible the installation contractor will be required to avoid these in cable installation and anchor deployment.	Low	Localised	Low	Short term	Low	Impacts to stony reef habitat will be very localised micro routing is likely to avoid any areas of Annex I reef. And re-colonisation of epibenthic species is expected to be rapid.	Minor	Not significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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10	Operation	Cable installation	Substrate change due to presence of installed cable	Low	Possible	Localised	Low	Permanent	Low	None	Where seabed conditions allow the cable will be buried to 1-2m	.	.	.	.	.	The presence of the cable will not deny species of suitable habitat and the introduction of rock will increase the diversity if epifauna	None	<b>Not significant</b>

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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10	Operation		Electromagnetic fields / Induced electric fields	Low	Possible	Localised	Low	Permanent	Negligible	None	Where seabed conditions allow, it is anticipated that the cable will be buried along the cable corridor and when burial is not possible rock placement be used	-	-	-	-	-	There may be possible impairment of navigation and/or physiological effects upon marine macro-invertebrates but only minor, in very close proximity to cables. Possible physiological effects will largely be negated by burial. Marine invertebrates have not been demonstrated as being electrically sensitive. The E fields expected to be induced are of relatively minimal strength and therefore unlikely to caused detrimental effects to these taxa (CMACS, 2011a).	None	Not significant

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10	Operation	Cable operation	Heating.	Low	Possible	Localised	Low	Permanent	Negligible	None	Where seabed conditions allow, it is anticipated that the cable will be buried along the cable corridor (depth 1-2m) and when burial is not possible rock placement be used	-	-	-	-	-	Heating effects are not expected to result in temperature increase of more than 2°C and an assessment of potential effects on marine fauna has not identified any organisms that would be sensitive to such small increases in temperature (CMACS, 2011b).	None	Not significant
11	Fish and Shellfish																		

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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11	Installation	Ploughing / jetting / trenching	Loss or disturbance of general seabed habitat from cable installation	Medium	Possible	Immediate vicinity	Low	Short-term	Negligible	Minor	No mitigation measures	-	-	-	-	-	Where seabed conditions allow, the cable will be buried using the ploughing method which will minimise disturbance. Sediments have a moderate to high level of recoverability, and recolonisation is expected to begin almost immediately after cable installation is complete.	Minor	Not Significant
11	Installation	Ploughing / jetting	Disturbance to spawning and nursery grounds from cable installation	High	Possible	Immediate Area	Low	Short-term	Negligible	Minor	No mitigation measures.	-	-	-	-	-	Spawning and nursing activities occur over extensive areas and the % of spawning and nursing are being disturbed is very small. The recoverability of soft sediments is high.	Minor	Not Significant

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11	Installation	Rock placement	Smothering of demersal species from cable protection.	Medium	Definite	Immediate Area	Low	Short-term	Low	Minor	No mitigation measures.	.	.	.	.	.	Careful route design has minimised the requirement for rock placement. Impacts will be localised. The impact may produce a positive effect to diversity of fish species in the long term.	Minor	Not Significant
11	Installation	Rock placement	Loss or disturbance of spawning and nursery grounds from cable protection	High	Possible	Immediate Area	Low	Short-term	Negligible	Minor	No mitigation measures	.	.	.	.	.		Minor	Not Significant
11	Installation	Ploughing /jetting	Suspended sediment dispersion and deposition effects on demersal species	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor							Any smothering impacts will be localised and temporary.	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
11	Installation	Cable installation	Suspended sediment dispersion and deposition effects on spawning and nursery areas	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor	No mitigation measures	-	-	-	-	-	The impact will be temporary and localised.	Minor	Not Significant
11	Installation	Cable installation	Suspended sediments reducing feeding success of visual species	Low	Possible	Immediate Area	Low	Short-term	Low	None	No mitigation measures.	-	-	-	-	-	Fish species have the ability to temporarily move away from the turbid conditions. Suspended sediments will be minimised by using the ploughing method where possible.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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11	Installation	Cable installation	Disturbance from noise and vibration during installation	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor	No mitigation measures	-	-	-	-	-	Displacement of marine species is expected to be localised and temporary. Species would be expected to return to the area once cable laying operations have ended/progressed. Species displaced from their spawning areas will be able to relocate to alternative habitat	Minor	Not Significant
11	Installation	Cable installation	Pollution from discharge of grey water from installation vessel	Low	Unlikely	Immediate Area	Low	Short-term	Low	None	All vessels associated with cable installation will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations.	Unlikely	Immediate Area	Low	Short-term	Low	Complying with MARPOL regulations will minimise the likelihood of release from installation vessels.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
11	Installation	Cable installation	Introduction of non-native species from installation vessel ballast waters	High	Low	Immediate Area	Low	Long-term	Negligible	Minor	Installation vessels will follow IMO ballast water management guidelines and/or European interim strategies (prior to the entry into force of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (EMSA 2008)), developed to reduce the risk of the introduction of non-native species into the marine environment.	Unlikely	Immediate Area	Low	Short-term	Negligible	Ballast Water guidelines will be followed, however, this will not reduce the magnitude of the effect further and the impact is tolerable.	Minor	Not Significant
11	Installation	Cable installation	Accidental hydrocarbon or chemical release from installation vessel	Medium	Low	Immediate Area	Low	Short-term	Low	Minor	All vessels associated with cable installation will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations. All vessels will have shipboard oil pollution emergency plans (SOPEPS) in operation.	Low	Immediate Area	Low	Short-term	Negligible	With mitigation in place, the impacts to fish and shellfish are minimised.	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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11	Operation	Cable installation	Substrate change due to presence of installed cable	High	Likely	Immediate Area	Low	Short term	Negligible	Minor	No mitigation measures	-	-	-	-	-	Whilst significant, the effect could be considered to be beneficial. Rather than changing the baseline by attracting new species to the area, it is more likely that existing species in the area will be using the new stable habitat and feeding on newly colonising fauna.	Minor	Not Significant
11	Operation	Operation of separately laid cable	Electromagnetic Fields (EMF)	High	Possible	Immediate Area	Low	Short-term	Negligible	Minor	No mitigation measures	-	-	-	-	-	Good cable design and burial minimises the impact of magnetic and induced electric fields	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
11	Operation	Cable operation	Heating	Low	Unlikely	Immediate Area	Low	Short-term	Low	None	No mitigation measures	-	-	-	-	-	Cable burial depth minimises the impact of heating at the sea bed.	None	Not Significant
12	<b>Ornithology</b>																		
12	Installation	Trenching	Disturbance to bird species in the intertidal area.	Medium	Possible	Immediate Area	Low	Short Term	Low	Minor	Installation activities within the SSSI will be undertaken outside of the overwintering period December – April. Construction works within the intertidal area will be restricted to a designated area within which all construction activity will take place. If trenching occurs, restoration of intertidal habitat will occur after construction.	Unlikely	Immediate Area	Low	Short-term	Negligible	There will be no residual impact from operations.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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12	Installation	Ploughing / Jetting	Disturbance to bird species at sea	Medium	Possible	Localised	Low	Short-term	Low	Minor	No mitigation measures	-	-	-	-	-	The impact cannot be reduced through mitigation; therefore a minor residual impact will remain. Any disruption will be temporary and localised.	Minor	Not Significant
12	Installation	Trenching	Depletion of intertidal prey species	Medium	Possible	Localised	Low	Short-term	Low	Minor	Installation activities will be undertaken outside of the winter months to avoid peak abundances of any overwintering birds.	Unlikely	Immediate Area	Low	Short-term	Negligible	The proposed cable landfall is not an area of high importance to foraging SPA species.	None	Not Significant
12	Installation	Trenching	Depletion of offshore prey species	Medium	Possible	Localised	Low	Short-term	Low	Minor	No mitigation measures	Unlikely	Immediate Area	Low	Short-term	Negligible	Installation activities will be transient and affect the installation footprint only. Any disruption will be temporary and localised.	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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12	Installation	Jetting	Increased turbidity from suspended sediments	Medium	Likely	Localised	Low	Short-term	Low	Minor	No mitigation measures	-	-	-	-	-	The impact cannot be reduced through mitigation therefore a minor residual impact will remain.  Any disruption will be temporary and localised. Any loss of visibility to diving birds will be temporary and localised, and alternative foraging areas are available.	Minor	Not Significant
12	Installation	Vessel activity	Accidental oil or chemical spill from cable installation vessels	High	Possible	Local	Low	Short-term	Low	Moderate	All vessels associated with cable installation will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations.  All vessels will have shipboard oil pollution emergency plans (SOPEPS) in operation.	Unlikely	Local	Low	Short-term	Negligible	Complying with MARPOL regulations will minimise the likelihood of spill from installation vessels.	Minor	Not Significant
13	<b>Marine Mammals</b>																		

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
13	Installation	Vessel movement	Disturbance or injury from subsea noise generated by vessels during installation	Medium	Possible	Localised	Low	Short-term	Medium	Minor	Where possible, inshore installation activities will be scheduled during the least sensitive period of the year for marine mammals (August – December). The developer will require that all contractors follow the JNCC guidelines for The Deliberate Disturbance of Marine European Protected Species (JNCC, 2010a).	Possible	Localised	Low	Short-term	Low	Mitigation measures will minimise the likelihood of disturbance. Residual impacts will be temporary and localised.	Minor	Not Significant
13	Installation	Cable burial	Disturbance or injury from subsea noise generated by burial of cables	Medium	Possible	Localised	Low	Short-term	Low	Minor	Where possible, inshore installation activities will be scheduled during the least sensitive period of the year for marine mammals (August – December). The developer will require that all contractors follow the JNCC guidelines for The Deliberate Disturbance of Marine European Protected Species (JNCC, 2010a).	Unlikely	Localised	Low	Short-term	Negligible	Mitigation measures will minimise the likelihood of disturbance. Residual impacts will be temporary and localised.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
13	Installation	Vessel movement	Injury to Seals caused by ducted propellers or thrusters of offshore support vessels	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor	<p>The developer will require that all contractors follow the SNH/MS recommendations for avoidance of ducted propeller injuries. Potential mitigation that could be employed includes:</p> <p>Use of onboard MMO, to maintain an exclusion zone, with the authority to request a delay to propeller/thrusters operation if seals are observed within this zone and to request a shut-off if required.</p> <p>A timing restriction on the use of vessels with ducted propellers or thrusters during the period thought to be of key sensitivity (i.e. the pupping period).</p> <p>Shoreline and stranding searches.</p>	Unlikely	Immediate Area	Low	Short-term	Negligible	Installation is anticipated to take place during the least sensitive months, during which seals may be hauled out, thereby reducing the density of animals in the water, and decreasing the likelihood of individuals coming within close proximity of installation vessels. DP vessels will not be used in the inshore area.	None	Not Significant

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13	Installation	Vessel movement	Collision of installation vessels with marine mammals	High	Unlikely	Immediate Area	Low	Short-term	Low	Minor	Where possible, installation vessels will not exceed 14 knots.	Unlikely	Immediate Area	Low	Short-term	Negligible	Vessel speed restrictions further protect against marine mammal collision and reduce the potential for collision.	Minor	Not Significant
13	Installation	Cable installation	Accidental hydrocarbon or chemical release from installation vessels	High	Unlikely	Local	Low	Short-term	Low	Moderate	All vessels associated with cable installation will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations. All vessels will have shipboard oil pollution emergency plans (SOPEPS) in operation.	Unlikely	Local	Low	Short-term	Negligible	No residual impacts	None	Not Significant
13	Operation	Cable maintenance / survey	Collision of maintenance/survey vessels and marine mammals	High	Unlikely	Immediate Area	Low	Short-term	Low	Minor	Where possible, maintenance/survey vessels will not exceed 14 knots.	Unlikely	Immediate Area	Low	Short-term	Negligible	Collisions are unlikely.	None	Not Significant

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13	Operation	Cable maintenance / survey	Disturbance or injury from subsea noise generated from maintenance/survey vessels	Medium	Unlikely	Local	Low	Short-term	Negligible	None	Where possible, inshore installation activities scheduled during the least sensitive period of the year for marine mammals. The developer will require that all contractors follow the JNCC guidelines for The Deliberate Disturbance of Marine European Protected Species (JNCC, 2010a).	-	-	-	-	-	Maintenance / survey vessels are unlikely to produce enough noise at low enough frequency or volume to affect marine mammals. Therefore there is no residual effect.	None	Not Significant
13	Operation	Cable maintenance / survey	Accidental hydrocarbon or chemical release from maintenance/survey vessels	High	Unlikely	Local	Low	Short-term	Minor	Moderate	All vessels associated with cable maintenance will comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations. All vessels will have shipboard oil pollution emergency plans (SOPEPS) in operation.	Unlikely	Local	Low	Short-term	Negligible	Complying with MARPOL regulations minimises the likelihood of the event occurring.	Minor	Not significant
13	Operation	Cable operation	Magnetic Fields (B-fields) interfering with cetacean navigation	Medium	Possible	Localised	Low	Long-term	Low	Minor	No mitigation measures	-	-	-	-	-	No measures are available to reduce this impact.	Minor	Not significant

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14	Cultural and Archaeology																		
14	Installation	Cable installation	Removal of archaeological features through pre-sweeping	Medium	Possible	Localised	Low	Short-term	Low	Minor	<p>All sites of cultural heritage interest included in this report will be avoided where possible by micro-routing of the marine cables.</p> <p>All operations will follow and abide by the JNAPC code of practice for seabed development (JNAPC, 2008).</p>	Possible	Immediate Area	Low	Short-term	Minor	No residual impacts	Minor	Not significant

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14	Installation	Cable installation	Disturbance or removal of archaeological feature by cable installation	Medium	Possible	Localised	Low	Short-term	Low	Minor	<p>Should anchors be placed outside of the surveyed corridor, the anchor placement location will be surveyed during the pre-installation survey. The anchors will not be placed on any sizable surface structures which could potentially be of cultural heritage interest.</p> <p>Temporary Exclusion zones of up to 100m will be established around sites of medium and high archaeological interest.</p> <p>The implementation of the protocol set out within the Written Scheme of Investigation (WSI) during installation activities will be agreed prior to installation works being conducted.</p>	Possible	Immediate Area	Low	Short-term	Minor	No residual impacts	Minor	Not Significant

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14	Operation	Survey / maintenance	Disturbance or removal of archaeological feature by cable maintenance	Medium	Unlikely	Localised	Low	Short-term	Negligible	None		.	.	.	.	.	Archaeological assets will be identified during installation and are therefore unlikely to be disturbed during maintenance and survey operations.	None	Not Significant
15	<b>Commercial Fisheries</b>																		

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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15	Installation	Cable burial	Displacement of fishing activity by cable installation activities	Medium	Possible	Immediate Area	Low	Short-term	Low	Minor	<p>All vessels will adhere to the safety exclusion zone around the cable lay vessels and unburied cable spread during cable installation. Guard vessels will be deployed to protect the cable and to ensure that other sea users are aware of the potential cable hazard.</p> <p>The use of a FLO will continue during the installation stage according to the recommendations for fisheries liaison published by the UK Government (BERR, 2008).</p> <p>Local fishermen will be informed in advance via Kingfisher notice to mariners, of operations to ensure that fishermen using static gear can lift and redeploy it.</p>	Possible	Immediate area	Low	Short-term	Negligible	There is no residual impact	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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15	Installation	Cable burial	Seabed obstructions (trenches and anchor mounds created during installation)	High	Unlikely	Immediate Area	Medium	Short term	Negligible	Minor	All seabed obstructions created by installation of the marine cables, that are considered to pose a risk to the fishing industry will be made safe for towed fishing gear - trawlers.  Rock berms will be installed where adequate cable burial has not been possible. They will be designed to have a smooth over-trawlable profile so that they do not present an obstruction to fishing activity (1 in 3 slope profile).	Unlikely	Immediate Area	Medium	Short term	Negligible	No residual impact is expected	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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15	Installation	Cable burial	Seabed obstructions (cables on the sea bed)	High	Likely	Immediate area	Low	Short-term	Low	Moderate	Guard vessels will be used for any sections of marine cables left temporarily unburied or unprotected during installation operations.  A fisheries liaison officer (FLO) will be on board guard vessels for an unburied cable.  All vessels (including commercial fishing vessels) will be required to adhere to the safety exclusion zone around the cable lay spread during cable installation	Unlikely	Immediate area	Low	Short-term	Negligible	No residual impact is expected	Minor	Not Significant
15	Installation	Cable burial	Seabed obstructions (cable protection)	Low	Possible	Immediate area	Medium	Long-term	Negligible	None	No mitigation measures available.	-	-	-	-	-	No residual impact is expected.	None	Significant

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15	Operation	Cable operation	Exposed cable (safety risk)	High	Unlikely	Immediate are	High	Short-term	Low	Moderate	<p>As-laid coordinates of the cable will be issued.</p> <p>A depth of burial survey post installation to ensure adequate burial.</p> <p>Monitoring surveys to check burial depths during the lifespan of the cable.</p> <p>Areas where sediment movement may occur may be surveyed more often.</p> <p>Fishermen will be informed of areas where additional protection using rock placement and / or matting will be used.</p> <p>The schedule of repair and maintenance work activities will be published to fishermen in advance.</p>	Unlikely	Immediate are	High	Short-term	Negligible	No residual impact is expected.	Minor	Not Significant

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15	Operation	Survey / maintenance	Displacement of fishing activity from repairs/maintenance work	High	Possible	Immediate area	Low	Short-term	Low	Moderate	<p>As-laid coordinates of the cable will be issued.</p> <p>A depth of burial survey post installation to ensure adequate burial.</p> <p>Monitoring surveys to check burial depths during the lifespan of the cable.</p> <p>Areas where sediment movement may occur may be surveyed more often.</p> <p>Fishermen will be informed of areas where additional protection using rock placement and / or matting will be used.</p> <p>The schedule of repair and maintenance work activities will be published to fishermen in advance.</p>	Possible	Immediate area	Low	Short-term	Negligible	The temporary risk of disruption to fishing activity during maintenance and survey works has been risk assessed as tolerable. With control measures in place this risk has been reduced to as low as reasonably practicable (ALARP).	Minor	Not Significant

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<b>16</b>	<b>Shipping and Navigation</b>																		
16	Installation	Temporary mobile safety zone around the cable laying and burial spread	Displacement of shipping vessels from the area surrounding the cable laying spread								Dissemination of Maritime Safety Information (MSI) to shipping. Liaison with all navigation stakeholders and communication with relevant port authorities.						Whilst measures put in place will notify shipping of potential disruption caused by the presence of the safety zone, the effect cannot be reduced through mitigation measures therefore the effect remains unchanged. Any disruption will be temporary and localised.		
				Medium	Possible	Localised	Low	Short-term	Low	Minor		Possible	Localised	Low	Short-term	Low		Minor	Not Significant
16	Installation	Cable laying and burial	Collisions between commercial and installation vessels								Full measures are outlined in Section 16.6.1. Establishment of safety zone. Dissemination of MSI to shipping. Liaison with all navigation stakeholders and communication with relevant port authorities. Guard vessel in place.						The temporary risk of ship collision during installation works has been risk assessed as tolerable. With control measures in place this risk has been reduced to as low as reasonably practicable (ALARP).		
				Medium	Possible	Site-specific	Medium	Short-term	Low	Minor		Unlikely	Site-specific	Low	Short-term	Negligible		None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
16	Installation	Cable laying and burial	Accidental anchoring on unburied cable during installation	Medium	Possible	Site-specific	Medium	Short-term	Low	Minor	Guard vessels in place for any unburied cable sections to communicate to third party vessels and warn them to stay away.	Unlikely	Site-specific	Low	Short-term	Negligible	The temporary risk of accidental anchoring over the cable during installation has been risk assessed as tolerable. With control measures in place this risk is reduced to ALARP and therefore the magnitude is reduced to negligible with no residual impact.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
16	Operation	Presence of cables	Anchor dragging and snagging the cable	Medium	Possible	Site-specific	Medium	Short-term	Low	Minor	Burial of the cable. Remedial protection (rock or concrete mattress placement) if burial not achievable. Circulation of as laid coordinates of the cable route. Regular burial depth surveys. Liaison with port authorities.	Unlikely	Site-specific	Low	Short-term	Negligible	The risk of anchor dragging and snagging the cable during cable operation has been risk assessed as tolerable. With control measures in place this risk has been reduced to ALARP. The magnitude of the effect is therefore reduced to negligible and the impact assessed as having no residual significance.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
16	Operation	Presence of cables	Emergency anchoring on the cable	Medium	Possible	Site-specific	Medium	Short-term	Low	Minor	Burial of the cable. Remedial protection (rock or concrete mattress placement) if burial not achievable. Circulation of as laid coordinates of the cable route. Regular burial depth surveys. Liaison with port authorities.	Unlikely	Site-specific	Low	Short-term	Negligible	The risk of emergency anchoring is considered to be tolerable during cable operation. With control measures in place this risk has been reduced to ALARP. The magnitude of the effect is therefore reduced to negligible and the impact assessed as having no residual significance.	None	Not Significant
16	Operation	Presence of cables	Compass deviation to ships navigating with magnetic compasses	Medium	Possible	Site-specific	Low	Short-term	Low	Minor	Cable design criteria will ensure that compass deviation at the sea surface will not exceed 5 degrees.. 'As laid' co-ordinates of the cable route will be recorded and circulated to the UKHO and Kingfisher to ensure inclusion on Admiralty Charts and fishermen's awareness charts (paper and electronic format).	Possible	Site-specific	Negligible	Short-term	Negligible	The effect will be temporary and localised, and will not affect modern ships using satellite navigation equipment. With mitigation measures in place there will be no residual impacts.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
16	Operation	Presence of cables	EMF interference with inertial navigation systems (INS) and Global Positioning Systems (GPS)	Negligible	Possible	Localised	Low	Short-term	Negligible	None	No mitigation measures proposed.	-	-	-	-	-	Marine gyrocompasses used in INS and GPS which uses radio signals, are unaffected by external magnetic fields therefore there is no residual effect.	None	Not Significant
16	Operation	Cable maintenance / repair / cable surveys	Disruption to shipping from vessels associated with maintenance, repair and cable surveys post installation	Medium	Possible	Localised	Low	Short-term	Low	Minor	<p>Details of planned activity distributed to maritime community.</p> <p>Consideration of temporary cessation of operations during periods of high ship collision risk.</p> <p>Communications with port authorities during operations.</p> <p>Dissemination of Maritime Safety Information.</p>	Possible	Localised	Low	Short-term	Low	Whilst mitigation measures in place will make the maritime community aware of potential disruption it will not reduce the disruption therefore there is a minor residual effect which will be temporary and localised.	Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
16	Operation	Cable maintenance / repair / cable surveys	Collision between commercial and maintenance / repair / survey vessels	Medium	Possible	Site-specific	Medium	Short-term	Low	Minor	Establishment of safety zone. Dissemination of MSI to shipping. Liaison with all navigation stakeholders and communication with relevant port authorities. Guard vessel in place.	Unlikely	Site-specific	Low	Short-term	Negligible	The temporary risk of ship collision during maintenance / repair / survey works has been risk assessed as tolerable. With control measures in place this risk has been reduced to as low as reasonably practicable (ALARP). The magnitude of the effect is therefore reduced to negligible and the impact assessed as having no residual significance.	None	<b>Not Significant</b>

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
16	Operation	Presence of cables	Accidental anchoring on the cable	Medium	Possible	Site-specific	Medium	Short-term	Low	Minor	<p>Cable burial depth will be monitored through surveys. 'As laid' co-ordinates of the cable route will be circulated to the UKHO and Kingfisher to ensure inclusion on Admiralty Charts and fishermen's awareness charts.</p> <p>Liaison with the relevant ports authorities regarding the risk of accidental anchoring on the cable.</p>	Unlikely	Site-specific	Low	Short-term	Negligible	The risk of accidental anchoring over the cable during operation has been risk assessed as acceptable (low risk) and with mitigation measures in place the effect has been assessed as having no residual impact.	None	Not Significant
17	Offshore Infrastructure																		

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
17	Installation	Presence of cables	Interference with operation of existing cables and pipelines	High	Unlikely	Site-specific	Medium	Short-term	Negligible	Minor	<p>Crossing Agreements with cable and pipeline owners will be in place prior to commencement of installation works.</p> <p>A minimum vertical separation will be agreed with cable and pipeline owners and the crossing will be engineered to achieve this agreed vertical separation.</p> <p>Where the proposed marine cable runs parallel, and within 2km proximity, to existing cables, appropriate liaison will be undertaken with the cable owners regarding; installation, maintenance and access issues.</p>	Unlikely	Site-specific	Low	Short-term	Negligible		Minor	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
17	Installation	Presence of installation vessels and the temporary mobile safety zone around the cable laying and burial spread	Interaction between cable installation vessels and oil and gas industry vessels	Medium	Possible	Site-specific	Medium	Short-term	Low	Minor	Establishment of safety zone. Dissemination of MSI to shipping. Liaison with all navigation stakeholders and communication with relevant port authorities. Guard vessel in place.	Unlikely	Site-specific	Low	Short-term	Negligible	With mitigation measures in place the risk of collisions is reduced to ALARP.  The magnitude of the effect is therefore reduced to negligible and the impact assessed as having no residual significance.	None	Not Significant
17	Installation	Presence of installation vessels and the temporary mobile safety zone around the cable laying and burial spread	Interaction between cable installation and other planned cables and pipelines projects	Medium	Possible	Site-specific	Medium	Short-term	Low/	Minor	Additional to the mitigation listed above for 'Interaction between cable installation vessels and oil and gas industry vessels' this will be managed through communication with SHET and NGET (for the planned Eastern HVDC Link), BG Group (for the planned new pipelines in the Lomond field).	Unlikely	Site-specific	Low	Short-term	Negligible	With mitigation measures in place the risk of collisions is reduced to ALARP.  The magnitude of the effect is therefore reduced to negligible and the impact assessed as having no residual significance.	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
17	Installation	Presence of installation vessels and the temporary mobile safety zone around the cable laying and burial spread	Interaction between cable installation and wind farm construction and maintenance activities	Medium	Possible	Site-specific	Medium	Short-term	Low	Minor	Additional to the mitigation listed above for 'Interaction between cable installation vessels and oil and gas industry vessels' this will be managed through communication with NAREC, wind farm developers and the Blyth Offshore Wind Farm operator.	Unlikely	Site-specific	Low	Short-term	Negligible	With mitigation measures in place the risk of collisions is reduced to ALARP. The magnitude of the effect is therefore reduced to negligible and the impact assessed as having no residual significance.	None	Not Significant
17	Operation	Cable maintenance / repair / cable surveys	Interaction between cable survey /maintenance/repair vessels and oil and gas industry vessels and wind farm developers vessels	Medium	Possible	Site specific	Medium	Short-term	Low	Minor	Same mitigation as listed above during installation. See Section 17.6.2.	Unlikely	Site-specific	Low	Short-term	Negligible	With mitigation measures in place the risk of collisions is reduced to ALARP. The magnitude of the effect is therefore reduced to negligible and the impact assessed as having no residual significance.	None	Not Significant
18	<b>Dredging and Disposal Sites and Military Practice Areas</b>																		

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
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18	Installation	Temporary mobile safety zone around the cable laying and burial spread	Displacement of dredge disposal vessels from the area surrounding the cable laying spread	Medium	Possible	Site specific	Low	Short-term	Low	Minor	<p>Notice will be given to shipping in the area via Navtex and NAVAREA warnings.</p> <p>In periods of poor visibility restrictions such as a temporary cessation to installation activity may be considered to reduce the risk of collisions.</p> <p>Liaison with all navigation stakeholders and communication with relevant port authorities.</p> <p>Guard vessel in place.</p>	Unlikely	Site specific	Low	Short-term	Negligible		None	Not Significant
18	Installation	Temporary mobile safety zone around the cable laying and burial spread	Displacement of MOD practice and exercise vessels from the area surrounding the cable laying spread	Medium	Possible	Site specific	Low	Short-term	Low	Minor	<p>As laid coordinates supplied to MOD.</p> <p>Approval sought from MOD prior to commencing activities within PEXA.</p>	Possible	Site specific	Low	Short-term	Negligible		None	Not Significant

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18	Operation	Temporary mobile safety zone around maintenance and survey vessels	Displacement of dredge disposal vessels from the area surrounding the survey vessels or cable maintenance vessels	Medium	Possible	Site specific	Low	Short-term	Low	Minor	<p>Notice will be given to shipping in the area via Navtex and NAVAREA warnings.</p> <p>In periods of poor visibility restrictions such as a temporary cessation to installation activity may be considered to reduce the risk of collisions.</p> <p>Liaison with all navigation stakeholders and communication with relevant port authorities.</p> <p>Guard vessel in place.</p>	Unlikely	Site specific	Low	Short-term	Negligible		None	Not Significant
18	Operation	Temporary mobile safety zone around maintenance and survey vessels	Displacement of MOD practice and exercise vessels from the area surrounding the survey vessels or cable maintenance vessels	Medium	Possible	Site specific	Low	Short-term	Low	Minor	<p>As laid coordinates supplied to MOD.</p> <p>Approval sought from MOD prior to commencing activities within PEXA.</p>	Possible	Site specific	Low	Short-term	Negligible		None	Not Significant
19	<b>Recreation and Tourism</b>																		

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
19	Installation	Intertidal works	Restricted access to Cambois Beach at Cambois Beach North landfall.	Medium	Possible	Site specific	Low	Short-term	Low	Minor	Duration of works minimised as much as practicable. Work areas demarcated with warning signs.	Possible	Site-specific	Low	Short-term	Low	Whilst appropriate measures will be in place to fence off the work area and inform the public this will not reduce the restricted access.	None	Not Significant
19	Installation	Intertidal works	Disturbance of wildfowling in Wansbeck Estuary from beach works at Cambois Beach North landfall	Low	Possible	Localised	Low	Short-term	Low	None	Avoid sensitive period – winter months. The duration of installation works on the beach at Cambois Beach will be minimised as much as practicable.	-	-	-	-	-	-	None	Not Significant

Determination of Potential Impact											Residual Impact Assessment – consideration of mitigation measures								
Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
19	Installation	Temporary mobile exclusion zone around cable installation vessels and burial spread	Displacement of recreational vessels from the area surrounding the cable laying spread	High	Possible	Site-specific	Low	Short-term	Low	Moderate	<p>Notification given to shipping in the area via Navtex and NVAAREA warning and broadcasted by the MCA.</p> <p>Notices to mariners issued by UKHO; UKHO has online leisure notices to mariners service.</p> <p>Guard vessels will be used to protect recreational craft.</p> <p>Cable installation vessel will be appropriately lit and will broadcast sound warning during period of poor visibility.</p>	Possible	Site-specific	Low	Short-term	Low	Whilst mitigation measures will make recreational vessel users aware of the safety zone, this will not reduce the potential for disruption.	Minor	Not Significant

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Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
19	Operation	Temporary mobile safety zone around the maintenance and survey vessels	Disruption to recreational vessels	Medium	Possible	Site-specific	Low	Short-term	Low	Minor	<p>Notification given to shipping in the area via Navtex and NVAAREA warning and broadcasted by the MCA.</p> <p>Notices to mariners issued by UKHO; UKHO has online leisure notices to mariners service.</p> <p>Guard vessels will be used to protect recreational craft.</p> <p>Cable installation vessel will be appropriately lit and will broadcast sound warning during period of poor visibility.</p>	Possible	Site-specific	Low	Short-term	Low	Whilst mitigation measures will make recreational vessel users aware of the safety zone, this will not reduce the potential for disruption.	None	Not Significant
19	Operation	Presence of cables	Compass deviation to recreational vessels navigating with magnetic compasses	Medium	Possible	Site-specific	Low	Short-term	Low	Minor	<p>Cable designed so compass deviation will not exceed 5 degrees.</p> <p>The as-laid cable route will be marked on charts, so that mariners can take account of any compass deviation effects.</p>	Possible	Site-specific	Negligible	Short-term	Negligible	Since most recreational vessels do not use compasses, cable design will ensure compass deviation does not exceed 5 degrees and mitigation measures in place will notify mariners of the location of the cable there is no residual impact	None	Not Significant

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Chapter	Project Phase	Project Activity	Potential Impact	Sensitivity	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Impact Significance	Mitigation Measures	Likelihood	Spatial Extent	Level of change	Duration	Magnitude	Residual Impact	Residual Significance	Significant?
19	Operation	Intertidal maintenance / repair works	Restricted access to the beach and nearshore area during repair to installed cables	Medium	Possible	Site-specific	Low	Short-term	Low	Minor	Duration of works minimised as much as practicable. Work areas demarcated with warning signs.	Possible	Site-specific	Low	Short-term	Low	Whilst appropriate measures will be in place to fence off the work area and inform the public this will not reduce the restricted access.	Minor	Not Significant
19	Operation	Intertidal maintenance / repair works	Disturbance of wildfowling in Wansbeck Estuary from beach works at Cambois Beach North landfall	Medium	Possible	Localised	Low	Short-term	Low	Minor	Avoid sensitive period – winter months. The duration of installation works on the beach at Cambois Beach will be minimised as much as practicable.	Possible	Localised	Low	Short-term	Low	-	Minor	Not Significant