Rampion 2 Wind Farm

Category 8: Examining Authority requested additional information

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Contents

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.

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

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.

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.

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

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 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):

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

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 2-2 Project Parameters used for calculation of WTG frontal areas below 100m

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

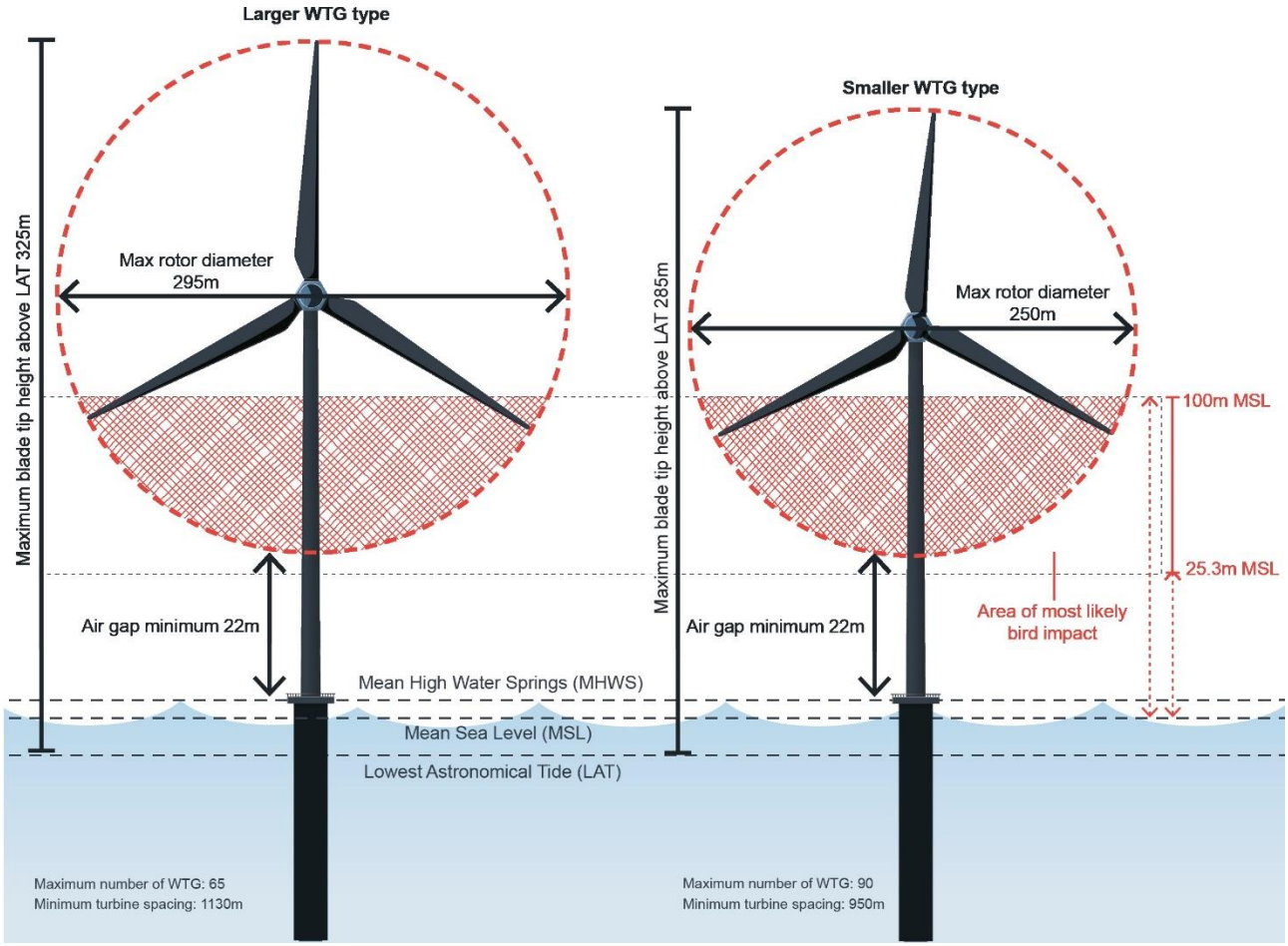
2.2.5 Using the above calculation and relevant input parameters presented in **Table 2-2**, the total frontal WTG area below 100m is provided for each WTG scenario in **Table 2-3**. Worked examples of the calculation are also provided in **Section 2.3**.

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 2-3 Calculated WTG frontal areas below 100m

Parameter	WTG Scenario	
	Smaller WTG Type	**Large WTG Type**
Total frontal WTG area below 100m (MSL) per WTG (m^2)	12,316.8	13,605.6
Total frontal WTG area below 100m (MSL) for the entire array (m^2)	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

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

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

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

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

3.1 Justification for maximum design scenario parameters

3.1.1 As described in **Chapter 5: Approach to the EIA, Volume 2** of the Environmental 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**.

Table 3-1 Environmental Statement offshore aspect assessment MDS parameters

	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]
WTG Maximum Design Parameters													
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)	**65** Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation. **65** Changes to the tidal regime, wave regime and seabed due to presence, and subsequent removal, of windfarm infrastructure **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. *(Note: it is foundation structures that are of relevance for Coastal Processes assessments - for MDS justification summaries, see relevant cells below).*	**90** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity. **65** Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation. **90** 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. **65** Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure **90** Increases in underwater noise (maximum energy to marine environment and maximum temporal scenario). **65** Increases in	**65** Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation. **90** 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. **65** Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure **90** Increases in underwater noise due to greatest construction activity (vessel and construction noise (non-piling)) and piling noise (temporal scenario). **65** Increases in 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*	**65** Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation. **90** 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. **65** Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure **90** Increases in underwater noise due to greatest construction activity (vessel and construction noise (non-piling)) and piling noise (temporal scenario). **65** Increases in 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*	**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 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.	**65** The use of the larger WTGs is likely to result in the loudest noise from operational WTGs. **90** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity leading to the highest potential for vessel encounter/disturbance. Increases in underwater noise (maximum energy to marine environment and maximum temporal scenario).	**90** The greatest number of vessels and greatest total number of trips will lead to the greatest disturbance to ornithological receptors. 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.	**90** MDS represents the maximum number of structures giving rise to 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.	**65** Maximum number of the tallest WTGs, **90** or Maximum number of WTGs for the Proposed Development. MDS for both 90 and 65 WTG structures present a worst case for aviation, and both have been assessed for all impacts.	**65** WTGs with the highest 325m blade tip height 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. The larger 325m blade tip WTG will also result in a greater scale contrast with the existing Rampion 1 WTGs, at 140m blade tip height. The potential effect that results from additional WTGs of smaller size is considered to be outweighed by the larger height and scale of the 325m WTGs, with the overall area occupied by WTGs being equal.	**90** Construction activity MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity. **65** Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for foundation installation. **90** 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. **65** 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 largest-possible 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)	-	-	-	-	-	-	**250m** As above. *(Note: MDS is linked to the maximum rotor-swept area (4.45km²) for collision risk to ornithological receptors:* Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 2(1)(b) and Schedule 11, Part 2 condition 1(1).	-	**295m** Creation of aviation obstacle environment for 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. **250m** 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.	**295m** As above.	-	**295m** 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)	-	-	-	-	-	-	**22m** As above.	**22m** as above	-	-	-	-
Maximum blade tip height above Lowest	**325m (for larger WTG type)** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3	-	-	-	-	-	-	**285m** As above.	-	**325m** Creation of aviation obstacle environment for	**325m** As above.	-	**325m** As above.

	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]
Astronomical Tide (LAT)	Requirements 2(2)(a) and Schedule 11, Part 2 condition 1(2)(a)									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.			
Minimum turbine spacing	**830m (for both WTG types)** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 2(2)(d) and Schedule 11, Part 2 condition 1(2)(d)	**1130m** Changes to the tidal regime, wave regime and seabed scour due to presence of windfarm infrastructure. *(Note: it is foundation structures of relevance for Coastal Processes assessments; MDS represents closest spacing of maximum number of multi-leg, 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 the site and the greatest increase in allision risk for other sea users. **1130m** Changes to the tidal regime, wave regime and seabed scour due to presence of windfarm infrastructure. MDS represents closest spacing of maximum number of multi-leg 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.	-	-	**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 WTG monopile foundation parameters													
Diameter of monopile	**13.5m (for larger WTG type)** Draft DCO **[APP-019]** 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.	**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. Increases in underwater noise MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole (65 WTG) project).	**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. Increases in underwater noise MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole (65 WTG) project).	**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. Increases in underwater noise MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole (65 WTG) project).	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	**13.5m** Increases in underwater noise MDS equates to the greatest spatial effect from subsea noise for single piling event and maximum concurrent spatial extent. **10m** Increases in underwater noise MDS represents maximum total energy emitted into the marine environment (for 90 smaller WTG development scenario).	-	-	-	-	-	-
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.	**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. **65** Increases in underwater noise (maximum spatial area (total)). MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole (65 WTG) project).	**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. **65** Increases in underwater noise (maximum spatial area (total)). MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole (65 WTG) project).	**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. **65** Increases in underwater noise (maximum spatial area (total)). MDS equates to the greatest spatial effect from subsea noise for single piling event and total (whole (65 WTG) project).	**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 MDS represents	**90** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity leading to the highest potential for vessel encounter/disturbance. Increases in underwater noise MDS of 90 monopiles represents maximum total energy emitted into the marine environment.	-	**90** MDS represents the maximum number of structures giving rise to 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.	-	-	-	-

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]
		90 Increases in vessel movements and impacts to sea area access. 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. 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. **I**ncreases in underwater noise. MDS represents maximum energy introduced into the marine environment.	**90** Increases in vessel movements and construction activities (non-piling) generating noise and vibration. MDS represents the maximum number of structures and therefore the greatest increase in construction and decommissioning activities. The maximum number of WTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel movements and construction work (non-piling) generating noise.	**90** Increases in vessel movements and construction activities (non-piling) generating noise and vibration. MDS represents the maximum number of structures and therefore the greatest increase in construction and decommissioning activities. The maximum number of WTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel movements and construction work (non-piling) generating noise.	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 - Authorised Project Part 3 Requirements 2(5)(a)(i) (pin piles) and 2(5)(b)(i) (suction bucket) and Schedule 11, Part	-	**4** 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	**4** 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	**4** 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	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	**4** 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	-	-	-	**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	-	-

	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)	-	**4** 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	**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).	-	-	-	-	-	-
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)	-	**4.5m** Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	**4.5m** Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	**4.5m** 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	**4.5m** Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	-	-	-	-	-	-
Maximum WTG multi-leg foundation with suction buckets foundation parameters													
Number of legs per WTG	**Up to 4 (for both WTG types)** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 2(5)(b)(i) and	**4** Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior	**4** Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior	**4** Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior	**4** 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	-	-	-	-	**4** The maximum design scenario for the SLVIA assumes that the foundation substructure design will be a 4-legged jacket	**4** The maximum assessment assumptions represent the maximum seabed disturbance by the WTG foundation	-

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)	to installing 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 installing 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 installing multileg foundations, and subsequent removal. MDS represents the highest number of legs with suction buckets 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 placement of structures, scour protection and cable protection arising from the largest number of legs per multi-leg jacket foundation with suction buckets.	to installing multileg foundations, and subsequent removal. MDS represents the highest number of legs with suction buckets 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 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)	**15m** 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.	**15m** 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.	**15m** 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.	**15m** 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	-	-	-	-	-	**15m** As above.	-

	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)	**90** 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. 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. **65** Changes to the	**90** 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. 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. Increases in vessel	**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	-	-	**90** MDS represents the maximum number of structures giving rise to 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.	-	-	**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.	-

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]
	tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure). MDS represents the greatest total blockage width to waves and currents	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 access restriction and collision or allision risk for other sea users. **65** Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure. MDS represents the greatest total blockage width to waves and currents			established 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 ecology.							
Scour protection volume (WTG project total maximum)	**Up to 1,215,000 m^3** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 2(6) and Schedule 11 Deemed Marine Licence Part 2 Condition 1(6)	**1,215,000m^3** 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 waves.	**1,215,000m^3** 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 waves.	-	-	-	-	-	-	-	-	-	-
Area of seabed take	**Up to 405,000 m^2** Draft DCO **[APP-**	**405,000m^2** Changes to the	**405,000m^2** Changes to the	**405,000m^2** The maximum	**405,000m^2** The maximum	-	-	-	-	-	-	**405,000m^2** The maximum	-

	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)	**019]** 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 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.	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 offshore substation parameters													
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)	**3** Changes in SSC and deposition of disturbed sediments due to drilling for foundation installation of infrastructure (monopile foundations). 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. 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*	**3** Changes in SSC and deposition of disturbed sediments due to drilling for foundation installation of infrastructure. 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. Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure. *(Note: for these MDSs, it is foundation structures that are of relevance*	**3** Changes in SSC and deposition of disturbed sediments due to drilling for foundation installation of infrastructure. 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. Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure. *(Note: for these MDSs, it is foundation structures that are of relevance*	**3** Changes in SSC and deposition of disturbed sediments due to drilling for foundation installation of infrastructure. 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. Changes to the tidal regime, wave regime and seabed scour due to presence and subsequent removal of windfarm infrastructure. *(Note: for these MDSs, it is foundation structures that are of relevance*	**3** 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 MDS represents the maximum number of structures giving rise to the greatest	**3** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity leading to the highest potential for vessel encounter/ disturbance. Increases in underwater noise MDS represents maximum total energy emitted into the marine environment with respect to OSS foundation installation.	**3** The greatest number of OSS structures will lead to the greatest number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors.	**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.	**3** Maximum physical obstruction to aviation operations due to size and number of above sea level infrastructure within the Rampion 2 array area of the proposed DCO Order Limits.	**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.	-

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).	*for assessments as set out in 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 access restriction and collision or allision risk for other sea users. Increases in underwater noise. 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 project), greatest spatial impact at any one time (multi-legs with pin-piles: simultaneous piling), maximum spatial extent (monopile; single event), and maximum spatial extent (monopile; whole project).	*for assessments as set out in 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 access restriction and collision or allision risk for other sea users. Increases in underwater noise. 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 project), greatest spatial impact at any one time (multi-legs with pin-piles: simultaneous piling), maximum spatial extent (monopile; single event), and maximum spatial	*for assessments as set out in 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 access restriction and collision or allision risk for other sea users. Increases in underwater noise. 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 project), greatest spatial impact at any one time (multi-legs with pin-piles: simultaneous piling), maximum spatial extent (monopile; single event), and maximum spatial	restriction to fishing grounds increase in allision risk for both powered and drifting vessels.							

	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)	-	-	-	-	-	-	-	**80m x 50m** As above.	-	**80m x 50m** As above.	-	-
Topside: height (excluding helideck or lightning protection) T	**65m above LAT** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 3(2)(a) and Schedule 12, Part 2 condition 1(2)	-	-	-	-	-	-	-	-	-	**65m** As above.	-	-
Height of lightning protection & ancillary structures	**115m above LAT** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 3(2)(a) and Schedule 12, Part 2 condition 1(2)(a)	-	-	-	-	-	-	-	-	-	**115m** As above.	-	-
Diameter of monopile	**13.5m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 3(5)(b) and Schedule 12, Part 2 condition 1(5)(b)	-	**13.5m** 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).	**13.5m** 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).	**13.5m** 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).	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	**13.5m** 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)	**Up to 6** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 3(5)(a)(i) and Schedule 12, Part 2 condition 1(5)(a)	**6** Changes to 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	**6** Changes to 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	**6** Changes to 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	**6** Changes to 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	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).	-	-	-	**6** 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	**6** 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	-

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). Changes in SSC and deposition of disturbed sediments to the seabed due to dredging for seabed preparation prior to installing multileg foundations. 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. 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 foundation structures for OSSs, which presents the greatest total blockage width to waves and currents).	(multi-leg foundations with pin-piles). 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. 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. 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 foundation structures for OSSs, which presents the greatest total blockage width to waves and currents). 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), greatest	(multi-leg foundations with pin-piles). 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. 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. 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). Long-term loss of habitat and increased hard substrate and structural complexity due to the presence of OSS foundations. The maximum design scenario is defined by the maximum area of seabed lost as a result of the placement of structures, scour protection and cable protection.	(multi-leg foundations with pin-piles). 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. 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. 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). Long-term loss of habitat and increased hard substrate and structural complexity due to the presence of OSS foundations. The maximum design scenario is defined by the maximum area of seabed lost as a result of the placement of structures, scour protection and cable protection.					worst-case for visual impacts.	receptors located in the Array area.	

	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]
			spatial impact at any one time (multi-legs with pin-piles: simultaneous piling).										
Number of pin piles per multi-leg foundation (Substation)	**Up to 12** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 3(5)(a)(ii) and Schedule 12, Part 2 condition 1(5)(a)	**12** Suspended sediment concentrations (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 (multi-leg foundations with pin-piles).	**12** Suspended sediment concentrations (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 (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).	**12** As Above	**12** As Above	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	**12** As above.	-	-	-	-	-	-
Pin pile diameter	**Up to 4.5m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 3(5)(a)(iii) and Schedule 12, Part 2 condition 1(5)(a)	**4.5m** Suspended sediment concentrations (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	**4.5m** Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling. Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for	**4.5m** Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling. Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for	**4.5m** Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling. Suspended sediment concentrations (SSC) and deposition of disturbed sediments due to drilling for	Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	**4.5m** Increases in underwater noise. MDS represents the largest diameter pin piles for multi-leg foundations that require piling.	-	-	-	-	-	-

	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).	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).								
Scour protection volume (3 substations)	**Up to 65,700m^3** 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^3** 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 mutli-leg foundation structures; the combination of foundation type, dimensions and number presents the greatest total blockage width to coastal processes.	**65,700m^3** 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 OSS mutli-leg foundation structures; the combination of foundation type, dimensions and number presents the greatest total blockage width to coastal processes.	-	-	-	-	-	-	-	-	-	-
Maximum array cable parameters													
Total length of array cables	**250km** Draft DCO **[APP-019]** 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.	**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. Disturbance and impact footprint on seabed	**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. Disturbance and impact footprint on seabed	**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. Disturbance and impact footprint on seabed	**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. Increased vessel	**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 maximum number	**250km** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for installation of the maximum length of array cable, leading to the highest number of vessels and total number of trips, which gives the	**250km** 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 array	-	**250km** MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the inter-array 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.	-

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 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. 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 the maximum duration of the construction will result in the greatest potential for interference with other sea users.	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.	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	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.	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.				
Maximum offshore interconnector cable parameters												
Number of cables	**Up to 2** Draft DCO **[APP-019]** Schedule 1 Authorised Project, Part 1 The Authorised Development, Work 3(b) Schedule 12 - Deemed Marine Licence Part 1	**2** Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning. MDS represents	**2** Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning. MDS represents	**2** Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning. MDS represents	**2** Increases in SSC and deposition of disturbed sediments to the seabed due to cable installation and decommissioning. MDS represents	**2** Reduction in access to, or exclusion from established fishing grounds MDS represents the maximum extent of reduction in	**2** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and	**2** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and	**2** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and	-	**2** 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 inter-connector cable installation process that	-

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.	the greatest likely local and total volume, and local rate of sediment disturbed by cable 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 number of interconnector cables. 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 the maximum duration of the construction will result in the greatest potential for interference with other sea users.	the greatest likely local and total volume, and local rate of sediment disturbed by cable 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 number of interconnector cables. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest number of interconnector cables from 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 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 construction (non-piling) noise emitted to the marine environment.	the greatest likely local and total volume, and local rate of sediment disturbed by cable 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 number of interconnector cables. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest number of interconnector cables from 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 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 construction (non-piling) noise emitted to the marine environment.	access to or exclusion from fishing grounds due to the placement of the maximum number of interconnector cables. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the maximum number of interconnector 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	decommissioning activity for the maximum number of interconnector cables, leading to the highest potential for vessel encounter/disturbance. 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.	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.	

	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]
Total cable length	**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 MDS represents the greatest likely local and total 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.	**40km** 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. 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. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest length of interconnector cables from 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 length of interconnector cables. The maximum number of vessels transits and cable installation	**40km** 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. 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. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest length of interconnector cables from 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 length of interconnector cables. The maximum number of vessels transits and cable installation	**40km** 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 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 commercial fishing vessels and activities. Assessment based on MDS for noise impacts on fish stocks as 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/disturbance. 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.	**40km** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for installation of the maximum length of interconnector cables, leading to the highest number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors.	**40km** 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 interconnector cable protection in the offshore environment may reduce charted water depths creating underwater allision risk The parameters represent the largest length of interconnector cables on the seabed and therefore the greatest increase in underwater allision risk	-	**40km** MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the interconnector cable works.	**40km** 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 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]
				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 export cable assessment 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)	**4** 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.	**4** 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 number of HVAC offshore export cables. 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 interference with other marine users.	**4** 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. 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 number of export cables. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest number of export cables from which EMF would be generated. Increased vessel movements MDS represents the greatest level of construction activities and therefore highest level of	**4** 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. 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 number of export cables. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest number of export cables from which EMF would be generated. Increased vessel movements MDS represents the greatest level of construction activities and therefore highest level of	**4** 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 number of export cables. 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 interference with commercial fishing vessels and activities. Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	**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/disturbance. 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** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for installation of the maximum number of export cables, leading to the highest number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors.	**4** 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 export cable protection in the offshore 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.	-	**4** MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the export cable works.	**4** The maximum assessment assumptions represent the maximum seabed disturbance by the offshore export 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 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]
				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.	**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. 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 HVAC offshore export cables. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the	**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. 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 export cables. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest length of export cables from which EMF would be generated.	**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. 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 export cables. Electromagnetic field (EMF) impacts arising from cables MDS is associated with the greatest length of export cables from which EMF would be generated.	**170km** 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 export cables. 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 interference with commercial fishing vessels and activities. Assessment based on MDS for noise impacts on fish stocks as defined by Fish and shellfish ecology	**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/disturbance. 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.	**170km** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for installation of the maximum length of export cables, leading to the highest number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors	**170km** 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 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.	-

	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 length of export cables, leading to the highest potential for interference with other marine users.	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 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 environment.	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 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 environment.								
Maximum array cable installation parameters													
Cable protection area	**Up to 300,000m²** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(3) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(2)	**300,000m²** 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 Array cable protection, which presents the greatest total blockage to coastal processes.	**300,000m²** 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 Array cable protection, 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 array cable protection Increased vessel movements	**300,000m²** 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. 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 amount of cable protection material. The maximum number of vessels transits and cable protection deployment activity will result in the highest	**300,000m²** 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. 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 amount of cable protection material. The maximum number of vessels transits and cable protection deployment activity will result in the highest	**300,000m²** 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 area of cable protection on the array cables. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for deployment of the maximum area of cable protection	**300,000km²** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of array cable protection across the maximum defined area, leading to the highest potential for vessel encounter/disturbance. 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	**300,000m²** Increased vessel movements 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 number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors	**300,000m²** 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 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	-	**300,000m²** MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the array cable protection deployment works.	**300,000m²** 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.	-

	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^3** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(3) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(2)	**175,000m^3** Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum scour protection volume used for Array cables, which presents the greatest total blockage to coastal processes.	-	-	-	-	-	-	-	-	-	-	-
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)	**4** 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	**4** 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 Disturbance and impact footprint on seabed MDS is defined by the maximum number of cable crossings and potential for	**4** Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed lost as a result of the installation of the greatest number of cable crossings. 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	**4** Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed lost as a result of the installation of the greatest number of cable crossings. 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	**4** 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 number of cable crossings. Increased vessel movements MDS represents development scenario with greatest construction,	**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/disturbance. The maximum number of vessels transits and cable installation activity will also result in the	**4** 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 number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors	**4** 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 cable crossings in the offshore environment may reduce charted water depths creating underwater	-	**4** MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the installation of cable crossings.	**4** 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.	-

	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]
			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.	operations and maintenance, and decommissioning activity for installation of the maximum number of cable crossings, 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	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 10,000m²** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(5) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(4)	**10,000m²** 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.	**10,000m²** 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. Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed subject to cable crossings and associated protection and potential for impacts to arise on third parties. Increased vessel movements MDS represents development scenario with greatest construction,	**10,000m²** Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed lost as a result of the installation of cable crossings. Increased vessel movements 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 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.	**10,000m²** Disturbance and impact footprint on seabed MDS is defined by the maximum area of seabed lost as a result of the installation of cable crossings. Increased vessel movements 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 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.	**10,000m²** 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 area of cable crossings. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for installation of the maximum area of cable crossings, leading to the highest potential for interference with commercial fishing vessels and activities. Assessment based on MDS	**10,000m²** 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/disturbance. 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.	**10,000m²** 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	**10,000m²** 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 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.	-	**10,000m²** 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.	**10,000m²** 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.	-

	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]
			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^3** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(6) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(5)	**10,000m^3** Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum volume of pre-lay rock berm, which presents the greatest total blockage to coastal processes.	-	-	-	-	-	-	**10,000m^3** 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.	-	-	-	-
Cable/pipe crossings: post-lay rock berm volume	**Up to 10,000m^3** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(6) and Schedule 11 - Deemed Marine Licence Part 2 Conditions 2(5)	**10,000m^3** Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum	-	-	-	-	-	-	**10,000m^3** Presence of the post-lay rock berm for cable crossings in the offshore environment may reduce charted water depths creating underwater	-	-	-	-

	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]
		volume of post-lay rock berm, which presents the greatest total blockage to coastal processes.							allision risk The parameters represent the maximum area subject to cable crossings on the seabed and therefore the greatest increase in underwater allision risk.				
Maximum offshore interconnector cable installation parameters													
Cable protection area	**Up to 122,000m²** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(8) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 2(3)	**122,000m²** Changes to the 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 interconnector cables, which presents the greatest total blockage to coastal processes.	**122,000m²** Changes to the 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 interconnector 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 interconnector cable protection. 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 protection for the offshore interconnector cables, leading to the highest	**122,000m²** 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. 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 amount of cable protection material. 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.	**122,000m²** 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. 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 amount of cable protection material. 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.	**122,000m²** 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 area of cable protection on the interconnector cables. Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for deployment of the maximum area of cable protection on the interconnector 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	**122,000m²** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of interconnector cable protection across the maximum defined area, leading to the highest potential for vessel encounter/disturbance. 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.	**122,000m²** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of the maximum area of interconnector cable protection, leading to the highest number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors	**122,000m²** 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 interconnector cable protection in the offshore environment may reduce charted water depths creating underwater allision risk The parameters represent the largest area of interconnector cable protection on the seabed and therefore the greatest increase in underwater allision risk.	-	**122,000m²** MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the interconnector cable protection deployment works.	**122,000m²** The maximum assessment assumptions represent the maximum seabed disturbance by the offshore inter-connector 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]	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]
			potential for interference with other marine users.			and shellfish ecology							
Cable protection volume	**Up to 110,500m^3** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(8) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 2(3)	**110,500m^3** Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum volume of cable protection for the interconnector cables, which presents the greatest total blockage to coastal processes.	-	-	-	-	-	-	**110,500m^3** 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.	-	-	-	-

Maximum export cable installation parameters

Cable protection area	**Up to 517,000m^2** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(10) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 2(5)	**517,000m^2** Changes to the 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.	**517,000m^2** Changes to the 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. Increased vessel movements	**517,000m^2** 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. 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 amount of cable protection material. The maximum number of vessels transits and cable protection deployment activity will result	**517,000m^2** 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. 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 amount of cable protection material. The maximum number of vessels transits and cable protection deployment activity will result	**517,000m^2** 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 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 maximum area of	**517,000m^2** Increased vessel 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/disturbance. 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	**517,000m^2** Increased vessel movements MDS represents development scenario with greatest construction, operations and maintenance, and decommissioning activity for the deployment of the maximum area of export cable protection, leading to the highest number of vessels and total number of trips, which gives the greatest disturbance to ornithological receptors	**517,000m^2** 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 export cable protection in the offshore environment may reduce charted water depths creating underwater allision risk The parameters represent the largest area of export cable	-	**517,000m^2** MDS represents the maximum influence of vessels that would potentially affect seascape, landscape and visual receptors during the export cable protection deployment works.	**517,000m^2** The maximum assessment assumptions represent the maximum seabed disturbance by the offshore export 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]	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.	in the highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.	in the highest level and duration of vessel and construction (non-piling) noise emitted to the marine environment.	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 470,000m³** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 5(10) and Schedule 12 - Deemed Marine Licence Part 2 Conditions 253)	**470,000m³** Changes to the tidal regime, wave regime and seabed scour due to presence and removal of windfarm infrastructure. MDS represents the maximum volume of cable protection for the export cables, which presents the greatest total blockage to coastal processes.	-	-	-	-	-	-	**470,000m³** 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 export cable protection on the seabed and therefore the greatest increase in underwater allision risk.	-	-	**470,000m³** As above.	-
Maximum export cable landfall parameters													
Number of HDD drills	**Up to four** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 6(1)	**4** Increases in SSC and deposition of sediment to the seabed due to HDD drilling fluid release. MDS represents the maximum volume of drilling fluid released that has been conservatively estimated as the total volume of the installed conduit.	**4** Increases in SSC and deposition of sediment to the seabed due to HDD pit excavation and drilling. MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to sea users.	**4** Increases in SSC and deposition of sediment to the seabed due to HDD pit excavation and drilling. MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to fish and	**4** Increases in SSC and deposition of sediment to the seabed due to HDD pit excavation and drilling. MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to benthic	-	-	**4** The maximum area and duration of works in the intertidal zone will lead to the maximum disturbance of birds.	-	-	-	**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. 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.		shellfish receptors.	subtidal and intertidal ecology receptors fish and shellfish receptors.								
Number of transition joint bays	**Up to four** Draft DCO **[APP-019]** 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)	**4** Changes to landfall morphology due to installation and decommissioning of export cable at the landfall. MDS represents the construction activities that give rise to the greatest (direct) disturbance	**4** Increases in SSC and deposition of sediment to the seabed due to HDD works. MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to sea users.	**4** Increases in SSC and deposition of sediment to the seabed due to HDD works. 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.	**4** Increases in SSC and deposition of sediment to the seabed due to HDD works. MDS represents the maximum SSC and deposition arising from the greatest number of HDD drills, leading to the maximum potential impacts to benthic subtidal and intertidal receptors.	-	-	-	-	-	-	**4** 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	**Up to four** Draft DCO **[APP-019]** Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 8 (a)	**4** Changes to landfall morphology due to installation and decommissioning of export cable at the landfall. MDS represents the construction activities that give rise to the	**4** Increases in SSC and deposition of sediment to the seabed due to HDD pit excavation and drilling. MDS represents the maximum SSC and deposition arising	**4** As above.	**4** As above.	-	-	-	-	-	-	**4** As above.	-

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.										

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 Design Parameters													
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)	-	-[1]	-	Two scenarios modelled for 155 turbines and 65 turbines[2]	-	-	-	**90**	-	-	-	-
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)	-	-	-	**295m**	-	-	-	-	-	-	-	-
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)	-	-	-	-	-	-	-	-	-	-	-	-
Maximum blade tip height above Lowest Astronomical Tide (LAT)	**325m (for larger WTG type)** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 2(2)(a) and Schedule 11, Part 2 condition 1(2)(a)	-	-	-	-	-	-	-	**325m**	-	-	-	-
Minimum turbine spacing	**830m (for both WTG types)** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 2(2)(d) and Schedule 11, Part 2 condition 1(2)d)	-	-	-	-	-	-	-	-	-	-	-	-
Maximum offshore substation parameters													
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)	-	-	-	-	-	-	-	**Up to 3**	-	-	-	-
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)	-	-	-	-	-	-	-	**80m x 50m**	-	-	-	-
Topside: height (excluding helideck or lightning protection) T	**65m above LAT** Draft DCO **[APP-019]** 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	**115m above LAT** Draft DCO **[APP-019]** 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	**13.5m** Draft DCO **[APP-019]** 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)	**Up to 6** Draft DCO **[APP-019]** 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-	**Up to 12** Draft DCO **[APP-019]** Schedule 1 - Authorised	-	-	-	-	-	-	-	-	-	-	-	-

[1] '-' values have been used to represent parameters that are not integral to the aspect assessment, as explained in paragraph 3.1.5.
[2] 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 [APP-070]
leg foundation (Substation)	Project Part 3 Requirements 3(5)(a)(ii) and Schedule 12, Part 2 condition 1(5)(a)												
Pin pile diameter	**Up to 4.5m** Draft DCO **[APP-019]** 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)	**65,700m^3** Draft DCO **[APP-019]** 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)	**21,900m^2** Draft DCO **[APP-019]** Schedule 1 – Authorised Project Part 3 Requirement 4 and Schedule 12, Deemed Marine Licence Part 2 Condition 1(6)	-	-	-	-	-	-	-	-	-	-	-	-
	Maximum export cable landfall parameters												
Number of HDD drills	**Up to four** Draft DCO **[APP-019]** 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	**Up to four** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 1 The Authorised Development Work No. 8 (b)	**Up to four**	-	-	-	-	-	-	-	-	-	-	-
HDD cable ducts	**Up to four** Draft DCO **[APP-019]** Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 8 (c)	**Up to four**	-	-	-	-	-	-	-	-	-	-	-
HDD exit pits number	**Up to four** Draft DCO **[APP-019]** 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**	-
	Maximum onshore cable corridor parameters												
Corridor width: temporary (construction corridor width)	**Up to 40m** Outline Code of Construction Practice **[APP-224]**, 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)[3]	**Up to 20** Draft DCO **[APP-019]** Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-
Number of ducts (including fibre optics)[3]	**Up to 20** Draft DCO **[APP-019]** Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-
Number of trenches[3]	**Up to 4** Draft DCO **[APP-019]** Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-
HVAC: number of cable circuits[3]	**Up to 4** Draft DCO **[APP-019]** Schedule 1 Authorised Project Part 1 The Authorised Development Work No. 9 (a) - (c)	-	-	-	-	-	-	-	-	-	-	-	-

[3] 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.

	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]
HVAC: number of cables[3]	**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)	-	-	-	-	-	-	-	-	-	-	-	-
	Joint Bay, Link Box and Fibre Optic Cable Junction Box design parameters												
Number of JB locations	**Up to 66** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 7(3)	**Up to 66**	-	**up to 66**	-	-	-	**Up to 66**	-	-	-	-	-
Number of JBs per location	**Up to 4** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 7(3)	-	-	**up to 4**	-	-	-	**Up to 4**	-	-	-	-	-
Number of LBs	**264** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 7(4)	-	-	**up to 264**	-	-	-	-	-	-	-	-	-
Number of FOCJBs	**264** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 7(4)	-	-	**up to 264**	-	-	-	-	-	-	-	-	-
	Construction compounds maximum parameters												
Trenchless crossing compounds (length and width)	**Up to 50m x 75m** Draft DCO **[APP-019]** 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)	**Up to 120m x 100m** Draft DCO **[APP-019]** 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)**	-
	Maximum parameters for the onshore substation												
Permanent area of site for all infrastructure	**Up to 6ha** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 7(1)	**Up to 6ha**	**Up to 6ha**	**Up to 6ha**	-	**Up to 6ha**	-	**Up to 6ha**[4]	**Up to 6ha**	**Up to 6ha**	-	**Up to 6ha**	-
Maximum main building height	**12.5m** Draft DCO **[APP-019]** 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	**10m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 8(3)(e) (now (f))	**10m**	-	-	-	-	-	-	**10m**	-	-	**10m**	-
Lightning protection mast height	**18m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 8(3)(d) (now (e))	**18m**	-	-	-	**18m**	-	-	**18m**	-	-	**18m**	-
Maximum number of buildings	**12** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 8(3)(a)	**12**	**12**	-	-	**12**	-	-	**12**	-	-	**12**	-
Maximum length building	**70m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 8(3)(b) (now (c))	**70m**	-	-	-	-	-	-	**70m**	-	-	**70m**	-

[4] 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**].

	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	**20m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 8.(3)(c) (now (d))	**20m**	-	-	-	-	-	-	**20m**	-	-	**20m**	-
	Maximum parameters for the extension to Bolney National Grid substation												
Permanent area of site for all infrastructure	**0.63** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 7(2) (expressed as m^2)	**0.63ha**	**0.63ha**	**0.63ha**	-	**0.63ha**	-	**0.63ha**	**0.63ha**	**0.63ha**	-	**0.63ha**	-
Maximum building height	**12m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 9(3)(b)	**12m**	**12m**	-	-	**12m**	-	-	**12m**	-	-	**12m**	-
Maximum number of buildings	**2** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 9(3)(a)	**2**	**2**	-	-	**2**	-	-	**2**	-	-	**2**	-
Maximum length building	**35m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 93)(d)	**35m**	-	-	-	-	-	-	**35m**	-	-	**35m**	-
Maximum width of building	**20m** Draft DCO **[APP-019]** Schedule 1 - Authorised Project Part 3 Requirements 9(3)(e)	**20m**	-	-	-	-	-	-	**20m**	-	-	**20m**	-
Maximum height of other infrastructure	**12m** Draft DCO **[APP-019]** 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.

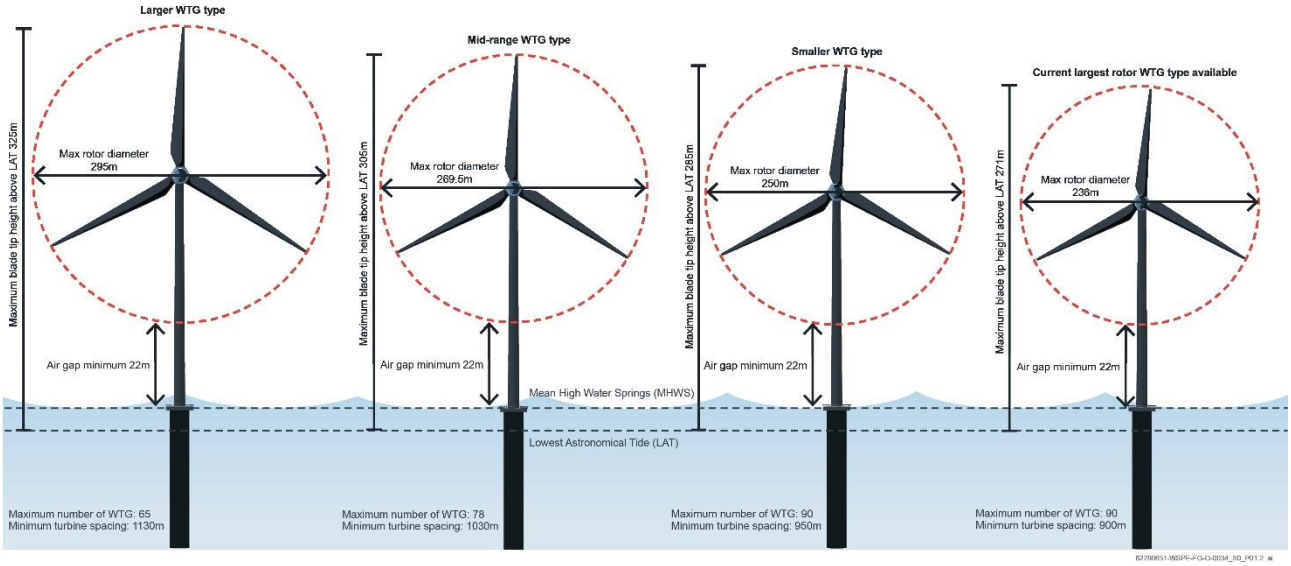
Table 4-1 WTG maximum design assessment assumptions and parameters[5]

Assessment assumption or parameter	Smaller WTG Type	Larger WTG Type
	(Parameters presented 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

[5] Where relevant, **bold** text indicates a parameter outlined in the DCO.

Assessment assumption or parameter	Smaller WTG Type	Larger WTG Type
Minimum WTG spacing[6]	950m	1,130m
Total rotor swept area	**4,450,000.00m²**	**4,450,000.00m²**

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



4.1.2 As is common for all offshore wind farms, the final choice of WTG and therefore 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 4,450,000.00m² and this will not be exceeded, regardless of the choice of WTG in the final Proposed Development.

[6] 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 4-2 Maximum rotor diameter and total swept area for each given number of WTG options proposed in the draft DCO

Number of WTG	Rotor Diameter (m)	Total Swept Area (m^2)
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

Number of WTG	Rotor Diameter (m)	Total Swept Area (m^2)
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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Rampion 2
WIND FARM