

# Rampion 2 Wind Farm Category : Examination Documents

**Applicant's Post Hearing Submission – Issue  
Specific Hearing 1**

**Appendix 4 - Further information for Action  
Point 20 – Oakendene Substation Flood Risk**

**Date: February 2024**

**Revision A**

Application Reference: 8.25.4

Pursuant to: The Infrastructure Planning (Examination Procedure)  
Rules 2010, Rule 8(1)(c)(i)

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## Document revisions

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Revision	Date	Status/reason for issue	Author	Checked by	Approved by
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# 1. Introduction

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## 1.1 Overview

- 1.1.1 Rampion Extension Development Limited (hereafter referred to as 'RED') (the 'Applicant') is developing the Rampion 2 Offshore Wind Farm Project ('Rampion 2') located adjacent to the existing Rampion Offshore Wind Farm Project ('Rampion 1') in the English Channel.
- 1.1.2 Rampion 2 will be located between 13km and 26km from the Sussex Coast in the English Channel and the offshore array area will occupy an area of approximately 160km<sup>2</sup>. A detailed description of the Proposed Development is set out in **Chapter 4: The Proposed Development, Volume 2** of the **Environmental Statement (ES) [APP-045]**, submitted with the Development Consent Order (DCO) Application.

## 1.2 Purpose of this Document

- 1.2.1 This document provides further information requested in response to Action Point 20 which states "*Applicant to provide additional details of the proposed onshore substation site at Oakendene with site levels in relation to flood risk.*"

## 1.3 Response to Action Point 20

- 1.3.1 The following response provides background context information about proposed site levels in relation to flood risk, and other relevant factors including landscape and visual impact assessment (LVIA) considerations.
- 1.3.2 As set out in section 5.7.14 of the **Appendix 26.2: Flood Risk Assessment (FRA), Volume 4** of the ES **[APP-216]**, it was agreed with West Sussex County Council (WSCC) and Horsham District Council (HDC) that the 0.1 percent Annual Exceedance Probability (AEP) surface water flood extent (defined by the Environment Agency's Risk of Flooding from Surface Water mapping) provided a suitably precautionary proxy for the one percent AEP plus 28 percent flood extent for the minor watercourse, and that avoidance of development within this flood extent would be an acceptable approach for the FRA. Comparing the surface water flood extent against ground elevations obtained by LiDAR (Light Detection and Ranging data), this indicates 0.1% AEP flood water levels of 14.71m above ordnance datum (AOD) in the southeastern corner of the proposed DCO Order Limits, and 14.35m AOD in the southwestern corner, at the onshore substation site. These elevations represent the lower elevation in terms of the onshore substation platform in relation to flood risk. Hydraulic modelling of the watercourse will be undertaken as part of the detailed design if development consent is granted, to confirm the 1% AEP plus climate change flood extent (the 'design flood,' where an approach of avoidance would be taken to ensure no increase in flood risk elsewhere), as well as to determine the 0.1% AEP plus climate change plus 300mm flood level (the National Grid target guidance), to be used for considering flood risk to the substation for flood resilience purposes (in accordance with commitment C-230 (in the **Commitments Register [APP-254]**

provided at Deadline 1 submission) and in compliance with the principles of the **Design and Access Statement [AS-003]** as secured through Requirement 8 of Schedule 1 of the **Draft Development Consent Order [PEPD-009]**.

- 1.3.3 The upper elevation of the substation platform has been assumed to be 16.25m AOD. This level is within the tolerance of **Chapter 18: Landscape and visual impact, Volume 2** of the ES **[APP-059]** and would not alter its findings or conclusions.
- 1.3.4 In practice, it is anticipated that the elevation of the substation platform would fall between the lower and upper elevations, with the final elevation determined by engineering factors, as well as flood risk. The final design of the substation site would continue to meet the principles of the **Appendix 26.2: Flood Risk Assessment (FRA), Volume 4** of the ES **[APP-216]**. Firstly, to avoid increase in flood risk elsewhere during the design flood (1% AEP plus climate change fluvial flood event from the Ordinary Watercourse) and secondly, ensuring flood resilience on the substation site itself in accordance with the National Grid target guidance (0.1% AEP plus climate change plus 300mm). The Applicant notes that adherence to the National Grid target guidance (C-260) secured in **Design and Access Statement [AS-003]** and Requirement 8 of the **Draft Development Consent Order [PEPD-009]** will not necessarily require ground elevations to be set at that flood level – other options will be available to ensure flood resilience of the substation during such an extreme flood event.
- 1.3.5 The Applicant considers it extremely unlikely that the flood water level associated with the National Grid target guidance would exceed the upper elevation of 16.25m AOD, for the following reasons;
- 1) the small contributing catchment area (in the region of 1.7km<sup>2</sup>) will limit the amount of rainfall that could contribute towards a flood event;
  - 2) the elevation of the ordinary watercourse (not surveyed at this stage but estimated to be approximately 13m AOD based on Environment Agency LiDAR data) and the downstream lake (also estimated to be 13m AOD), is more than 3m below the upper elevation of 16.25m AOD; and
  - 3) the variation in the width of the floodplain at the upper and lower elevations (approximately 30m wide at 14.71m AOD and approximately 150m wide at 16.25m AOD).
- 1.3.6 The Applicant considers the extreme flood extent and depth considered in **Appendix 26.2: Flood Risk Assessment (FRA), Volume 4** of the ES **[APP-216]** (30m wide floodplain, at approximately 1.7 depth) to be reasonable for this size of watercourse, and that a flood extent extending to 150m wide and at over 3m depth to be an extremely unlikely. **Table 1** below provides a summary of this information.

**Table 1 Summary of Site Levels in relation to flood risk (see paragraphs 1.3.2 – 1.3.5 for further details)**

Description	Elevation m AOD	Estimated associated flood extent width at corresponding elevation (m)
<b>Estimated approximate elevation of the watercourse and downstream lake</b>	13	0
<b>Lower elevation for the substation platform, based on estimated peak elevation for the 0.1% AEP Risk of Surface Water flood extent (i.e. proxy for the 1% plus 28% climate change)</b>	14.71	30
<b>Assumed upper elevation of the substation platform.</b>	16.25	150