

# Rampion 2 Wind Farm Category 8: Examining Authority requested additional information Date: January 2024 Revision A

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## 1. Introduction

1.1.1 The Examining Authority set out Procedural Decision 1 in the Rule 6 letter **[PD-006]** and in this made a request for provision of additional information to be submitted (Annex D of the Rule 6 letter). This document provides the relevant information in response to the request set out in **Table 1-1** below to aid Interested Parties understanding of the environmental assessment undertaken for Rampion 2.

Request number	Examining Authority request	Applicant response location
Request 1	Clear mathematical calculations accompanied by clear diagrams to compare the total turbine frontal areas within 100m above sea level (ASL) and within 25m ASL for each WTG diameter proposed.	Section 2 of this document.
Request 2	A summary table stating the worst-case scenario tested for every topic presented within the Environmental Statement, with a concise justification for the worst-case scenario chosen.	Section 3 of this document.
Request 3	A clear visual illustration of the possible number of WTGs of differing diameters that the draft DCO wording as submitted would allow considering the diameters and maximum rotor swept area proposed in the draft DCO.	Section 4 of this document.

## Table 1-1 Examining Authority request and location of Applicant response

# 2. Request 1: Wind Turbine Generator frontal area calculations

## 2.1 Introduction

2.1.1 As presented within Rule 6 letter **[PD-006]** the following request for additional information has been made by the Examining Authority to present the following calculation with respect to the two Wind Turbine Generator (WTG) scenarios presented within Chapter 4: The Proposed Development, Volume 2 of the ES **[APP-045]**:

"Clear mathematical calculations accompanied by clear diagrams to compare the total turbine frontal areas within 100m above sea level (ASL) and within 25m ASL for each WTG diameter proposed."

2.1.2 Further clarity to the above request was provided to the Applicant via email from the Inspectorate's case officer dated 22nd December 2023:

"The purpose of these calculations is to provide evidence to support the statement made by the Applicant on page 74 of APP-053 Environmental Statement Volume 2, Chapter 12: Offshore and intertidal ornithology, which states 'For collision risk, the worst-case scenario is the greatest number of smaller WTGs. Although the total frontal area is higher using larger WTGs, the vast majority of bird flights are at low-heights e.g. for kittiwake 90.7% are below 25m ASL and 99.995% are below 100m ASL (Cook et al., 2012). Therefore, a greater number of smaller WTGs creates a higher collision risk (Johnston et al., 2014).' The ExA request that clear mathematical calculations supported by clear diagrams where helpful, are submitted to support this statement."

2.1.3 In response to the request, the Applicant has calculated the total WTG frontal areas of each WTG scenario.

## 2.2 Calculation of total WTG frontal areas

2.2.1 A summary of the project parameters used to calculate the WTG frontal areas for the two WTG scenarios is presented within **Table 2-1**, based on the information presented within **Chapter 4: The Proposed Development**, **Volume 2** of the ES [APP-045] and also provided in Appendix 4.3: Proposed Development Parameters, Volume 4 of the ES [APP-124]. For the purposes of calculation, the Applicant has considered Above Sea Level (ASL) to equate to Mean Sea Level (MSL) as this is the units used by Johnston *et al.*, (2014) for which generic seabird flight heights have been derived.

Parameter	WTG Scenario				
	Smaller WTG Type	Large WTG Type			
Number of WTGs	90	65			
Rotor Diameter (m)	250	295			
Rotor Radius (m)	125	147.5			
Air Gap (MHWS) (m)	22	22			
Air Gap (MSL*) (m)	25.3	25.3			
Length of WTG blade below 25m (MSL) measured from the lowest blade tip height (m)	0	0			
Length of WTG blade below 100m (MSL) measured from the lowest blade tip height (m)	74.7	74.7			

## Table 2-1 Summary of project parameters for the two WTG scenarios

Table Note: Air gap against MSL calculated based on the difference between Mean High Water Spring (MHWS) and MSL being 3.3m.

- 2.2.2 With respect to the total frontal WTG area below 25m, for either WTG design the lowest blade tip height (air gap) against MSL is calculated as 25.3m (**Table 2-1**), therefore none of the WTG frontal area for either design is below 25m (see **Graphic 2-1**).
- 2.2.3 In relation to the amount of total frontal WTG area below 100m, this can be calculated using the following formula to calculate the area of a segment of circle (total frontal WTG area below 100m):

total frontal WTG area below 100m = $r^2 \cos^{-1}(\frac{r-h}{r}) - (r-h)\sqrt{2rh-h^2}$ 

2.2.4 The relevant input parameters for the above calculation are presented in **Table 2-2** based on the information presented within **Graphic 2-1**.

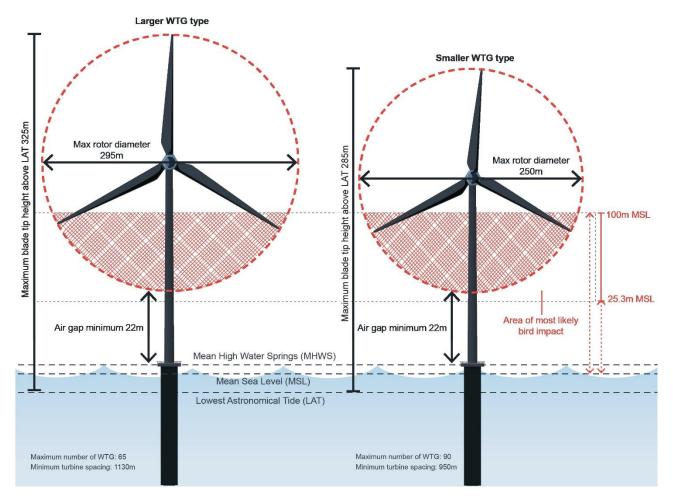
## Table 2-2Project Parameters used for calculation of WTG frontal areas below100m

Parameter	WTG Scenario				
	Smaller WTG Type	Large WTG Type			
r (rotor radius)	125	147.5			
h (length of WTG blade below 100m (MSL) measured from the lowest blade tip height (m)	132.54	120.85			

- 2.2.5 Using the above calculation and relevant input parameters presented in **Table 2-2**, the total frontal WTG area below 100m is provided for each WTG scenario in **Table 2-3**. Worked examples of the calculation are also provided in **Section 2.3**.
- 2.2.6 When considering the large WTG type scenario, the total frontal area below 100m is greater for each WTG in contrast to the smaller WTG type. However, due to there being significantly greater number of the smaller WTG type, when considering the entire array total frontal WTG area below 100m, the smaller WTG type covers a significantly greater area (**Table 2-3**). The results presented within **Table 2-3** support the Applicant's statement that the worst-case scenario is the greatest number of smaller WTGs, due to having a larger total frontal WTG area below 100m.

## Table 2-3Calculated WTG frontal areas below 100m

Parameter	WTG Scenario				
	Smaller WTG Type	Large WTG Type			
Total frontal WTG area below 100m (MSL) per WTG (m <sup>2</sup> )	12,316.8	13,605.6			
Total frontal WTG area below 100m (MSL) for the entire array (m <sup>2</sup> )	1,108,514.07	884,362.75			



## Graphic 2-1 WTG area of most likely bird impact

## 2.3 Worked examples of Total Frontal WTG Area below 100m

2.3.1 Based on the calculation presented in **Section 2.2** and relevant input parameters presented in **Table 2-1**, worked examples of the calculation is provided below for the two WTG scenarios.

total frontal WTG area below 100m for the Smaller WTG Type

$$= 125^{2} \cos^{-1}(\frac{125-74.7}{125}) - (125-74.7)\sqrt{2.125.74.7-74.7^{2}} = 12,316.8 \text{m}^{2}$$

total frontal WTG area below 100m for the larger WTG Type

$$= 147.5^{2}\cos^{-1}(\frac{147.5-74.7}{147.5}) - (147.5-74.7)\sqrt{2.147.5.74.7-74.7^{2}} = 13,605.6m^{2}$$

## 3. Request 2: Worst-case scenario assessed in the Environmental Statement

## 3.1 Justification for maximum design scenario parameters

- As described in Chapter 5: Approach to the EIA, Volume 2 of the Environmental 3.1.1 Statement (ES) [APP-046], where the design is still evolving, a precautionary approach has been applied to ensure a maximum design scenario (MDS) which represents the worst-case scenario for each aspect is assessed in the ES. This approach has been adopted in line with the Planning Inspectorate Advice Note Nine: Rochdale Envelope, July 2018 (Planning Inspectorate, 2018), further described in Chapter 4: Proposed Development, Volume 2 [APP-045] paragraphs 4.1.4 to 4.1.6. In summary, the provision of a parameter-based design envelope is intended to identify key design assumptions to enable the environmental assessment to be carried out on a reasonable worst-case basis that is suitable to allow an assessment of its likely significant environmental effects whilst retaining the flexibility to accommodate further refinement during detailed design. The MDS is defined by parameters that are secured in the draft **Development Consent Order [APP-019]** and submission documents. A summary of where these parameters are secured is provided in Table 3-1 and Table 3-2 of this submission.
- 3.1.2 Assessing the Proposed Development using this parameter-based design envelope approach means that the assessment has considered a MDS. This allows flexibility to make design decisions in the future that cannot be finalised at the time of submission of the DCO Application for development consent. Such design decisions may include the precise models and dimensions of WTG which will be available at the time of placing orders for the Proposed Development, final offshore WTG layout design to optimise wind energy capture, and detailed engineering factors for both the offshore and onshore infrastructure. The approach allows the Proposed Development to harness innovation in technology and utilise what is available on the market at the point of delivery.
- 3.1.3 Each individual aspect chapter, for example **Chapter 6: Coastal processes** to **29: Climate change, Volume 2** of the ES **[APP-047** to **APP-070]**, provides commentary on the appropriate reasonable MDS adopted for the individual assessments, this is presented in the '*Basis for ES assessment*' section in each chapter ('Section X.7', except for **Chapter 12: offshore and intertidal ornithology** where it is presented in 'Section 12.9' and **Chapter 29: Climate change** where it is presented in 'Section 29.4' instead).
- 3.1.4 The offshore and onshore parts of the proposed DCO Order Limits are illustrated in Figure 4.1, Volume 3 [APP-076] and Figure 4.2, Volume 3 [APP-076] respectively. The key offshore and onshore component assessment assumptions are provided in Chapter 4: The Proposed Development, Volume 2 of the ES Section 4.3 and Section 4.5 [APP-045]. Where relevant, bold text indicates a



parameter outlined in the DCO Application within assessment assumption tables **Table 4-2** to **Table 4-27**, a summary table for the parameters outlined in the draft DCO is also provided in **Appendix 4.3: Proposed Development Parameters**, **Volume 4** of the ES **[APP-124]**.

3.1.5 **Table 3-1** and **Table 3-2** provide the MDS parameters used for each environmental assessment included within the ES. This table only shows key MDS parameters for each aspect that are an integral part of the aspect's assessment, with parameters that are not integral shown by '-' values. For example, the water environment assessment has assessed the potential impacts of the Proposed Development with respect to onshore elements of the water environment (landwards of Mean High Water Springs (MHWS)), which comprises aquatic environment, water resources and flood risk receptors. The WTG rotor diameter parameter is not integral to this assessment, and so has been shown by '-' in **Table 3-2**.

### **Environmental Statement offshore aspect assessment MDS parameters** Table 3-1

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter Offshore intertida ornithole [APP-05
WTG Maximu	m Design Paramete	ers						
Maximum number of WTG	90 (for smaller WTG type) Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(1) and Schedule 11, Part 2 condition 1(1)	<ul> <li>65 Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>65 Changes to the tidal regime, wave regime and seabed due to presence, and subsequent removal, of windfarm infrastructure</li> <li>90 Changes in SSC and deposition of disturbed sediments to the seabed from for seabed preparation prior to installing multileg foundations, and subsequent removal of infrastructure.</li> <li>(Note: it is foundation structures that are of relevance for Coastal Processes assessments - for MDS justification summaries, see relevant cells below).</li> </ul>	<ul> <li>90 Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity.</li> <li>65 Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>90 Changes in SSC and deposition of disturbed seabed due to dredging for seabed due to dredging for seabed due to dredging for seabed due to dredging for seabed scour due to installing multileg foundations and subsequent decommissioning.</li> <li>65 Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure</li> <li>90 Increases in underwater noise (maximum energy to marine environment and maximum temporal scenario).</li> </ul>	<ul> <li>65</li> <li>Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>90</li> <li>Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing multileg foundations and subsequent decommissioning.</li> <li>65</li> <li>Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure</li> <li>90</li> <li>Increases in underwater noise due to greatest construction activity (vessel and construction noise (non-piling)) and piling noise (temporal scenario).</li> <li>65</li> <li>Increases in underwater noise due to greatest construction activity (vessel and construction noise (non-piling)) and piling noise (temporal scenario).</li> <li>65</li> <li>Increases in underwater noise due to greatest construction activity (vessel and construction sectivity (ves</li></ul>	<ul> <li>65</li> <li>Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>90</li> <li>Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing multileg foundations and subsequent decommissioning.</li> <li>65</li> <li>Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure</li> <li>90</li> <li>Increases in underwater noise due to greatest construction activity (vessel and construction noise (non-piling)) and piling noise (temporal scenario).</li> <li>65</li> <li>Increases in underwater noise due to greatest construction activity (vessel and construction noise (non-piling)) and piling noise (temporal scenario).</li> <li>65</li> <li>Increases in underwater noise due to greatest construction activity (vessel and construction section proval of windfarm infrastructures that are of relevance for assessments as set out in relevant cells</li> </ul>	90 Increased vessel movements MDS The maximum number of WTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel round trips. The maximum number of vessels transits and the maximum duration of the construction will result in the greatest potential for interference. Reduction in access to, or exclusion from established fishing grounds increase in allision risk for both powered and drifting vessels.	<ul> <li>65 The use of the larger WTGs is likely to result in the loudest noise from operational WTGs.</li> <li>90 Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity leading to the highest potential for vessel encounter/disturb ance.</li> <li>Increases in underwater noise (maximum energy to marine environment and maximum temporal scenario).</li> </ul>	<b>90</b> The great number of vessels a greatest inumber of will lead f greatest disturban ornitholog receptors For collis the worst scenario greatest of smalle Although frontal an higher us larger W7 vast majo bird flight low heigh for kittiwa 90.7% ar 25m ASL 99.995% below 10 (Cook et 2012). Th a greater of smalle creates a collision

er 12: ore and dal ology )53]

Chapter 13: Shipping and navigation [APP-054]

Chapter 14: Civil and military aviation [APP-055]

Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]

Chapter 16: Marine archaeology [APP-057]

Chapter 17: Socioeconomics [APP-058]

90 eatest r of and st total r of trips id to the st ance to logical ors.

lision risk, rst-case rio is the st number ller WTGs. gh the total area is using WTGs, the ajority of phts are at ights e.g. wake are below SL and % are 100m ASL et al., Therefore, ter number Iller WTGs a higher on risk.

65 65 90 MDS represents Maximum number WTGs with the Construction the maximum of the tallest highest 325m activity WTGs, blade tip height number of structures giving will have a wider 90 rise to the geographic extent or Maximum of effect over a greatest increase in allision risk for number of WTGs larger Zone of both powered and for the Proposed Theoretical drifting vessels. Development. Visibility (ZTV) than the lower MDS for both 90 265m blade tip Increased vessel and 65 WTG height WTGs. movements structures present 325m WTGs will MDS represents 65 a worst case for appear to have a development aviation, and both larger scale in have been scenario with views than the greatest assessed for all 265m WTGs, both in terms of construction, impacts. operations and their overall blade maintenance, and tip height (which is 60m higher) decommissioning and in the activity and therefore the appearance of greatest increase the larger rotor of the WTG. in potential encounters and 90 collision risk for The larger 325m other vessels. blade tip WTG will also result in a greater scale contrast with the existing Rampion 1 WTGs, at 140m blade tip height. The potential

MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity.

Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation.

Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing effect that results multileg foundations and subsequent decommissioning. size is considered to be outweighed

## 65

from additional

by the larger

of the 325m

overall area occupied by

WTGs being

equal.

WTGs of smaller

height and scale

WTGs, with the

Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure

(Note: it is foundation structures that are of relevance for Marine Archaeology assessments - for MDS justification summaries, see

## 65

The assessment is based on WTGs with the highest (325m) blade tip height as these will have a wider geographic extent of effect over a larger Zone of Theoretical Visibility (ZTV) than the lower 265m blade tip height WTGs. 325m WTGs will appear to have a larger scale in views than the 265m WTGs, both in terms of their overall blade tip height (which is 60m higher) and in the appearance of the larger rotor of the WTG.

## As the assessment of the

tourism economy is undertaken at the Sussex level, the use of the larger WTG is assumed to have the largestpossible impact on visitor activity.

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
			underwater noise (maximum spatial area (total)). (Note: for some MDSs, it is foundation structures that are of relevance for assessments as set out in relevant cells below).	below).	below).							relevant cells below).	
Rotor diameter	295m (for larger WTG type) Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(2)(b) and Schedule 11, Part 2 condition 1(1)							<b>250m</b> As above. (Note: MDS is linked to the maximum rotor- swept area (4.45km <sup>2</sup> ) for collision risk to ornithological receptors: Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 2(1)(b) and Schedule 11, Part 2 condition 1(1).		<ul> <li><b>295m</b></li> <li>Creation of aviation obstacle environment for airborne receptors.</li> <li>MDS represents maximum number of tallest WTGs, giving rise to the maximum physical obstruction to aviation operations due to size and number of above sea level infrastructure.</li> <li><b>250m</b></li> <li>MDS represents maximum number of WTGs, giving rise to the maximum physical obstruction to aviation operations due to size and number of WTGs, giving rise to the maximum physical obstruction to aviation operations due to size and number of WTGs, giving rise to the maximum physical obstruction to aviation operations due to size and number of above sea level infrastructure.</li> </ul>	<b>295m</b> As above.		<b>295m</b> As above.
Minimum air gap above Mean High Water Springs (MHWS)	22m (for both WTG types) Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(2)(c) and Schedule 11, Part 2 condition 1(2)(c)	-	-	-	-	-	-	<b>22m</b> As above.	<b>22m</b> as above	-	-	-	-
Maximum blade tip height above Lowest	<b>325m (for larger WTG type)</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3	-	-	-	-	-	-	<b>285m</b> As above.	-	<b>325m</b> Creation of aviation obstacle environment for	<b>325m</b> As above.	-	<b>325m</b> As above.

January 2024

Rampion 2 Examining Authority requested additional information



Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 1 Offshore a intertidal ornitholog [APP-053]

Astronomica I Tide (LAT)	Requirements 2(2)(a) and Schedule 11, Part 2 condition 1(2)(a)
	1( <i>2)</i> (d)

Minimum
turbine
spacing

830m (for both WTG types) Draft DCO [APP- tidal regime, Authorised Project Part 3 Requirements 2(2)(d) and Schedule 11, Part 2 condition 1(2)d)

1130m Changes to the **019]** Schedule 1 - wave regime and to presence of windfarm infrastructure. (Note: it is

foundation

structures of

relevance for Coastal

assessments; MDS represents

Processes

of multi-leg,

suction bucket foundation structures for

presents the

greatest total

waves and

currents).

## The smallest

830m

spacing between seabed scour due WTGs gives rise to the greatest potential for restricted access to the site and the greatest increase in allision risk for other sea users.

-

1130m Changes to the tidal regime, wave regime and closest spacing of seabed scour due maximum number to presence of windfarm infrastructure.

MDS represents larger WTGs that closest spacing of maximum number of multi-leg *blockage width to* suction bucket foundation structures for larger WTGs that presents the greatest total blockage width to waves and currents

### 830m

The smallest spacing between WTGs gives rise to the greatest potential for restricted access to fishing grounds.

NSD

hapter 12: ffshore and tertidal nithology \PP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]	
		airborne receptors.				
		MDS represents maximum number of tallest WTGs, giving rise to the maximum physical obstruction to aviation operations due to size and number of above sea level infrastructure.				
		285m				
		MDS represents maximum number of WTGs, giving rise to the maximum physical obstruction to aviation operations due to size and number of above sea level infrastructure.				

## 830m

-

The smallest spacing between WTGs gives rise to the greatest increase in allision risk for both powered and drifting vessels.

1130m

As above - based on 65 larger WTG development scenario

1130m

As above - based on 65 larger WTG development scenario

													••
	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
Maximum WT	G monopile founda	tion parameters											
Diameter of monopile	<b>13.5m (for larger WTG type)</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 2(5)(c) and Schedule 11, Part 2 condition 1(5)(c)	13.5m SSC and deposition of disturbed sediments due to drilling for foundation installation. MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column.	<ul> <li><b>13.5m</b></li> <li>SSC and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column.</li> <li>Increases in underwater noise</li> <li>MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole (65 WTG) project).</li> </ul>	water column. Increases in underwater noise MDS equates to the greatest spatial effect from subsea noise for	<ul> <li><b>13.5m</b> SSC and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column.</li> <li>Increases in underwater noise</li> <li>MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole (65 WTG) project).</li> </ul>	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	<ul> <li><b>13.5m</b> <ul> <li>Increases in underwater noise</li> </ul> </li> <li>MDS equates to the greatest spatial effect from subsea noise for single piling event and maximum concurrent spatial extent.</li> <li><b>10m</b> <ul> <li>Increases in underwater noise</li> </ul> </li> <li>MDS represents maximum total energy emitted into the marine environment (for 90 smaller WTG development scenario).</li> </ul>						
Total number of structures	Up to 90 WTGs (for smaller WTG type) As per maximum WTG number in Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(1) and Schedule 11, Part 2 condition 1(1)	65 SSC and deposition of disturbed sediments due to drilling for foundation installation. MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column.	subsea noise for	<ul> <li>65 SSC and deposition of disturbed sediments due to drilling for foundation  installation. </li> <li>MDS represents the greatest likely local and total  </li> <li>volume, and local  rate of sediment  </li> <li>disturbed by drilling and  released into  suspension in the  water column. </li> <li>65 Increases in  underwater noise  (maximum spatial  area (total)). </li> <li>MDS equates to  the greatest  spatial effect from  subsea noise for  single piling event  and total (whole  (65 WTG)  project).</li></ul>	water column. 65 Increases in underwater noise (maximum spatial area (total)). MDS equates to the greatest spatial effect from subsea noise for	90 Increased vessel movements MDS The maximum number of WTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel round trips. The maximum number of vessels transits and the maximum duration of the construction will result in the greatest potential for interference. Reduction in access to, or exclusion from established fishing grounds			<ul> <li>90</li> <li>MDS represents the maximum number of structures giving rise to the greatest increase in allision risk for both powered and drifting vessels.</li> <li>Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and collision risk for other vessels.</li> </ul>				

**NSD** 

Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
		<ul> <li>90</li> <li>Increases in vessel movements and impacts to sea area access.</li> <li>MDS represents the maximum number (at the sea surface) of structures and therefore the greatest increase in potential access restriction and allision risk for other sea users.</li> <li>The maximum number of WTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel round trips. The maximum number of vessels transits over the maximum duration of the construction and decommissioning will result in the greatest potential for interference.</li> <li>MDS represents maximum energy introduced into the marine environment.</li> </ul>	<ul> <li>90</li> <li>Increases in vessel movements and construction activities (non-piling) generating noise and vibration.</li> <li>MDS represents the maximum number of structures and therefore the greatest increase in construction and decommissioning activities.</li> <li>The maximum number of VVTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction work (non-piling) generating noise.</li> </ul>	and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel movements and	the maximum number of structures giving rise to the greatest restriction to fishing grounds increase in allision risk for both powered and drifting vessels.							

## Maximum WTG multi-leg foundation with pin piles foundation parameters

Number of legs per multi-leg foundation	Up to 4 (for both - WTG types) Draft DCO [APP- 019] Schedule 1 -	<b>4</b> Increases in underwater noise.	<b>4</b> Increases in underwater noise.	<b>4</b> Increases in underwater noise.	Assessment based on MDS for noise impacts on fish stocks as	4 - Increases in underwater noise.
	Authorised Project Part 3 Requirements 2(5)(a)(i) (pin piles) and 2(5)(b)(i) (suction bucket) and Schedule 11, Part	MDS represents maximum number of legs on multi- leg foundations with pin piles that require piling giving rise to the maximum	MDS represents maximum number of legs on multi- leg foundations with pin piles that require piling giving rise to the maximum	MDS represents maximum number of legs on multi- leg foundations with pin piles that require piling giving rise to the maximum	defined by Fish and shellfish ecology	MDS represents maximum number of legs on multi- leg foundations with pin piles that require piling giving rise to the maximum

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**4** The maximum design scenario for the SLVIA assumes that the foundation substructure design will be a 4-legged jacket foundation substructure. Field survey and

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
	2 condition 1(1)(5)		temporal impact (whole project) and the greatest spatial impact at any one time (simultaneous piling for 2 jacket foundations installed concurrently with each of the 4 piles per foundation installed sequentially).	temporal impact (whole project) and the greatest spatial impact at any one time (simultaneous piling for 2 jacket foundations installed concurrently with each of the 4 piles per foundation installed sequentially).	temporal impact (whole project).		temporal impact (whole project).				experience of the visual effects of existing offshore wind farms suggests that jacket foundations are worst-case for visual impacts.		
Number of pin piles per multi-leg foundation	Up to 4 (for both WTG types) Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(5)(a)(ii) and Schedule 11, Part 2 condition 1(5)(a)(ii)		<b>4</b> Increases in underwater noise. MDS represents maximum number of legs on multi- leg foundations with pin piles that require piling giving rise to the maximum temporal impact (whole project) and the greatest spatial impact at any one time (simultaneous piling).	4 Increases in underwater noise. MDS represents maximum number of pin piles on multi-leg foundations giving rise to the maximum temporal impact (whole project) and the greatest spatial impact at any one time (simultaneous piling for 2 jacket foundations installed concurrently with each of the 4 piles per foundation installed sequentially).	4 Increases in underwater noise. MDS represents maximum number of pin piles on multi-leg foundations giving rise to the maximum temporal impact (whole project).	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	<b>4</b> Increases in underwater noise. MDS represents maximum number of pin piles on multi-leg foundations giving rise to the maximum temporal impact (whole project).						
Pin pile diameter	Up to 4.5m (for larger WTG type) Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(5)(a)(iii) and Schedule 11, Part 2 condition 1(1)(5)(iii)	-	<b>4.5m</b> Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	<b>4.5m</b> Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	<b>4.5m</b> Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	<b>4.5m</b> Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	-	-	-	-	-	-

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Maximum WTG multi-leg foundation with suction buckets foundation parameters

legs per WTC WTG Draf 019] Auth Proje Req	to 4 (for both G types)4G types)Changes in SSC and deposition of disturbedI Schedule 1 - noriseddisturbed sediments to the seabed due to diredging for seabed preparation prior	f and deposition of disturbed sediments to the seabed due to dredging for seabed	<b>4</b> Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior	<b>4</b> Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	-
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Rampion 2 Examining Authority requested additional information

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The maximum design scenario for the SLVIA assumes that the represent the design will be a 4-legged jacket foundation foundation

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The maximum assessment assumptions maximum seabed -

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
	Schedule 11, Part 2 condition 1(5)	multileg foundations, and subsequent removal. MDS represents the highest number of legs with suction buckets giving rise to the greatest likely local and total volume, and local rate of sediment disturbed by dredging (and associated spoil disposal) and released into suspension in the water column. Changes to the tidal regime, wave regime and seabed scour due to presence, and subsequent removal of windfarm infrastructure). MDS represents highest number of legs on multi-leg suction bucket foundation structures for larger WTGs, which presents the greatest total blockage width to waves and currents).	to presence, and subsequent removal of windfarm infrastructure). MDS represents highest number of legs on multi-leg suction bucket foundation structures for larger WTGs, which presents the greatest total blockage width to waves and currents).	habitat and increased hard substrate and structural complexity due to the presence of turbine foundations. MDS represents the maximum area of seabed lost as a result of the placement of structures, scour protection and cable protection arising from the largest number of legs per multi-leg jacket foundation with suction buckets.	the presence of turbine foundations. MDS represents the maximum area of seabed lost as a result of the placement of structures, scour protection and cable protection arising from the largest number of legs per multi-leg jacket foundation with suction buckets.						foundation substructure. Field survey and experience of the visual effects of existing offshore wind farms suggests that jacket foundations are worst-case for visual impacts.	installation process using multileg foundations with suction buckets that could potentially affect marine heritage receptors located in the Array area.	
Suction bucket diameter	Up to 15m (for both WTG types) Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(5)(b)(ii) and Schedule 11, Part 2 condition 1(5)((b)(ii)	and deposition of disturbed sediments to the seabed due to dredging for seabed		•	<b>15m</b> Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing multileg foundations, and subsequent removal.	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	_	_	_	-	_	<b>15m</b> As above.	-

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Rampion 2 Examining Authority requested additional information

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
		MDS represents the largest suction bucket diameter giving rise to the greatest likely local and total volume, and local rate of sediment disturbed by dredging (and associated spoil disposal) and released into suspension in the water column.	MDS represents the largest suction bucket diameter giving rise to the greatest likely local and total volume, and local rate of sediment disturbed by dredging (and associated spoil disposal) and released into suspension in the water column.	MDS represents the largest diameter suction bucket giving rise to the greatest likely area of disturbance as well as the greatest local and total volume, and local rate of sediment disturbed by dredging (and associated spoil disposal) and released into suspension in the water column. Long-term loss of habitat and increased hard substrate and structural complexity due to the presence of turbine foundations. MDS represents the maximum area of seabed lost as a result of the largest suction bucket diameter.	MDS represents the largest diameter suction bucket giving rise to the greatest likely area of disturbance as well as the greatest local and total volume, and local rate of sediment disturbed by dredging (and associated spoil disposal) and released into suspension in the water column. Long-term loss of habitat and increased hard substrate and structural complexity due to the presence of turbine foundations. MDS represents the maximum area of seabed lost as a result of the largest suction bucket diameter.								
Number of WTG multi- leg foundation structures	Up to 90 WTGs (for smaller WTG type) As per maximum WTG number in Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(1) and Schedule 11, Part 2 condition 1(1)	<ul> <li>90</li> <li>Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing, and on decommissioning of multileg foundations.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by dredging (and associated spoil disposal) and released into suspension in the water column.</li> <li>65 Changes to the</li> </ul>	<ul> <li>90</li> <li>Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing, and on decommissioning of multileg foundations.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by dredging (and associated spoil disposal) and released into suspension in the water column.</li> <li>Increases in vessel</li> </ul>	65 Long-term loss of habitat and increased hard substrate and structural complexity due to the presence of turbine foundations. MDS represents the maximum area of seabed lost as a result of the placement of structures, scour protection and cable protection arising from the largest number multi-leg jacket foundations with suction buckets.	65 Long-term loss of habitat and increased hard substrate and structural complexity due to the presence of turbine foundations. MDS represents the maximum area of seabed lost as a result of the placement of structures, scour protection and cable protection arising from the largest number multi-leg jacket foundations with suction buckets.	90 Increased vessel movements MDS The maximum number of WTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel round trips. The maximum number of vessels transits and the maximum duration of the construction will result in the greatest potential for interference. Reduction in access to, or exclusion from		-	<ul> <li>90</li> <li>MDS represents the maximum number of structures giving rise to the greatest increase in allision risk for both powered and drifting vessels.</li> <li>Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and collision risk for other vessels.</li> </ul>			65 The maximum assessment assumptions represent the maximum seabed disturbance by the WTG foundation installation process using multileg foundations with suction buckets that could potentially affect marine heritage receptors located in the Array area.	

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parameters Coastal marine users and shellfish Benthic, Commercial Marine Offshore and Shipping and and military Seascape, Marine Socio- (location processes [APP-048] ecology subtidal and fisheries mammals intertidal navigation aviation [APP- landscape, and archaeology economic														
Provide time time time time time time time tim		parameters (location secured in DCO	Coastal processes	marine users	and shellfish ecology	Benthic, subtidal and intertidal ecology	Commercial fisheries	Marine mammals	Offshore and intertidal ornithology	Shipping and navigation	and military aviation [APP-	Seascape, landscape, and visual impact assessment	Marine archaeology	Chapter 17: Socio- economics [APP-058]
protection volume (WTG maximum)       m <sup>3</sup> Draft DC (Par) 103 Schedul 1 maximum)       Changes to the total regime, and seabed scourd we get get to presence and subsequent unfastructure.       Changes to the wave regime and seabed scourd we get get to presence and subsequent unfastructure.       Changes to the wave regime and seabed scourd we get get to presence and subsequent unfastructure.       Changes to the wave regime and seabed scourd we get get to presence and subsequent unfastructure.       Changes to the wave regime and seabed scourd we get get to presence and windarm       Changes to the wave regime and seabed scourd we get get to presence and windarm       Changes to the to presents       Changes to the the greatest total       Changes to the to presents       Changes to the the greatest total       Changes to the the greatest total       Changes to the to presents       Changes to the the greatest total       Cha			<ul> <li>wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure).</li> <li>MDS represents the greatest total blockage width to waves and</li> </ul>	<ul> <li>impacts to sea area access.</li> <li>MDS represents the maximum number of vessel movements and longest duration of construction and decommissioning activity and therefore the greatest increase in potential access restriction and collision or allision risk for other sea users.</li> <li>65 Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure.</li> <li>MDS represents the greatest total blockage width to waves and</li> </ul>			fishing grounds MDS represents the maximum number of structures giving rise to the greatest restriction to fishing grounds increase in allision risk for both powered and drifting vessels. Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish							
	protection volume (WTG project total	m <sup>3</sup> Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 2(6) and Schedule 11 Deemed Marine Licence Part 2	Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure. MDS represents the maximum scour protection volume used for all WTG mutli-leg with suction bucket foundation structures; the combination of foundation type, dimensions and number presents the greatest total blockage width to currents and	Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure. MDS represents the maximum scour protection volume used for all WTG mutli-leg with suction bucket foundation structures; the combination of foundation type, dimensions and number presents the greatest total blockage width to currents and										-
							-	-	-	-	-	-		-

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
including scour protection (WTG project total maximum)	<b>019]</b> Schedule 1 - Authorised Project Part 3 Requirements 2(6) and Schedule 11 Deemed Marine Licence Part 2 Condition 1(6)	tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure. MDS represents the maximum area subject to scour protection used for all WTG mutli-leg with suction bucket foundation structures; the combination of foundation type, dimensions and number presents the greatest total blockage width to currents and waves.	tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure. MDS represents the maximum area subject to scour protection used for all WTG mutil-leg with suction bucket foundation structures; the combination of foundation type, dimensions and number presents the greatest total blockage width to currents and waves.	design scenario is defined by the maximum area of seabed lost as a result of the placement of structures and associated protection material.	design scenario is defined by the maximum area of seabed lost as a result of the placement of structures and associated protection material.							design scenario is defined by the maximum area of seabed lost as a result of the placement of structures and associated protection material.	
Maximum off	shore substation pa	arameters											
Maximum number of offshore substations	Up to 3 Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 3(1) and Schedule 12, Part 2 condition 1(1)	<ul> <li>3</li> <li>Changes in SSC and deposition of disturbed sediments due to drilling for foundation installation of infrastructure (monopile foundations).</li> <li>Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing and from decommissioning of multileg foundations.</li> <li>Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure.</li> <li>(Note: it is foundation structures that</li> </ul>	seabed scour due to presence and	<ul> <li>3</li> <li>Changes in SSC and deposition of disturbed sediments due to drilling for foundation installation of infrastructure.</li> <li>Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing and from decommissioning of multileg foundations.</li> <li>Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure.</li> <li>(Note: for these MDSs, it is foundation structures that are of relevance</li> </ul>	<ul> <li>3</li> <li>Changes in SSC and deposition of disturbed sediments due to drilling for foundation installation of infrastructure.</li> <li>Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing and from decommissioning of multileg foundations.</li> <li>Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure.</li> <li>(Note: for these MDSs, it is foundation structures that are of relevance</li> </ul>	<ul> <li>3 Increased vessel movements</li> <li>MDS The maximum number of WTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel round trips. The maximum number of vessels transits and the maximum duration of the construction will result in the greatest potential for interference.</li> <li>Reduction in access to, or exclusion from established fishing grounds</li> <li>MDS represents the maximum number of structures giving rise to the greatest</li> </ul>		ornithological	3 The parameters represent the maximum number and size (at the sea surface) of structures, the largest extent and the longest operational period and therefore the greatest increase in allision risk for both powered and drifting vessels. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and collision risk for other vessels.	aviation operations due to size and number of above sea level infrastructure within the Rampion 2 array area of the	3 MDS represents the maximum number of OSS structures that could lead to effects on seascape, landscape and visual receptors.	3 MDS represents the maximum seabed disturbance from OSSs that could potentially affect marine heritage receptors within the proposed DCO Order Limits.	



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Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
	are of relevance for Coastal Processes assessments - for MDS justification summaries, see relevant cells below).	Increases in vessel movements and impacts to sea area access. MDS represents the maximum number of vessel movements and longest duration of construction and decommissioning activity and therefore the greatest increase in potential	MDS represents highest number of vessel movements and construction activity (non- piling) associated with maximum number of OSSs, giving rise to increase in underwater noise (non-piling). MDS represents maximum number of OSSs that may be installed on foundations that require piling giving rise to the maximum temporal impact (multi-legs with pin piles: whole	and collision or allision risk for other sea users. Increases in	restriction to fishing grounds increase in allision risk for both powered and drifting vessels.							

**NSD** 

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
				extent (monopile; whole project).	extent (monopile; whole project).								
Topside: main structure length and width	80m x 50m Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 3(2)(b) and 3(2)(c) and Schedule 12, Part 2 condition 1(2)	-	-	-	-	-	-	-	<b>80m x 50m</b> As above.	-	<b>80m x 50m</b> As above.	-	-
Topside: height (excluding helideck or lightning protection) T	<b>65m above LAT</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(2)(a) and Schedule 12, Part 2 condition 1(2)	_	-	_	-	-	-	-	_	-	<b>65m</b> As above.	-	_
Height of lightning protection & ancillary structures	<b>115m above LAT</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(2)(a) and Schedule 12, Part 2 condition 1(2)(a)	-	-	-	-	-	-	-	-	-	<b>115m</b> As above.	-	-
Diameter of monopile	<b>13.5m</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(5)(b) and Schedule 12, Part 2 condition 1(5)(b)	-	<b>13.5m</b> Increases in underwater noise MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole project i.e. 3 OSSs).	subsea noise for	subsea noise for	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	<b>13.5m</b> Increases in underwater noise MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole project i.e. 3 OSSs).		-	-	-	-	-
Number of legs per multi-leg foundation (Substation)	<b>Up to 6</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(5)(a)(i) and Schedule 12, Part 2 condition 1(5)(a)	<ul> <li>6</li> <li>Changes to SSC and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column</li> </ul>	<ul> <li>6</li> <li>Changes to SSC and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column</li> </ul>	<ul> <li>6</li> <li>Changes to SSC and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column</li> </ul>	<ul> <li>6</li> <li>Changes to SSC and deposition of disturbed sediments due to drilling for foundation installation.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column</li> </ul>	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	6 Increases in underwater noise. MDS represents maximum number of legs for OSS foundations that may be installed on foundations that require piling giving rise to the maximum temporal impact (multi-legs with pin piles: whole project).			-	<b>6</b> The maximum design scenario for the SLVIA assumes that the foundation substructure design will be a 4- legged jacket foundation substructure. Field survey and experience of the visual effects of existing offshore wind farms suggests that jacket foundations are	<b>6</b> The maximum assessment assumptions represent the maximum seabed disturbance by the OSS foundation installation process using multileg foundations (with suction buckets) that could potentially affect marine heritage	

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Rampion 2 Examining Authority requested additional information



Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
	(multi-leg foundations with pin-piles).	(multi-leg foundations with pin-piles).	(multi-leg foundations with pin-piles).	(multi-leg foundations with pin-piles).						worst-case for visual impacts.	receptors located in the Array area.	
	Changes in SSC and deposition of disturbed	Changes in SSC and deposition of disturbed	Changes in SSC and deposition of disturbed	Changes in SSC and deposition of disturbed								
	sediments to the seabed due to dredging for	sediments to the seabed due to dredging for	sediments to the seabed due to dredging for	sediments to the seabed due to dredging for								
	seabed preparation prior	seabed preparation prior	seabed preparation prior	seabed preparation prior								
	to installing multileg foundations.	to installing, and on decommissioning	to installing, and on decommissioning	to installing, and on decommissioning								
	MDS represents the greatest likely		of multileg foundations.	of multileg foundations.								
	local and total volume, and local rate of sediment	MDS represents the greatest likely local and total	MDS represents the greatest likely local and total	MDS represents the greatest likely local and total								
	disturbed by dredging (and associated spoil	volume, and local rate of sediment disturbed by	volume, and local rate of sediment disturbed by	volume, and local rate of sediment disturbed by								
	disposal) and released into suspension in the	dredging (and associated spoil	dredging (and associated spoil disposal) and	dredging (and associated spoil disposal) and								
	water column. Changes to the	released into	released into suspension in the water column.	released into suspension in the water column.								
	tidal regime, wave regime and seabed scour due	Changes to the	Increases in underwater noise.	Increases in								
	to presence and subsequent	wave regime and seabed scour due	MDS represents	MDS represents								
	removal of windfarm infrastructure.	to presence and subsequent removal of	maximum number of legs for OSS foundations that	of legs for OSS foundations that								
	MDS represents highest number of		may be installed on foundations that require piling	may be installed on foundations that require piling								
	legs on multi-leg foundation structures for	MDS represents highest number of legs on multi-leg	giving rise to the maximum temporal impact	giving rise to the maximum temporal impact								
	OSSs, which presents the greatest total	foundation structures for OSSs, which	(multi-legs with pin piles: whole project).	(multi-legs with pin piles: whole project).								
	blockage width to waves and currents).	presents the greatest total blockage width to	Long-term loss of habitat and	Long-term loss of habitat and								
	,	waves and currents).	increased hard substrate and structural	increased hard substrate and structural								
		Increases in underwater noise.	complexity due to									
		MDS represents maximum number	The maximum	The maximum								
		of legs for OSS foundations that may be installed	design scenario is defined by the maximum area of	defined by the maximum area of								
		on foundations that require piling giving rise to the	placement of	seabed lost as a result of the placement of								
		maximum temporal impact (multi-legs with	structures, scour protection and cable protection.	structures, scour protection and cable protection.								
		pin piles: whole project), greatest										

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter Offshore intertida ornithol [APP-05
			spatial impact at any one time (multi-legs with pin-piles: simultaneous piling).					
Number of pin piles per multi-leg foundation (Substation)	<b>Up to 12</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(5)(a)(ii) and Schedule 12, Part 2 condition 1(5)(a)	<b>12</b> Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation.	<b>12</b> Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation.	<b>12</b> As Above	<b>12</b> As Above	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	<b>12</b> As above.	-
		MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column (multi-leg foundations with pin-piles).	MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column (multi-leg foundations with pin-piles).					
			Increases in underwater noise. MDS represents maximum number of pin piles per OSS multi-leg foundation that require piling giving rise to the maximum temporal impact (multi-legs with pin piles: whole project).					
Pin pile diameter	<b>Up to 4.5m</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(5)(a)(iii) and Schedule 12, Part 2 condition 1(5)(a)	drilling for foundation	<b>4.5m</b> Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	<b>4.5m</b> Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	<b>4.5m</b> Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	<b>4.5m</b> Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	-
		installation. MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and	Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for	Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for	Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for			

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Chapter 14: Civil Chapter 15: and military Seascape, aviation [APP- landscape, au

Seascape, landscape, and visual impact assessment [APP-056]

Chapter 16: Marine archaeology [APP-057]

Chapter 17: Socioeconomics [APP-058]

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]	
		released into suspension in the water column (largest diameter pin-piles).	foundation installation. MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column (largest diameter pin-piles).	foundation installation. MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by drilling and released into suspension in the water column (largest diameter pin-piles).	local and total volume, and local rate of sediment disturbed by drilling and released into									
Scour protection volume (3 substations)	Up to 65,700m <sup>3</sup> Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 4 and Schedule 12, Deemed Marine Licence Part 2 Condition 1(6)	65,700m <sup>3</sup> Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure MDS represents the maximum scour protection volume used for OSS mutil-leg foundation structures; the combination of foundation type, dimensions and number presents the greatest total blockage width to coastal processes.	to presence and subsequent removal of windfarm infrastructure MDS represents the maximum scour protection volume used for all OSS mutli-leg foundation structures; the combination of foundation type, dimensions and number presents the greatest total			-		-	-	-		-		

### Maximum array cable parameters

Total length of array cables	<b>250km</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 5(2) and Schedule 11 Deemed Marine Licence Part 2 Condition 2(1)	250km Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.	<ul> <li><b>250km</b></li> <li>Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint</li> </ul>	<ul> <li><b>250km</b></li> <li>Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint</li> </ul>	<ul> <li><b>250km</b></li> <li>Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint</li> </ul>	250km Reduction in access to, or exclusion from established fishing grounds MDS represents the maximum extent of reduction in access to or exclusion from fishing grounds due to the placement of the maximum length of array cables in the Array area.	250km Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum length of array cable, leading to the highest potential for vessel encounter/ disturbance. The	250km Increat mover MDS in develous scenat greate constri operat mainte decom activiti installa maxim of arra leadin highes vesse numbo
			impact footprint on seabed	impact footprint on seabed	impact footprint on seabed	Increased vessel	disturbance. The maximum number	numb which

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Rampion 2 Examining Authority requested additional information

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### km eased vessel rements

S represents MDS represents elopment nario with atest struction, rations and ommissioning /ity for allation of the imum length rray cable, ling to the sels and total ber of trips, ch gives the

## 250km Increased vessel movements

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development scenario with greatest construction, operations and ntenance, and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and est number of collision risk for other vessels.

Presence of array

## 250km

MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the interarray cable works.

## 250km

The maximum assessment assumptions represent the maximum seabed disturbance by the Array cable installation process that could potentially affect marine heritage receptors located in the Array area.

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
faximum off			associated with installation of the maximum array cable length. The maximum number of vessels transits and the maximum duration of the construction will result in the greatest potential for interference with other sea users.	be generated. Increased vessel movements MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum array cable length. The maximum number	MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest length of inter- array cables. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest length of Array cabling over which EMF would be generated. Increased vessel movements MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum array cable length. The maximum number of vessels transits and cable installation activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine environment.	movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum length of array cable, leading to the highest potential for interference with commercial fishing vessels and activities. Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	· · · ·	greatest disturbance to ornithological receptors.	cable protection in the offshore environment may reduce charted water depths creating underwater allision risk The parameters represent the largest extent of array cables on the seabed and therefore the greatest increase in underwater allision risk.				
iaximum off	shore interconnect	or caple parameter	rs										

## Maximum offshore interconnector cable parameters

Number of cables	<b>Up to 2</b> Draft DCO <b>[APP-</b> <b>019]</b> Schedule 1 Authorised	<b>2</b> Increases in SSC and deposition of disturbed	<b>2</b> Reduction in access to, or exclusion from	<b>2</b> Increased vessel movements	2 Increased vessel movements	2 Increased vessel movements			
	Project, Part 1 The Authorised Development, Work 3(b) Schedule 12 - Deemed Marine	sediments to the seabed due to cable installation and decommissioning.	established fishing grounds MDS represents the maximum extent of	MDS represents development scenario with greatest construction, operations and	MDS represents development scenario with greatest construction, operations and	MDS represents development scenario with greatest construction, operations and			
	Licence Part 1	MDS represents	MDS represents	MDS represents	MDS represents	reduction in	maintenance, and	maintenance, and	maintenance, and

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Rampion 2 Examining Authority requested additional information

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MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the

2 The maximum assessment assumptions represent the maximum seabed disturbance by the offshore interconnector cable installation process that

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Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
Licensed Marine Activities 3(1)(ii)	the greatest likely local and total volume, and local rate of sediment disturbed by cable works.	<ul> <li>local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest number of interconnector cables.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum number of interconnector cables. The maximum number of interconnector cables. The maximum number of vessels transits</li> </ul>	<ul> <li>local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest number of interconnector cables.</li> <li>Electromagnetic field (EMF) impacts arising from cables</li> <li>MDS is associated with the greatest number of interconnector cables.</li> <li>Electromagnetic field (EMF) impacts arising from cables</li> <li>MDS is associated with the greatest number of interconnector cables.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum number of interconnector cables.</li> </ul>	EMF would be generated. Increased vessel movements MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum number of interconnector cables. The maximum number of vessels transits and cable installation activity will result in the highest level and duration of vessel and	defined by Fish and shellfish ecology	potential for vessel encounter/disturb ance. The maximum number of vessels transits and cable installation activity will also result in the highest level and duration of vessel and construction (non-piling) noise emitted to the	decommissioning activity for installation of the maximum number of interconnector cables, leading to the highest number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors.	decommissioning activity and therefore the greatest increase in potential encounters and collision risk for other vessels. Presence of interconnector cable protection in the offshore environment may reduce charted water depths creating underwater allision risk The parameters represent the largest number of interconnector cables on the seabed and therefore the greatest increase in underwater allision risk.		interconnector cable works.	could potentially affect marine heritage receptors within the proposed DCO Order Limits.	

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17 Socio- economics [APP-058]
otal cable	40km Draft DCO [APP- 019] Schedule 1 Authorised Project Part 3 Requirement 5(7) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 2(2)	40km Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation volume, and local rate of sediment disturbed by cable installation works.	40km Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable installation works. Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest length of interconnector cables. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum length of interconnector cables, leading to the highest potential for interference with other marine users.		EMF would be generated. Increased vessel movements MDS represents the greatest level of construction activities and therefore highest level of construction	defined by Fish and shellfish ecology	40km Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum length of interconnector cables, leading to the highest potential for vessel encounter/disturb ance. The maximum number of vessels transits and cable installation activity will also result in the highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.		<ul> <li>40km</li> <li>Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and collision risk for other vessels.</li> <li>Presence of interconnector cable protection in the offshore environment may reduce charted water depths creating underwater allision risk</li> <li>The parameters represent the largest length of interconnector cables on the seabed and therefore the greatest increase in underwater allision risk</li> </ul>		<b>40km</b> MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the interconnector cable works.	<b>40km</b> The maximum assessment assumptions represent the maximum seabed disturbance by the offshore inter- connector cable installation process that could potentially affect marine heritage receptors within the proposed DCO Order Limits.	

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter Offshore intertida ornithol [APP-05
				activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine environment.	activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine environment.			
Maximum exp	oort cable assessm	ent parameters						
Number of high voltage alternating current (HVAC) offshore cables	Up to 4 Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(1) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 2(1)	A Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning. MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.	<ul> <li>4 Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable installation works.</li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest number of HVAC offshore export cables.</li> <li>Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum number of export cables, leading to the highest potential for interference with other marine users.</li> </ul>	<ul> <li>4 Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest number of export cables.</li> <li>Electromagnetic field (EMF) impacts arising from cables</li> <li>MDS is associated with the greatest number of export cables.</li> <li>MDS is associated with the greatest number of export cables from which EMF would be generated.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and</li> </ul>	<ul> <li>4 Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest number of export cables.</li> <li>Electromagnetic field (EMF) impacts arising from cables</li> <li>MDS is associated with the greatest number of export cables.</li> <li>MDS is associated with the greatest number of export cables from which EMF would be generated.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and</li> </ul>	<ul> <li><b>4</b> Reduction in access to, or exclusion from established fishing grounds</li> <li>MDS represents the maximum extent of reduction in access to or exclusion from fishing grounds due to the placement of the maximum number of export cables.</li> <li>Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum number of export cables, leading to the highest potential for interference with commercial fishing vessels and activities.</li> <li>Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology</li> </ul>	4 Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum number of export cables, leading to the highest potential for vessel encounter/disturb ance. The maximum number of vessels transits and cable installation activity will also result in the highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.	4 Increase moveme MDS rep developr scenario greatest construct operation maintena decomm activity fe installation maximur of export leading t highest r vessels a number which gir greatest disturbar ornitholo

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Chapter 14: Civil Chapter 15: Seascape, aviation [APPlandscape, and visual impact assessment [APP-056]

Chapter 16: Marine archaeology [APP-057]

Chapter 17: Socioeconomics [APP-058]

4 4 4 MDS represents The maximum sed vessel Increased vessel ments movements the maximum assessment influence of assumptions MDS represents vessels that represent the represents pment development would potentially maximum seabed rio with scenario with affect seascape, disturbance by landscape and the offshore st greatest uction, construction, visual receptors export cable during the export installation operations and tions and enance, and maintenance, and cable works. process that nmissioning decommissioning could potentially / for activity and affect marine ation of the therefore the heritage num number greatest increase receptors within ort cables, the proposed in potential g to the DCO Order encounters and st number of collision risk for Limits. ls and total other vessels. er of trips, gives the Presence of st export cable protection in the bance to ological offshore tors. environment may reduce charted water depths creating underwater allision risk The parameters represent the largest number of export cables on the seabed and therefore the greatest increase in underwater allision risk.

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapte Offshor intertida ornitho [APP-05
				construction vessel round trips associated with installation of the maximum number of export cables. The maximum number of vessels transits and cable installation activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine environment.	construction vessel round trips associated with installation of the maximum number of export cables. The maximum number of vessels transits and cable installation activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine environment.			
Total length of export cables	170km Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(9) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 2(4)	170km Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning. MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.	<ul> <li>170km</li> <li>Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest length of HVAC offshore export cables.</li> <li>Increased vessel movements</li> </ul>	<ul> <li><b>170km</b></li> <li>Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning.</li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest length of export cables.</li> <li>Electromagnetic field (EMF) impacts arising</li> </ul>	<ul> <li><b>170km</b> <ul> <li>Increases in SSC and deposition of disturbed</li> <li>sediments to the seabed due to cable installation and decommissioning.</li> </ul> </li> <li>MDS represents the greatest likely local and total volume, and local rate of sediment disturbed by cable works.</li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cables and cable protection, associated with the greatest length of export cables.</li> <li>Electromagnetic field (EMF) impacts arising</li> </ul>	<ul> <li><b>170km</b></li> <li>Reduction in access to, or exclusion from established fishing grounds</li> <li>MDS represents the maximum extent of reduction in access to or exclusion from fishing grounds due to the placement of the maximum length of export cables.</li> <li>Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum length of export cables, leading to the highest potential for interference with commercial</li> </ul>	170km Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum length of export cables, leading to the highest potential for vessel encounter/disturb ance. The maximum number of vessels transits and cable installation activity will also result in the highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.	<b>170km</b> Increase moveme MDS red develop scenario greatest construct operation mainten decomm activity f installat maximu of expor leading highest vessels number which g greatest disturba ornitholo receptor
			MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the	MDS is associated with the greatest length of export cables from which EMF would be generated.	MDS is associated with the greatest length of export cables from which EMF would be generated.	fishing vessels and activities. Assessment based on MDS for noise impacts		

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Chapter 13: Shipping and navigation [APP-054]

and military aviation [APP-055]

Chapter 14: Civil Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]

Chapter 16: Marine archaeology [APP-057]

Chapter 17: Socioeconomics [APP-058]

ased vessel ments

represents opment rio with st ruction, tions and enance, and nmissioning y for ation of the num length port cables, ng to the st number of collision risk for ls and total er of trips, gives the st bance to ological tors

170km Increased vessel movements

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## MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and

other vessels. Presence of export cable protection in the offshore environment may reduce charted

water depths creating underwater allision risk

The parameters represent the largest length of export cables on the seabed and therefore the greatest increase in underwater allision risk

### 170km

MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the interconnector cable works.

## 170km

The maximum assessment assumptions represent the maximum seabed disturbance by the offshore export cables installation process that could potentially affect marine heritage receptors within the proposed DCO Order Limits.

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Rampion 2 parameters (ICcation secured in DCO application)       Chapter 6: Coastal (APP-047)       Chapter 7: Other marine users (APP-048)       Chapter 9: and shellfish ecology (APP-049)       Chapter 9: Subtidal and intervidal ecology (APP-050)       Chapter 10: Commercial (APP-051)       Chapter 11: Marine marinals (APP-052)       Chapter 11: Marine marine ecology (APP-050)       Chapter 12: Commercial (APP-051)       Chapter 11: Marine marine ecology (APP-050)       Chapter 12: Commercial (APP-051)       Chapter 12: Marine marine ecology (APP-050)       Chapter 12: Commercial (APP-051)       Chapter 11: Marine marine ecology (APP-050)       Chapter 12: Commercial (APP-051)       Chapter 11: Marine marine ecology (APP-050)       Chapter 12: Commercial (APP-051)       Chapter 12: Marine marine ecology (APP-050)       Chapter 12: Commercial (APP-051)       Chapter 12: Marine marine ecology (APP-050)       Chapter 12: Commercial (APP-051)       Chapter 12: Marine marine ecology (APP-050)       Chapter 12: Commercial (APP-051)       Chapter 12: Commercial (APP-052)       Chapter 12: Commercial (APP-050)								
of export cables, leading to the highest potential for interference with other marinemovementsmovementsMDS represents the greatest levelMDS represents the greatest levelMDS represents the greatest levelof construction activities and therefore highestactivities and activities and therefore highestIevel of construction activities and therefore highestevel of construction vessel round trips associated with installation of the maximum length of export cables. The maximum number of vessel transits and cable installationof export cables. resel transits and cable installationinstellation of vessel and construction of vessel and construction of vessel and of vessel and constructionactivity will result installationinstellation installationactivity will result installationactivity will result installationinstellation of vessel and construction (non- piling) noise emitted to the emitted to the	parameters (location secured in DCO	Coastal processes	marine users	and shellfish ecology	Benthic, subtidal and intertidal ecology	Commercial fisheries	Marine mammals	Offshor intertida ornithol
			of export cables, leading to the highest potential for interference with other marine	movements MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum length of export cables. The maximum number of vessels transits and cable installation activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine	movements MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum length of export cables. The maximum number of vessels transits and cable installation activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine			

## Maximum array cable installation parameters

Cable protection area	<b>Up to 300,000m<sup>2</sup></b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 5(3) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(2)	<b>300,000m<sup>2</sup></b> Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure.	<b>300,000m<sup>2</sup></b> Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure.	300,000m <sup>2</sup> Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed lost as a result of the installation of cable protection.	300,000m <sup>2</sup> Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed lost as a result of the installation of cable protection.	<b>300,000m<sup>2</sup></b> Reduction in access to, or exclusion from established fishing grounds MDS represents the maximum extent of reduction in	300,000km <sup>2</sup> Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and	300,000m <sup>2</sup> Increased ves movements MDS represe development scenario with greatest construction, operations an maintenance,
		the maximum area subject to Array cable protection, which presents the greatest total blockage to coastal processes.	the maximum area subject to Array cable protection, which presents the greatest total blockage to coastal processes.	Increased vessel movements MDS represents the greatest level of construction activities and therefore highest level of	Increased vessel movements MDS represents the greatest level of construction activities and therefore highest level of	access to or exclusion from fishing grounds due to the placement of the maximum area of cable protection on the array cables.	decommissioning activity for the deployment of array cable protection across the maximum defined area, leading to the highest potential for vessel	decommission activity for the deployment of maximum are array cable protection, leading to the highest numb vessels and the
			Disturbance and impact footprint on seabed MDS is defined by the maximum	construction vessel round trips associated with installation of the maximum amount of cable	construction vessel round trips associated with installation of the maximum amount of cable	Increased vessel movements MDS represents development scenario with	encounter/disturb ance. The maximum number of vessels transits and cable installation	number of trip which gives the greatest disturbance to ornithological receptors
			area of seabed subject to installation of array cable protection Increased vessel movements	protection material. The maximum number of vessels transits and cable protection deployment activity will result	protection material. The maximum number of vessels transits and cable protection deployment activity will result	greatest construction, operations and maintenance, and decommissioning activity for deployment of the maximum area of	activity will also result in the highest level and duration of vessel and construction (non-piling) noise emitted to the	

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Chapter 13: Shipping and navigation [APP-054]

and military aviation [APP-055]

Chapter 14: Civil Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]

Chapter 16: Marine archaeology [APP-057]

Chapter 17: Socioeconomics [APP-058]

eased vessel ements

represents lopment nario with test struction, ations and tenance, and mmissioning vity for the oyment of the imum area of cable ection, ng to the est number of other vessels. sels and total ber of trips, h gives the test rbance to hological ptors

MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and collision risk for

300,000m<sup>2</sup>

movements

Increased vessel

-

Presence of array cable protection in the offshore environment may reduce charted water depths creating underwater allision risk

The parameters represent the largest area of array cable protection on the seabed and

## 300,000m<sup>2</sup>

MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the array cable protection deployment works.

300,000m<sup>2</sup> The maximum assessment assumptions represent the maximum seabed disturbance by the Array cable protection installation process that could potentially affect marine heritage receptors located in the Array area.

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
			MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of the maximum area of array cable protection, leading to the highest potential for interference with other marine users.	level and duration of vessel and construction (non- piling) noise emitted to the marine environment.	level and duration of vessel and construction (non- piling) noise emitted to the marine environment.	on the array cables, leading to the highest potential for interference with commercial fishing vessels and activities. Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	marine environment.		therefore the greatest increase in underwater allision risk.				
Cable protection volume	Up to 175,000m <sup>3</sup> Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(3) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(2)	<ul> <li>175,000m<sup>3</sup></li> <li>Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure.</li> <li>MDS represents the maximum scour protection volume used for Array cables, which presents the greatest total blockage to coastal processes.</li> </ul>	-	-	-	-	-	-	-	-	-	-	-
Number of crossings	Up to 4 Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(4) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(3)	<b>4</b> Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum number of cable crossings, which presents the greatest total blockage to coastal processes	to presence and removal of windfarm infrastructure. MDS represents the maximum number of cable crossings, which presents the greatest total blockage to	the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the	<ul> <li>4 Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of the greatest number of cable crossings.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum number</li> </ul>	<ul> <li><b>4</b> Reduction in access to, or exclusion from established fishing grounds</li> <li>MDS represents the maximum extent of reduction in access to or exclusion from fishing grounds due to the placement of the maximum number of cable crossings.</li> <li>Increased vessel movements</li> <li>MDS represents development scenario with greatest construction,</li> </ul>	4 Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the installation of the maximum number of cable crossings, leading to the highest potential for vessel encounter/disturb ance. The maximum number of vessels transits and cable installation activity will also result in the	maximum number of cable crossings, leading to the highest number of vessels and total number of trips, which gives the greatest			<b>4</b> MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the installation of cable crossings.	<b>4</b> The maximum assessment assumptions represent the maximum seabed disturbance by the cable crossing installation process that could potentially affect marine heritage receptors located in the Array area.	-

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter Socio- economi [APP-058
			impacts to arise on third parties. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of the maximum number of cable crossings, leading to the highest potential for interference with other marine users.	of cable crossings. The maximum number of vessels transits and cable protection deployment activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine environment.	of cable crossings. The maximum number of vessels transits and cable protection deployment activity will result in the highest level and duration of vessel and construction (non- piling) noise emitted to the marine environment.	installation of the maximum number of cable crossings, leading to the highest potential for interference with	highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.		allision risk The parameters represent the largest number of cable crossings on the seabed and therefore the greatest increase in underwater allision risk.				
Cable/pipe crossings: total impacted area	Up to 10,000m <sup>2</sup> Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(5) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(4)	<b>10,000m<sup>2</sup></b> Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum area subject to cable crossings, which presents the greatest total blockage to coastal processes.	-	<ul> <li>10,000m<sup>2</sup></li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cable crossings.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of cable crossings across the maximum area. The maximum area. The maximum area. The maximum area for vessels transits and cable protection deployment activity will result in the highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.</li> </ul>	<ul> <li>10,000m<sup>2</sup></li> <li>Disturbance and impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cable crossings.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of cable crossings across the maximum area. The maximum area. The maximum area. The maximum area for vessels transits and cable protection deployment activity will result in the highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.</li> </ul>	with commercial	10,000m <sup>2</sup> Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the installation of the maximum area of cable crossings, leading to the highest potential for vessel encounter/disturb ance. The maximum number of vessels transits and cable installation activity will also result in the highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.	10,000m <sup>2</sup> Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of the maximum area of cable crossings, leading to the highest number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors	<ul> <li>10,000m<sup>2</sup></li> <li>Increased vessel movements</li> <li>MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and collision risk for other vessels.</li> <li>Presence of cable crossings in the offshore environment may reduce charted water depths creating underwater allision risk</li> <li>The parameters represent the maximum area subject to cable crossings on the seabed and therefore the greatest increase in underwater allision risk.</li> </ul>		10,000m <sup>2</sup> MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the installation of the maximum area of cable crossings.	<b>10,000m<sup>2</sup></b> The maximum assessment assumptions represent the maximum seabed disturbance by the cable crossing installation process that could potentially affect marine heritage receptors located in the Array area.	

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	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter Offshor intertida ornitho [APP-0
			operations and maintenance, and decommissioning activity for the deployment of the maximum area of cable crossings, leading to the highest potential for interference with other marine users.			for noise impacts on fish stocks as defined by Fish and shellfish ecology		
Cable/pipe crossings: pre-lay rock berm volume	Up to 10,000m <sup>3</sup> Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(6) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(5)	<b>10,000m<sup>3</sup></b> Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. <b>MDS represents</b> the maximum volume of pre-lay rock berm, which presents the greatest total blockage to coastal processes.						
Cable/pipe crossings: post-lay rock berm volume	<b>Up to 10,000m<sup>3</sup></b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 5(6) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(5)	<b>10,000m<sup>3</sup></b> Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum			-			-

January 2024

Rampion 2 Examining Authority requested additional information

the maximum

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Chapter 13: Shipping and navigation [APP-054]

environment may reduce charted water depths

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Chapter 14: Civil Chapter 15: and military aviation [APP-055]

Seascape, landscape, and visual impact assessment [APP-056]

Chapter 16: Marine archaeology [APP-057]

Chapter 17: Socioeconomics [APP-058]

<b>10,000m<sup>3</sup></b> Increased vessel movements	-	-	-	-	
MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and collision risk for other vessels.					
Presence of the pre-lay rock berm for cable crossings in the offshore environment may reduce charted water depths creating underwater allision risk					
The parameters represent the maximum area subject to cable crossings on the seabed and therefore the greatest increase in underwater allision risk.					
<b>10,000m<sup>3</sup></b> Presence of the post-lay rock berm for cable crossings in the offshore	-	-	-	-	

Rampion 2 Chapter 6: Chapter 7: Other Chapter 8: Fish Chapter 9: Chapter 10: Chapter 11: Chapter 12: Chapter 13: Offshore and parameters Coastal marine users and shellfish Benthic, Commercial Marine Shipping and ecology [APP-048] subtidal and intertidal navigation (location processes fisheries mammals secured in DCO [APP-047] [APP-049] intertidal [APP-051] [APP-052] [APP-054] ornithology application) ecology [APP-053] [APP-050] volume of postallision risk lay rock berm, which presents The parameters the greatest total represent the blockage to maximum area coastal subject to cable crossings on the processes. seabed and therefore the greatest increase in underwater allision risk. Maximum offshore interconnector cable installation parameters

Cable protection area	Up to 122,000m <sup>2</sup> Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3	<b>122,000m<sup>2</sup></b> Changes to the tidal regime, wave regime and seabed scour due	<b>122,000m<sup>2</sup></b> Changes to the tidal regime, wave regime and seabed scour due	<b>122,000m<sup>2</sup></b> Disturbance and impact footprint on seabed	<b>122,000m<sup>2</sup></b> Disturbance and impact footprint on seabed	<b>122,000m<sup>2</sup></b> Reduction in access to, or exclusion from established	122,000m <sup>2</sup> Increased vessel movements MDS represents	122 Inc mo MC
	Requirements 5(8) and Schedule 12 - Deemed Marine	to presence and removal of windfarm infrastructure.	to presence and removal of windfarm infrastructure.	MDS is defined by the maximum area of seabed lost as a result of	MDS is defined by the maximum area of seabed lost as a result of	fishing grounds MDS represents the maximum	development scenario with greatest construction,	de\ sce gre cor
	Licence Part 2 Conditions 2(3)	MDS represents	MDS represents	the installation of cable protection.	the installation of cable protection.	extent of reduction in	operations and maintenance, and decommissioning	ope ma
		area of cable protection for the	area of cable protection for the	Increased vessel movements	Increased vessel movements	access to or exclusion from fishing grounds	activity for the deployment of	deo act dej
		interconnector cables, which	interconnector cables, which	MDS represents	MDS represents	due to the placement of the	interconnector cable protection	ma inte
		presents the greatest total blockage to	presents the greatest total blockage to	the greatest level of construction activities and	the greatest level of construction activities and	maximum area of cable protection on the	across the maximum defined area, leading to	cat lea hig
		coastal processes.	coastal processes.	therefore highest level of construction	therefore highest level of construction	interconnector cables.	the highest potential for vessel	ves nur wh
			Disturbance and impact footprint	vessel round trips associated with	vessel round trips associated with	Increased vessel movements	encounter/disturb ance. The	gre dis
			on seabed MDS is defined	installation of the maximum amount of cable	installation of the maximum amount of cable	MDS represents development	maximum number of vessels transits and cable	
			by the maximum area of seabed	protection material. The	protection material. The maximum number	scenario with greatest	installation activity will also result in the	
			subject to installation of interconnector	maximum number of vessels transits and cable	of vessels transits and cable	construction, operations and maintenance, and	highest level and duration of vessel	
			cable protection.	protection deployment activity will result	protection deployment activity will result	decommissioning activity for deployment of the	and construction (non-piling) noise emitted to the	
			movements	in the highest level and duration	in the highest level and duration	maximum area of cable protection	marine environment.	
			MDS represents development scenario with	of vessel and construction (non- piling) noise	of vessel and construction (non- piling) noise	on the interconnector cables, leading to		
			greatest construction, operations and	emitted to the marine environment.	emitted to the marine environment.	the highest potential for interference with		
			maintenance, and decommissioning	environment.	environment.	commercial fishing vessels		
			activity for the deployment of the maximum area of			and activities. Assessment		
			cable protection for the offshore			based on MDS for noise impacts		
			interconnector cables, leading to the highest			on fish stocks as defined by Fish		



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and military aviation [APP-

Chapter 14: Civil Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]

Chapter 16: Marine archaeology [APP-057]

Chapter 17: Socioeconomics [APP-058]

## 122,000m<sup>2</sup>

ncreased vessel novements

IDS represents levelopment cenario with reatest onstruction, perations and naintenance, and ecommissioning ctivity for the eployment of the naximum area of nterconnector able protection, eading to the ighest number of essels and total umber of trips, vhich gives the reatest listurbance to rnithological eceptors

MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity and therefore the greatest increase in potential encounters and

122,000m<sup>2</sup>

movements

Increased vessel

other vessels. Presence of interconnector cable protection in the offshore environment may reduce charted water depths creating underwater allision risk

collision risk for

The parameters represent the largest area of interconnector cable protection on the seabed and therefore the greatest increase in underwater allision risk.

## 122,000m<sup>2</sup>

MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the interconnector cable protection deployment works.

## 122,000m<sup>2</sup>

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The maximum assessment assumptions represent the maximum seabed disturbance by the offshore interconnector cable protection installation process that could potentially affect marine heritage receptors within the proposed DCO Order Limits.

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapte Offshor intertid ornitho [APP-09
			potential for interference with other marine users.			and shellfish ecology		
Cable protection volume	Up to 110,500m <sup>3</sup> Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(8) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 2(3)	<ul> <li>110,500m<sup>3</sup></li> <li>Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure.</li> <li>MDS represents the maximum volume of cable protection for the interconnector cables, which presents the greatest total blockage to coastal processes.</li> </ul>	-	-	-	-	-	-

### Maximum export cable installation parameters

$c_{1} = 10000000000000000000000000000000000$									
protection areaDraft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(10) and Schedule 12 - Deemed Marine Licence Part 2Changes to the tidal regime, wave regime and seabed scour due to presence and infrastructure.Changes to the tidal regime, wave regime and seabed scour due to presence and infrastructure.Disturbance and impact footprint on seabedReduction in access to, or exclusion from exclusion from exclusion from exclusion from exclusion from access to or exclusion from extent of operations and oper operations and operations and operations activity for the export cables, which presents the greatest total blockage to coastal processes.Disturbance and impact footprint on seabedReduction in access to, or exclusion from extent of the maximum area of cable protection for the export cables, which presents the greatest total blockage to coastal processes.Disturbance and impact footprint on seabedDisturbance and impact footprint on seabedReduction in access to op exclusion from extent of the maximum area of cable protection for the export cables, which presents the greatest total blockage to coastal processes.Disturbance and impact footprint on seabedDisturbance and impact footprint on seabedIncreased vessel movementsIncreased vessel movementsIncreased vessel maximum area of seabedIncreased vessel movementsIncreased vessel movementsIncreased vessel movementsIncreased vessel movementsIncreased vessel movementsIncreased vessel movementsIncreased vessel mo	Cable protection area	<b>019]</b> Schedule 1 - Authorised Project Part 3 Requirements 5(10) and Schedule 12 - Deemed Marine Licence Part 2	Draft DCO [APP- 19] Schedule 1 - authorisedChanges to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure.Conditions 2(5)MDS represents the maximum area of cable protection for the export cables, which presents the greatest total blockage to coastal	tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum area of cable protection for the export cables, which presents the greatest total blockage to coastal processes. Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed subject to installation of export cable protection.	<ul> <li>impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cable protection.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum amount of cable protection material. The maximum number of vessels transits and cable protection deployment</li> </ul>	<ul> <li>impact footprint on seabed</li> <li>MDS is defined by the maximum area of seabed lost as a result of the installation of cable protection.</li> <li>Increased vessel movements</li> <li>MDS represents the greatest level of construction activities and therefore highest level of construction vessel round trips associated with installation of the maximum amount of cable protection material. The maximum number of vessels transits and cable protection deployment</li> </ul>	access to, or exclusion from established fishing grounds MDS represents the maximum extent of reduction in access to or exclusion from fishing grounds due to the placement of the maximum area of cable protection on the export cables. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for deployment of the	movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of export cable protection across the maximum defined area, leading to the highest potential for vessel encounter/disturb ance. The maximum number of vessels transits and cable installation activity will also result in the highest level and duration of vessel and construction (non-piling) noise	517, Incremove MDS deve scen grea cons oper main dect activ deple maxi expo prote leadi highe vess num whic grea distu ornit rece

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Chapter 13: Shipping and navigation [APP-054]

and military aviation [APP-055]

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Chapter 14: Civil Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]

Chapter 16: Marine archaeology [APP-057]

Chapter 17: Socioeconomics [APP-058]

## 110,500m<sup>3</sup>

Presence of the maximum volume of cable protection in the offshore environment may reduce charted water depths creating underwater allision risk

The parameters represent the maximum volume of interconnector cable protection on the seabed and therefore the greatest increase in underwater allision risk.

7,000m<sup>2</sup> 517,000m<sup>2</sup> 517,000m<sup>2</sup> 517,000m<sup>2</sup> -reased vessel Increased vessel MDS represents The maximum vements movements the maximum assessment influence of assumptions MDS represents OS represents vessels that represent the velopment development would potentially maximum seabed enario with scenario with affect seascape, disturbance by the offshore eatest greatest landscape and nstruction, visual receptors export cable construction, erations and operations and during the export protection cable protection aintenance, and maintenance, and installation commissioning decommissioning deployment process that tivity for the activity and works. could potentially ployment of the therefore the affect marine aximum area of greatest increase heritage receptors within port cable in potential otection, encounters and the proposed collision risk for DCO Order Limits ading to the hest number of other vessels. ssels and total mber of trips, Presence of ich gives the export cable atest protection in the offshore sturbance to nithological environment may ceptors reduce charted water depths creating underwater allision risk The parameters represent the largest area of export cable

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
			MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of the maximum area of cable protection for the offshore export cables, leading to the highest potential for interference with other marine users.		of vessel and	cable protection on the export cables, leading to the highest potential for interference with commercial fishing vessels and activities. Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	marine environment.		protection on the seabed and therefore the greatest increase in underwater allision risk.				
Cable protection volume	Up to 470,000m <sup>3</sup> Draft DCO [APP- 019] Schedule 1 - Authorised Project Part 3 Requirements 5(10) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 253)	Changes to the	-	-	-	-	-	-	<ul> <li>470,000m<sup>3</sup></li> <li>Presence of the maximum volume of cable protection in the offshore environment may reduce charted water depths creating underwater allision risk</li> <li>The parameters represent the maximum volume of export cable protection on the seabed and therefore the</li> </ul>	-	-	<b>470,000m<sup>3</sup></b> As above.	-

### Maximum export cable landfall parameters

Number of HDD drills	<b>Up to four</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 3 Requirements 6(1)	<b>4</b> Increases in SSC and deposition of sediment to the seabed due to HDD drilling fluid release. MDS represents	<b>4</b> Increases in SSC and deposition of sediment to the seabed due to HDD pit excavation and drilling.	<b>4</b> Increases in SSC and deposition of sediment to the seabed due to HDD pit excavation and drilling.	<b>4</b> Increases in SSC and deposition of sediment to the seabed due to HDD pit excavation and drilling.	 <b>4</b> The ma area ar of work intertid lead to maxim disturb birds.
		the maximum volume of drilling fluid released that has been conservatively estimated as the total volume of the installed conduit.	MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to sea users.	MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to fish and	MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to benthic	

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seabed and therefore the greatest increase in underwater allision risk.

maximum a and duration orks in the tidal zone will to the imum rbance of

4

The maximum assessment assumptions represent the maximum seabed disturbance by the landfall installation process including HDD drilling at four exit pits that could potentially affect marine heritage receptors located within the proposed DCO Order Limits.

	Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
		Changes to landfall morphology due to installation and decommissioning of export cable at the landfall.		shellfish receptors.	subtidal and intertidal ecology receptors fish and shellfish receptors.								
		MDS represents the construction activities that give rise to the greatest (direct) disturbance and provide the greatest potential to interact with coastal processes responsible for maintaining the baseline form and function of the beach.											
Number of transition joint bays	<b>Up to four</b> Draft DCO <b>[APP- 019]</b> Schedule 1 - Authorised Project Part 1 The Authorised Development Work No. 8 (b)	-	-	-	-	-	-	-	-	-	-	-	-
HDD cable ducts	Up to four Draft DCO [APP- 019] Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 8 (c)		HDD works. MDS represents the maximum SSC and deposition arising	<ul> <li>A</li> <li>Increases in SSC and deposition of sediment to the seabed due to HDD works.</li> <li>MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to fish and shellfish receptors.</li> </ul>	and deposition of sediment to the seabed due to HDD works. MDS represents the maximum SSC and	-	-	-	-	-	-	<b>4</b> The maximum assessment assumptions represent the maximum seabed disturbance by the landfall installation process that could potentially affect marine heritage receptors located within the proposed DCO Order Limits.	-
HDD exit pits number	<b>Up to four</b> Draft DCO <b>[APP- 019]</b> Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 8 (a)	_	HDD pit excavation and drilling. MDS represents the maximum	<b>4</b> As above.	<b>4</b> As above.	-	-	-	-	-	-	<b>4</b> As above.	-

January 2024

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Rampion 2 Examining Authority requested additional information

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Rampion 2 parameters (location secured in DCO application)	Chapter 6: Coastal processes [APP-047]	Chapter 7: Other marine users [APP-048]	Chapter 8: Fish and shellfish ecology [APP-049]	Chapter 9: Benthic, subtidal and intertidal ecology [APP-050]	Chapter 10: Commercial fisheries [APP-051]	Chapter 11: Marine mammals [APP-052]	Chapter 12: Offshore and intertidal ornithology [APP-053]	Chapter 13: Shipping and navigation [APP-054]	Chapter 14: Civil and military aviation [APP- 055]	Chapter 15: Seascape, landscape, and visual impact assessment [APP-056]	Chapter 16: Marine archaeology [APP-057]	Chapter 17: Socio- economics [APP-058]
	greatest (direct) disturbance	from the greatest number of HDD drills, leading to the maximum potential impacts to sea users.										

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### Table 3-2 Environmental Statement onshore aspect assessment MDS parameters

	Rampion 2 parameters (location secured in DCO application)	Chapter 18: Landscape and visual impact assessment [APP-059]	Chapter 19: Air quality [APP-060]	Chapter 20: Soils and agriculture [APP-061]	Chapter 21: Noise and vibration [APP-062]	Chapter 22: Terrestrial ecology and nature conservation [APP-063]	Chapter 23: Transport [APP-064]	Chapter 24: Ground conditions [APP-065]	Chapter 25: Historic environment [APP-066]	Chapter 26: Water environment [APP-067]	Chapter 27: Major accidents and disasters [APP-068]	Chapter 28: Population and human health [APP- 069]	Chapter 29: Climate change [APP- 070]
					WTG Maximum D	esign Paramete	'S						
Maximum number of WTG	<b>90 (for smaller WTG type)</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 2(1) and Schedule 11, Part 2 condition 1(1)	-	_1	-	Two scenarios modelled for 155 turbines and 65 turbines <sup>2</sup>	-	-	-	90	-	-	-	-
Rotor diameter	<b>295m (for larger WTG type)</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 2(2)(b) and Schedule 11, Part 2 condition 1(1)	-	-	-	295m	-	-	-	-	-	-	-	-
Minimum air gap above Mean High Water Springs (MHWS)	<b>22m (for both WTG types)</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 2(2)(c) and Schedule 11, Part 2 condition 1(2)(c)	-	-	-	-	-	-	-	-	-	-	-	-
Maximum blade tip height above Lowest Astronomical Tide (LAT)	<b>325m (for larger WTG type)</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 2(2)(a) and Schedule 11, Part 2 condition 1(2)(a)	-	-	-	-	-	-	-	325m	-	-	-	-
Minimum turbine spacing	<b>830m (for both WTG types)</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 2(2)(d) and Schedule 11, Part 2 condition 1(2)d)	-	-	-	-	-	-	-	-	-	-	-	-
				Max	kimum offshore s	ubstation param	eters						
Maximum number of offshore substations	<b>Up to 3</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(1) and Schedule 12, Part 2 condition 1(1)	-	-	-	-	-	-	-	Up to 3	-	-	-	-
Topside: main structure length and width	<b>80m x 50m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(2)(b) and 3(2)(c) and Schedule 12, Part 2 condition 1(2)	-	-	-	-	-	-	-	80m x 50m	-	-	-	-
Topside: height (excluding helideck or lightning protection) T	<b>65m above LAT</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(2)(a) and Schedule 12, Part 2 condition 1(2)	-	-	-	-	-	-	-	65m above LAT	-	-	-	-
Height of lightning protection & ancillary structures	<b>115m above LAT</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(2)(a) and Schedule 12, Part 2 condition 1(2)(a)	-	-	-	-	-	-	-	115m above LAT	-	-	-	-
Diameter of monopile	<b>13.5m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(5)(b) and Schedule 12, Part 2 condition 1(5)(b)	-	-	-	-	-	-	-	-	-	-	-	-
Number of legs per multi-leg foundation (Substation)	<b>Up to 6</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(5)(a)(i) and Schedule 12, Part 2 condition 1(5)(a)	-	-	-	-	-	-	-	-	-	-	-	-
Number of pin piles per multi-	<b>Up to 12</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> '-' values have been used to represent parameters that are not integral to the aspect assessment, as explained in paragraph 3.1.5.
 <sup>2</sup> A justification for the scenarios used in the operational noise assessment is provided in paragraph 3.1.7 to paragraph 3.1.11



	Rampion 2 parameters (location secured in DCO application)	Chapter 18: Landscape and visual impact assessment [APP-059]	Chapter 19: Air quality [APP-060]	Chapter 20: Soils and agriculture [APP-061]	Chapter 21: Noise and vibration [APP-062]	Chapter 22: Terrestrial ecology and nature conservation [APP-063]	Chapter 23: Transport [APP-064]	Chapter 24: Ground conditions [APP-065]	Chapter 25: Historic environment [APP-066]	Chapter 26: Water environment [APP-067]	Chapter 27: Major accidents and disasters [APP-068]	Chapter 28: Population and human health [APP- 069]	Chapter 29: Climate change [API 070]
leg foundation (Substation)	Project Part 3 Requirements 3(5)(a)(ii) and Schedule 12, Part 2 condition 1(5)(a)												
Pin pile diameter	<b>Up to 4.5m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 3(5)(a)(iii) and Schedule 12, Part 2 condition 1(5)(a)	-	-	-	-	-	-	-	-	-	-	-	-
Scour protection volume (3 substations)	<b>65,700m<sup>3</sup></b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 4 and Schedule 12, Deemed Marine Licence Part 2 Condition 1(6)	-	-	-	-	-	-	-	-	-	-	-	-
Area of seabed take including scour protection (substations project total maximum)	<b>21,900m<sup>2</sup></b> Draft DCO <b>[APP-019]</b> Schedule 1 – Authorised Project Part 3 Requirement 4 and Schedule 12, Deemed Marine Licence Part 2 Condition 1(6)	-	-	-	-	-	-	-	-	-	-	-	-
				Мах	imum export cal	ole landfall paran	neters						
Number of HDD drills	<b>Up to four</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 6(1)	Up to four	-	Up to four	Up to four	Up to four	-	Up to four	-	Up to four	-	Up to four	-
Number of transition joint bays	<b>Up to four</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 1 The Authorised Development Work No. 8 (b)	Up to four	-	-	-	-	-	-	-	-	-	-	-
HDD cable ducts	<b>Up to four</b> Draft DCO <b>[APP-019]</b> Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 8 (c)	Up to four	-	-	-	-	-	-	-	-	-	-	-
HDD exit pits number	<b>Up to four</b> Draft DCO <b>[APP-019]</b> Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 8 (a)	Up to four	-	Up to four	Up to four	Up to four	-	Up to four	-	Up to four	-	Up to four	-
				Maxir	num onshore ca	ble corridor para	meters						
Corridor width: temporary (construction corridor width)	<b>Up to 40m</b> Outline Code of Construction Practice <b>[APP-</b> <b>224]</b> , paragraph 4.3.2.	Up to 40m	Up to 40m	Up to 40m	Up to 40m	Up to 40m	Up to 40m	Up to 40m	Up to 40m	Up to 40m	-	Up to 40m	-
Number of cables (including fibre optics) <sup>3</sup>	<b>Up to 20</b> Draft DCO <b>[APP-019]</b> Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-
Number of ducts (including fibre optics) <sup>3</sup>	<b>Up to 20</b> Draft DCO <b>[APP-019]</b> Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-
Number of trenches <sup>3</sup>	<b>Up to 4</b> Draft DCO <b>[APP-019]</b> Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-
HVAC: number of cable circuits <sup>3</sup>	<b>Up to 4</b> Draft DCO <b>[APP-019]</b> Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-

<sup>3</sup> Work No. 9 authorises up to four transmission cables and associated ducts with each transmission cable comprising cable circuits, themselves comprising up to three transmission cables and one or more auxiliary cables.

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	Rampion 2 parameters (location secured in DCO application)	Chapter 18: Landscape and visual impact assessment [APP-059]	Chapter 19: Air quality [APP-060]	Chapter 20: Soils and agriculture [APP-061]	Chapter 21: Noise and vibration [APP-062]	Chapter 22: Terrestrial ecology and nature conservation [APP-063]	Chapter 23: Transport [APP-064]	Chapter 24: Ground conditions [APP-065]	Chapter 25: Historic environment [APP-066]	Chapter 26: Water environment [APP-067]	Chapter 27: Major accidents and disasters [APP-068]	Chapter 28: Population and human health [APP- 069]	Chapter 29: Climate change [AP 070]
HVAC: number of cables <sup>3</sup>	Up to 20 individual cables (up to 2 Fibre Optic Cables in each circuit, and 12 power cables) Draft DCO [APP-019] Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-
			Join	t Bay, Link Box a	and Fibre Optic (	Cable Junction B	ox design paran	neters					
Number of JB locations	<b>Up to 66</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 7(3)	Up to 66	-	up to 66	-	-	-	Up to 66	-	-	-	-	-
Number of JBs per location	<b>Up to 4</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 7(3)	-	-	up to 4	-	-	-	Up to 4	-	-	-	-	-
Number of LBs	<b>264</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 7(4)	-	-	up to 264	-	-	-	-	-	-	-	-	-
Number of FOCJBs	<b>264</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 7(4)	-	-	up to 264	-	-	-	-	-	-	-	-	-
				Constru	uction compound	ds maximum par	ameters						
Trenchless crossing compounds (length and width)	<b>Up to 50m x 75m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 23(2)(d)	Up to 0.375ha (50m x 75m)	Up to 0.375ha (50m x 75m)	Up to 0.375ha (50m x 75m)	Up to 0.375ha (50m x 75m)	Up to 0.375ha (50m x 75m)	-	Up to 0.375ha (50m x 75m)	Up to 0.375ha (50m x 75m)	Up to 0.375ha (50m x 75m)	-	Up to 0.375ha (50m x 75m)	-
Trenchless crossing compound at landfall (length and width)	<b>Up to 120m x 100m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 23(2)(c)	Up to 1.2ha (120m x 100m)	Up to 1.2ha (120m x 100m)	Up to 1.2ha (120m x 100m)	Up to 1.2ha (120m x 100m)	Up to 1.2ha (120m x 100m)	-	Up to 1.2ha (120m x 100m)	Up to 1.2ha (120m x 100m)	Up to 1.2ha (120m x 100m)	-	Up to 1.2ha (120m x 100m)	-
				Maximu	m parameters fo	or the onshore su	Ibstation						
Permanent area of site for all infrastructure	<b>Up to 6ha</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 7(1)	Up to 6ha	Up to 6ha	Up to 6ha	-	Up to 6ha	-	Up to 6ha⁴	Up to 6ha	Up to 6ha	-	Up to 6ha	-
Maximum main building height	<b>12.5m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 8(3)(a) (now (b))	12.5m	12.5m	-	-	12.5m	-	-	12.5m	-	-	12.5m	-
Maximum height of fire walls	<b>10m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 8(3)(e) (now (f))	10m	-	-	-	-	-	-	10m	-	-	10m	-
Lightning protection mast height	<b>18m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 8(3)(d) (now (e))	18m	-	-	-	18m	-	-	18m	-	-	18m	-
Maximum number of buildings	<b>12</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 8(3)(a)	12	12	-	-	12	-	-	12	-	-	12	-
Maximum length building	<b>70m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 8(3)(b) (now (c))	70m	-	-	-	-	-	-	70m	-	-	70m	-

<sup>&</sup>lt;sup>4</sup> Table 24-13 in Chapter 24: Ground conditions, Volume 2 of the ES [APP-065] states 12ha as this also includes non-permanent site areas such as drainage and landscaping as shown in the Indicative landscape plan presented in the Design and Access Statement [AS-003].

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	Rampion 2 parameters (location secured in DCO application)	Chapter 18: Landscape and visual impact assessment [APP-059]	Chapter 19: Air quality [APP-060]	Chapter 20: Soils and agriculture [APP-061]	Chapter 21: Noise and vibration [APP-062]	Chapter 22: Terrestrial ecology and nature conservation [APP-063]	Chapter 23: Transport [APP-064]	Chapter 24: Ground conditions [APP-065]	Chapter 25: Historic environment [APP-066]	Chapter 26: Water environment [APP-067]	Chapter 27: Major accidents and disasters [APP-068]	Chapter 28: Population and human health [APP- 069]	Chapter 29: Climate change [APP- 070]
Maximum width of building	<b>20m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 8.(3)(c) (now (d))	20m	-	-	-	-	-	-	20m	-	-	20m	-
			Мах	timum parameter	rs for the extens	ion to Bolney Na	tional Grid subs	tation					
Permanent area of site for all infrastructure	<b>0.63</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 7(2) (expressed as m <sup>2</sup> )	0.63ha	0.63ha	0.63ha	-	0.63ha	-	0.63ha	0.63ha	0.63ha	-	0.63ha	-
Maximum building height	<b>12m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 9(3)(b)	12m	12m	-	-	12m	-	-	12m	-	-	12m	-
Maximum number of buildings	<b>2</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 9(3)(a)	2	2	-	-	2	-	-	2	-	-	2	-
Maximum length building	<b>35m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 93)(d)	35m	-	-	-	-	-	-	35m	-	-	35m	-
Maximum width of building	<b>20m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 9(3)(e)	20m	-	-	-	-	-	-	20m	-	-	20m	-
Maximum height of other infrastructure	<b>12m</b> Draft DCO <b>[APP-019]</b> Schedule 1 - Authorised Project Part 3 Requirements 9(3)(f)	12m	-	-	-	12m	-	-	12m	-	-	12m	-

3.1.6 Additional justification is provided in the following sections for where MDS parameters have been utilised in the aspect assessments that differ from those stated in Appendix 4.3: Proposed Development Parameters, Volume 4 of the ES [APP-124].

#### Chapter 21: Noise and vibration

- 3.1.7 The noise and vibration assessment utilised the MDS parameters stated in Appendix 4.3: Proposed Development Parameters, Volume 4 of the ES [APP-124] except for the preliminary predicted operational noise assessment provided in Appendix 21.4: Preliminary operational noise predictions, Volume 4 of the ES [APP-178].
- 3.1.8 The purpose of this assessment was to indicate the extent of the worst-case operational noise levels. As the final number and positions of the WTGs were not known at the time of the assessment, a series of worst-case models was developed to predict worst-case noise levels at positions along the shoreline. Four modelling scenarios were considered within the assessment and are summarised below:
  - Scenario 1 (Rampion 2 only): 155no. Vestas V295.
  - Scenario 2 (Rampion 2 only): 65no. Vestas V295 + 90no. Siemens SG DD 222.
  - Scenario 3 (Rampion 1 & 2): 116no. Vestas V112 + 155no. Vestas V295.
  - Scenario 4 (Rampion 1 & 2): 116no. Vestas V112 + 65no. Vestas V295 + 90no. Siemens SG DD 222.
- 3.1.9 The Rampion 2 modelling scenarios utilised two different types of proposed WTGs which were reflective of two different hub-heights (Scenario 1 considers one WTG type, and Scenario 2 considers two WTG types). The Rampion 1 & 2 scenarios considered both the Rampion 2 scenarios in combination with the existing Rampion 1 WTGs. The final design of Rampion 2 has significantly fewer WTGs than the scenarios modelled for this assessment and therefore, the assessment forms a conservatively high estimate of noise levels.
- 3.1.10 The assessment concludes that operational noise levels of Rampion 2 are expected to comply with the applicable noise limits when using the conservative number of WTG. As a result of this, the assessment utilising the conservatively high estimate of WTGs (that is greater than the project parameters) was presented to show that operational noise levels are unlikely to result in a significantly effect.

### Chapter 27: Major accidents and disasters

3.1.11 The approach proposed at Scoping was to scope out the detailed assessment of Major Accident and Disasters as no likely significant effects were anticipated. The PEIR (Rampion Extension Development (RED), 2021) and ES has presented information which describes the potential accident and disaster scenarios, and the embedded environmental measures through which it is ensured that the risk will



not be significant. The primary embedded environmental measures will serve to implement a risk management framework through the design and operational phases of the Proposed Development which ensure that the risk of all major accident and disaster scenarios are reduced to As Low As Reasonably Possible (ALARP). These measures are not sensitive to individual parameters in the MDS. Due to this, **Table 3-2** shows '-' values for each of the project parameters.

### 4. Request 3: Possible number of Wind Turbine Generator options

4.1.1 As stated in Chapter 4: The Proposed Development, Volume 2 of the ES [APP-045], WTG technology is continually evolving, and it is difficult to definitively predict the generating capacity and size of WTG that will be commercially available at the point of procurement for construction. As such, the size and capacity of the WTGs for the Proposed Development will be determined during the final design stage prior to construction. The final WTG design will be selected in accordance with the parameters set out in the DCO. The MDS for the WTG was provided in Chapter 4: The Proposed Development, Volume 2 of the ES [APP-045] and draft Development Consent Order [APP-019], this is shown in Table 4-1 and illustrated in Graphic 4-1. Graphic 4-1 shows the MDSs, a mid-range WTG number option between the two scenarios as well as the current largest rotor model available on the market suitable for the 90 WTG option.

Assessment assumption or parameter	Smaller WTG Type	Larger WTG Type
	(Parameters presen	nted in bold text)
Maximum number of WTG	90	65
Rotor diameter	250m	295m
Minimum air gap above Mean High Water Springs (MHWS)	22m	22m
Maximum blade tip height above Lowest Astronomical Tide (LAT)	285m	325m
Maximum Chord (blade width)	9m	11m
Maximum RPM	7.6 RPM	5.9 RPM
Minimum to Maximum Blade pitch	-4 to 90 degrees	-4 to 90 degrees

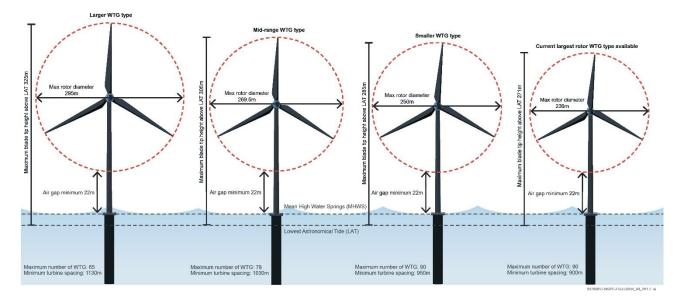
#### Table 4-1 WTG maximum design assessment assumptions and parameters<sup>5</sup>

<sup>&</sup>lt;sup>5</sup> Where relevant, **bold** text indicates a parameter outlined in the DCO.



Assessment assumption or parameter	Smaller WTG Type	Larger WTG Type
Minimum WTG spacing <sup>6</sup>	950m	1,130m
Total rotor swept area	4,450,000.00m <sup>2</sup>	4,450,000.00m <sup>2</sup>

#### Graphic 4-1 Illustration of WTG options within the maximum design scenario



As is common for all offshore wind farms, the final choice of WTG and therefore 4.1.2 the final capacity of the Proposed Development will be subject to a procurement exercise carried out post-consent. The assessment presented in the ES therefore considered two WTG typologies based on the characteristics of WTG models which are expected to be available at that future stage. These have been described throughout the ES as a "smaller WTG type" and "larger WTG type", and the assessment considered two design scenarios based on up to 90 smaller WTG type turbines or 65 larger WTG type turbines. The maximum rotor diameter and blade tip height quoted in **Table 4-1** for the larger WTG type, or the maximum number of WTGs quoted Table 4-1 in for the smaller WTG type will not be exceeded, regardless of the choice of WTG in the final Proposed Development. Table 4-2 presents the rotor diameter size available for the number of WTG options within the maximum design scenario and the total swept area. The maximum total swept area is 4,450,000.00m<sup>2</sup> and this will not be exceeded, regardless of the choice of WTG in the final Proposed Development.

<sup>&</sup>lt;sup>6</sup> Minimum turbine spacing at 950m represents the minimum spacing for this scenario, however for the purposes of the EIA, and specified within the DCO, a minimum of 830m has been used to provide for the possibility of smaller WTGs being employed; note, other relevant assessment parameters of such a scenario would not exceed those presented here, importantly including the maximum of 90 WTGs.

4.1.3 The Applicant is committed to utilising one size of WTG throughout the Proposed Development, and this has been incorporated into the draft Development Consent Order [APP-019] (see Schedule 1 – Authorised Project Part 3 Requirements 2.(2)(d)), as updated for the Procedural Deadline A submission. Therefore combinations of differing WTG diameters will not be undertaken. Due to this Table 4-2 presents the maximum rotor swept area for each WTG number option that are feasible within the parameters outlined in the draft DCO.

### Table 4-2Maximum rotor diameter and total swept area for each given number ofWTG options proposed in the draft DCO

Number of WTG	Rotor Diameter (m)	Total Swept Area (m <sup>2</sup> )
90	236.0	3,936,918.25
90	250.0	4,417,864.67
89	252.3	4,450,000.00
88	253.7	4,450,000.00
87	255.2	4,450,000.00
86	256.7	4,450,000.00
85	258.2	4,450,000.00
84	259.7	4,450,000.00
83	261.3	4,450,000.00
82	262.9	4,450,000.00
81	264.5	4,450,000.00
80	266.1	4,450,000.00
79	267.8	4,450,000.00
78	269.5	4,450,000.00
77	271.3	4,450,000.00
76	273.0	4,450,000.00
75	274.9	4,450,000.00
74	276.7	4,450,000.00
73	278.6	4,450,000.00

# vsp

Number of WTG	Rotor Diameter (m)	Total Swept Area (m <sup>2</sup> )
72	280.5	4,450,000.00
71	282.5	4,450,000.00
70	284.5	4,450,000.00
69	286.6	4,450,000.00
68	288.7	4,450,000.00
67	290.8	4,450,000.00
66	293.0	4,450,000.00
65	295.0	4,442,702.89

## 5. Glossary and terms of abbreviations

Term (abbreviation)	Definition
ALARP	As low as reasonably possible
CMS	Construction Method Statement
CoCP	Code of Construction Practice
Development Consent Order (DCO)	This is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects, under the Planning Act 2008.
Environmental Statement (ES)	The written output presenting the full findings of the Environmental Impact Assessment.
FOCs	Fibre Optic Cables
Lowest Astronomical Tide (LAT)	The lowest tide levels that can be predicted to occur under average meteorological conditions.
Maximum Design Scenario (MDS)	The maximum design scenario represents the worst-case scenario for each aspect whilst allowing the flexibility to make improvements in the future in ways that cannot be predicted at the time of submission of the DCO Application.
Mean High Water Springs (MHWS)	The average throughout the year, of two successive high waters, during a 24-hour period in each month when the range of the tide is at its greatest.
Mean Sea Level (MSL)	The sea level hallway between the mean levels of high and low water.
Preliminary Environmental Information Report (PEIR)	The written output of the Preliminary Environmental Impact Assessment undertaken for the Proposed Development. It was developed to support Statutory Consultation and presented the preliminary findings of the assessment to allow an informed view to be developed of the Proposed Development, the assessment approach that was undertaken, and the preliminary conclusions on the likely significant effects of the Proposed Development and environmental measures proposed.
RPM	Rotations Per Minute
Wind Turbine Generators (WTG)	The components of a wind turbine, including the tower, nacelle, and rotor.

## 6. References

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