



Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Flood Risk and Planning Practice Guidance Technical Note

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FLOOD RISK AND PLANNING PRACTICE GUIDANCE TECHNICAL NOTE

1 Overview

1. The aim of this Technical Note is to provide a comprehensive response to a number of queries raised by the Examining Authority during the Examination process, namely at Issue Specific Hearing 2, and subsequently as part of the Examining Authority Written Questions 1 [PD-010].
2. As such it has been prepared as a supporting document to be read alongside the response to Written Questions 1 on Water Resources and Flood Risk (Q1.24).

2 Examining Authority Written Questions

3. Following discussion at Issue Specific Hearing (ISH) 2, the Examining Authority requested the Applicant provide clarification on key items related to national policy and guidance. These have been included within the Examining Authority Written Questions 1 [PD-010] as follows:

Q1.24.1.1 Revisions to Planning Practice Guidance

As discussed at ISH2 [EV-021] [EV-025], on 25 August 2022, significant updates were made to guidance on flood risk and coastal change within the Planning Practice Guidance. Provide a note setting out what implications this has for the submitted FRA [AS-014] and if necessary provide a revised FRA or an addendum, with a summary of key changes.

Q1.24.1.3 Sequential Test

As discussed at ISH2 [EV-021] [EV-025], the FRA [AS-014] does not appear to apply the sequential test before considering the exception test.

- a) Applicant, demonstrate how the sequential test has been met and whether any areas of flood risk encountered by the Proposed Development at landfall, the cable corridor and the onshore substation could have feasibly been avoided.
- b) What is the view of the EA on this matter?

4. A response has been requested from the Applicant to both of the above questions, whilst the Environment Agency has also been asked to provide a response to Q1.24.1.3.
5. The remainder of this Technical Note provides a response from the Applicant to both of the above Written Questions (Q1.24).

3 Response to Examining Authority Written Question Q1.24.1.1- Revisions to Planning Practice Guidance

Q1.24.1.1 Revisions to Planning Practice Guidance

As discussed at ISH2 [EV-021] [EV-025], on 25 August 2022, significant updates were made to guidance on flood risk and coastal change within the Planning Practice Guidance. Provide a note setting out what implications this has for the submitted FRA [AS-014] and if necessary provide a revised FRA or an addendum, with a summary of key changes.

6. With regard to the clarifications requested by the Examining Authority [PD-010] it is acknowledged that on 25 August 2022, the updated Planning Practice Guidance (PPG) for Flood Risk and Coastal Change (hereafter referred to as the updated PPG) was published. At the time of publication, it became live with immediate effect and with no transitional arrangements.
7. As such, it should be noted with regards to the programme for SEP and DEP that whilst the updated PPG was published on 25 August 2022, the DCO application was submitted to the Planning Inspectorate on 2 September 2022. Therefore, the supporting documents to the DCO application, including the **Environmental Statement - Onshore Substation Site Selection Report** [APP-175], **Site Selection & Assessment of Alternatives Report** [APP-089] and **Appendix 18.2 - Flood Risk Assessment** [AS-023], had been materially completed significantly prior to the updated PPG being published.
8. The updated PPG comprises a significant refresh to the guidance aiming to bring it in line with the latest flood risk policy set out in the National Planning Policy Framework (NPPF).
9. The Applicant notes that whilst there was a suite of changes within the updated PPG, this was principally a matter of clarification related to changes that had previously been made to the NPPF and the provision of greater emphasis on key areas. These were not necessarily material changes to the technical guidance and content of the document.
10. Key changes to the guidance within the updated PPG are summarised below. They are listed in the order they are referenced in the updated PPG rather than any order of priority or relevance with regard to SEP and DEP:
 - Updated guidance on the definitions of a “design flood” in Paragraph 002 which includes surface water flooding, as well as confirmation that an appropriate allowance for climate change is to be considered.
 - Process to be assessed in plan or decision-making where flood risk is a consideration, set out in Paragraph 004, with the consideration of the hierarchy of avoid, control, mitigate and finally to manage residual risk.
 - Clarification of the development lifetime to be considered, set out in Paragraph 006.
 - Updated guidance on the application of the Sequential Test to focus on low-risk areas from all sources of flooding, as summarised in Paragraph 024.

- Additional guidance on the risks associated with reservoir flooding, in Paragraph 046.
 - Clarification on loss of floodplain and floodplain compensatory storage, as well as the acceptability of measures to be considered, in Paragraph 049.
 - Introduction of a new designation for non-major development, in Paragraph 051.
 - Updated guidance related to Flood Zone 3b (Functional Floodplain) and the Annual Probability (AP) event to which this refers, as set out in Paragraph 078.
 - Increased guidance on the role of Sustainable Drainage Systems (SuDS) within a development, set out in Paragraphs 55 – 63.
 - Guidance provided on the role natural flood management techniques can have in reducing the cause and impact of flooding, summarised in Paragraphs 64 – 67.
 - Clarification on the role of flood resilience measures in Paragraph 068.
11. Following a review of the updated PPG the change considered to be of specific relevance to SEP and DEP relates to the clarification around the application of the Sequential Test.
12. A review of the remaining changes has indicated no specific amendments or clarifications are required to the **Appendix 18.2 - Flood Risk Assessment** [AS-023].
13. The Applicant notes that many of the updates to the PPG had been expected for some time and brought it in line with the NPPF, which was last updated in July 2021.
14. **Appendix 18.2 - Flood Risk Assessment** [AS-023] considered all the planning policy and guidance documents relevant at the time of its production and acknowledges the interaction between them, as a suite of documents.
15. This is reflected in Paragraph 19 of **Appendix 18.2 - Flood Risk Assessment** [AS-023], where it states:
- “National Planning Policy Framework (NPPF) (July 2021), Planning Practice Guidance (PPG) for Flood Risk and Coastal Change (August 2021) and ‘Flood risk assessments: climate change allowances guidance’ (May 2022) provide direction on how flood risk should be considered at all stages of the planning and development process.”*
16. In addition, Paragraph 21 of **Appendix 18.2 - Flood Risk Assessment** [AS-023] also noted that:
- “The revised NPPF (2021) provides clarification that all strategic policies / plans should apply a sequential, risk-based approach to the location of development taking into account all sources of flood risk. It also provides guidance on how this is to be considered in the context of the location of site-specific development. Further guidance, on the application of the Sequential Test and Exception Test is provided in the supporting PPG in terms of fluvial and tidal flood risk, Flood Zones and the Vulnerability Classification relevant to the development”.*

17. As such, the policy and guidance set out in both the NPPF (July 2021) and the Environment Agency guidance entitled Flood risk assessments: climate change allowances (May 2022) had already been considered in **Appendix 18.2 - Flood Risk Assessment** [AS-023], whilst also acknowledging the role of the PPG.
18. In addition, elements of the requirements that have been included within the updated PPG, including revised guidance on the application of the Sequential Test to all sources of flooding, had been anticipated by SEP and DEP.
19. This is confirmed in Paragraphs 23 and 24 of **Appendix 18.2 - Flood Risk Assessment** [AS-023] as follows:

“However, neither the NPPF (2021) nor the supporting PPG (2021) provides a set of criteria as to how the Sequential Test should be applied for other sources of flooding, for example surface water flooding, in terms of development vulnerability and the varying level of flood risk. It is understood that there are likely to be future updates to the PPG to provide greater clarification but at the time of writing the FRA it has not been published.

For the purposes of the FRA, based on the indicative flood risk issues in relation to SEP and DEP, the application of a sequential approach has been considered, specifically with regard to the onshore substation site. This assessment has sought to consider the potential surface water flood risk in greater detail with the aim of sequentially locating it, wherever possible, to avoid this risk. Further details on this approach are provided in Section 18.2.4.8.7.”

20. On this basis, the Applicant does not consider that the updated PPG guidance published in August 2022 changes the conclusions set out in **Appendix 18.2 – Flood Risk Assessment** [AS-023].
21. The Applicant intends to propose a non-material change to the DCO [AS-009], following refinement of the surface water drainage design and removal of the proposed Anglian Water foul sewer connection. This approach has been adopted as a result of further ground investigations which confirmed infiltration can be adopted for surface water drainage from the Onshore Substation.
22. This clarification addresses comments received from Norfolk County Council, in their role as the Lead Local Flood Authority (LLFA). As a result a number of supporting documents to the DCO application are being updated. This will include the production of an Addendum to the Flood Risk Assessment (Revision A) [document reference 12.61], to be submitted at Deadline 2, as part of the proposed application to make a non-material change, which was notified to the Examining Authority in January 2023 [AS-036]. This will include a summary of updated policy and guidance documents including, but not limited to, the updated PPG.
23. The Applicant can confirm that the updated documents incorporate the findings of this additional work and address outstanding concerns from the LLFA. However, neither the additional work nor the updated PPG change the conclusions of the assessment set out in **Appendix 18.2 – Flood Risk Assessment** [AS-023].

4 Response to Examining Authority Written Question Q1.24.1.3 – Sequential Test

Q1.24.1.3 Sequential Test

As discussed at ISH2 [EV-021] [EV-025], the FRA [AS-014] does not appear to apply the sequential test before considering the exception test.

- a) Applicant, demonstrate how the sequential test has been met and whether any areas of flood risk encountered by the Proposed Development at landfall, the cable corridor and the onshore substation could have feasibly been avoided.
- b) What is the view of the EA on this matter?

24. Within this section of the Technical Note, the Applicant provides additional information to support its response to Q1.24.1.3, which confirms that the Sequential Test has been appropriately applied as part of SEP and DEP.

25. This has been considered within the context of the following key paragraphs taken from the updated PPG, related to the sequential approach to the location of development, as follows:

“The approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding....

...Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk.” (Paragraph: 023 Reference ID: 7-023-20220825, Revision date: 25 08 2022)

26. Furthermore, the updated PPG notes how the Sequential Test can be applied to the location of development. Paragraph 024 and how it has been updated from the previous guidance on the Sequential Test (set out in paragraph 19 of the 2014 version of the PPG) is shown below (text removed is marked with a strikethrough and new text shown in red):

“The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest probability risk of flooding ~~The flood zones as refined in the Strategic Flood Risk Assessment for the area provide the basis for applying the Test. The aim is to steer new development to Flood Zone 1 (areas with a low probability of river or sea flooding). Where there are no taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare~~ reasonably available sites.

- ~~in Flood Zone 1, local planning authorities in their decision making should take into account the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2 (areas with a~~ Within medium probability of river or sea flooding), ~~applying the Exception Test if required. Only risk areas; and~~
- Then, only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 (low and medium risk areas with a, within high probability

~~of river or sea flooding) be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required risk areas.~~

27. This demonstrates that the updates to the PPG served mainly to emphasise the importance of surface water flooding in the application of the Sequential Test to the location of development.
28. During the site selection process for the development, and as set out in **Environmental Statement - Onshore Substation Site Selection Report** [APP-175] and **Site Selection & Assessment of Alternatives Report** [APP-089], the Applicant took surface water flood risk into account throughout the process.
29. The subsequent publication of the updated National Planning Policy Framework in July 2021 further established the importance of taking surface water flooding into account. This clarification served to support the approach already adopted by the Applicant.
30. As well as complying with this policy (which at that time had not yet been established in the PPG), the Applicant also followed good practice and, as set out above, took surface water flooding into account in the application of the Sequential Test in its site selection process.
31. The Sequential Test applied by the Applicant therefore fully complied with the PPG, at the time, in taking surface water – and other forms of flooding - into account. The following discussion provides further evidence to support this conclusion.
32. The Sequential Test, including express consideration of surface water flood risk, was applied to the location of the terrestrial elements of SEP and DEP, as set out in the **Environmental Statement - Onshore Substation Site Selection Report** [APP-175] and **Site Selection & Assessment of Alternatives Report** [APP-089]. It was not applied to the offshore elements of SEP and DEP where other policy documents, guidance and tests apply.
33. The **Site Selection & Assessment of Alternatives Report** [APP-089] sets out a clear sequential approach to locating the development and steering it away from locations at highest risk from all sources of flooding, as well as from other sensitive receptors. Plate 3-1: Site Selection Process Overview of the **Site Selection & Assessment of Alternatives Report** [APP-089] sets out the seven stage sequential approach to selecting the locations for the various offshore and onshore elements of SEP and DEP.
34. By ensuring flood risk factors were included amongst the key criteria in the site selection and location of all relevant elements of SEP and DEP, the Applicant has ensured that policy and guidance on the Sequential Test has been followed. The relevant elements of SEP and DEP and compliance with the policy and guidance on flood risk, including surface water flooding, in each case is set out below.
35. **Main Construction Compound**: the inclusion of criteria steering the location of this development away from the highest risk Flood Zone (3) and from sites at risk of surface water flooding. Paragraphs 94 and 95 respectively, in Section 3.9.4 'Main Construction Compound' of the **Site Selection & Assessment of Alternatives Report** [APP-089] demonstrate how the flood risk sequential test was applied in relation to surface water (and other forms of flooding) in the selection of sites for the main construction compound.

36. **Onshore Substation:** criteria included steering this development away from land in Flood Zones 2 and 3 and from land subject to surface water flooding. This is summarised in paragraphs 105 and 121 of Section 3.10 ‘Onshore Substation’ of the **Site Selection & Assessment of Alternatives Report** [APP-089] which demonstrate how the flood risk sequential test was applied in the selection of sites for the Onshore Substation.
37. **Onshore Cable Corridor and Landfall:** it would be inappropriate to consider surface water flooding in the same manner for subterranean development such as the onshore cable corridor and elements of the landfall as it has been applied in relation to development wholly above ground, however fluvial and coastal flood risk (i.e. Flood Zones) were taken into account in the selection of the onshore cable corridor and landfall locations, as summarised below.
38. The Applicant notes that the approach to the consideration of the Sequential Test and its application to the various elements of SEP and DEP was also applied within **Appendix 18.2 – Flood Risk Assessment** [AS-023].
39. The majority of the landfall and the onshore cable corridor are located in Flood Zone 1, with some areas passing through or under Flood Zones 2 and 3, as summarised in Paragraph 380 of **Appendix 18.2 – Flood Risk Assessment** [AS-023]:
- “Principally the works for SEP and DEP are to be located in Flood Zone 1, including the majority of the onshore cable corridor and the onshore substation. Permanent above-ground structures are to be located within Flood Zone 1. Subterranean development is also located primarily in Flood Zone 1, with some locations in Flood Zone 2 and 3 where it is required to pass under, or in proximity to, existing watercourses.”*
40. In addition, the assessment confirmed that the landfall and onshore cable corridor are primarily at low risk of surface water flooding, other than where the onshore cable corridor is required to pass under land at increased risk associated with watercourses and / or overland flow paths.
41. Paragraph 381 of **Appendix 18.2 - Flood Risk Assessment** [AS-023] notes that:
- “Due to the large-scale nature of the works, it is acknowledged that there are locations where infrastructure is required to pass through or be located in Flood Zone 3. This relates to the area of the onshore cable corridor adjacent to the landfall location and key locations along the onshore cable corridor (associated with the need to cross existing watercourses).”*
42. This conclusion is also valid when considering other sources of flood risk, such as surface water flooding. It is the Applicant’s conclusion that areas at increased risk of flooding cannot be wholly avoided when dealing with a large linear project which requires an extensive onshore cable corridor. In addition, it is not possible to avoid Flood Zone 3 at the landfall, as SEP and DEP are required to make landfall through the coastal frontage, where there is likely to be an increased risk of flooding.
43. However, the Applicant has applied the Sequential Test in siting the majority of the landfall and onshore cable corridor in areas at low risk of flooding from all sources. Additionally, the Applicant has sought to minimise the impact by crossing areas at increased risk (i.e. associated with watercourse crossings) in a perpendicular manner so as to limit the interaction with them.

44. Furthermore, the Applicant notes that the increased risk to the landfall and onshore cable corridor, from any source of flooding, is only relevant during the construction phase as Paragraph 382 of **Appendix 18.2 - Flood Risk Assessment [AS-023]** notes:
- “Subterranean development will only be at potential risk of flooding during the construction phase. Once operational, the flood risk to the onshore cable corridor will have been removed as the transition joint bays, cables and link boxes will be wholly located underground, with the latter sealed through a watertight manhole cover with no interaction with the above-ground Flood Zones.”*
45. In addition, the below ground onshore cable route will pass beneath any areas at risk from surface water flooding and the **Outline Code of Construction Practice [APP-302]** notes that control measures related to drainage from the construction phase are summarised in Section 6.1, which will be secured under Requirement 19 of the **draft DCO [AS-009]**. As such, this will ensure that surface water flood risk is not increased and, where possible, is reduced as a result of the onshore cable installation.
46. Considering the Onshore Substation, the Applicant notes that with regard to the application of the Sequential Test, as summarised in Paragraph 23 of **Appendix 18.2 - Flood Risk Assessment [AS-023]**, the Onshore Substation has been located in Flood Zone 1 and therefore is at low risk of flooding from either fluvial or tidal sources.
47. With regards to the Onshore Substation, when undertaking the initial assessment of sites for the Onshore Substation locations, within **Environmental Statement - Onshore Substation Site Selection Report [APP-175]**, these were considered as Onshore Substation Zones which, as part of the design process, the Applicant would refine down in size so as to minimise the area of land take required for SEP and DEP.
48. On this basis, given the majority of the Onshore Substation site is located at low risk of surface water flooding, the Applicant considered that in selecting the current site for the Onshore Substation this was in accordance with the Sequential Test. In addition, the Applicant carried out significant further work to apply the sequential test to the location of the development of the Onshore Substation within the site, as set out below and explained further in **Environmental Statement - Onshore Substation Site Selection Report [APP-175]**.
49. The Applicant also considered, consistent with the PPG, that through micro-siting within the wider Onshore Substation Zone this potential source of flood risk could be avoided, where possible, whilst also taking into account other constraining environmental factors.
50. In addition, the Applicant has taken into consideration the relative uncertainty related to the validity of the surface water flood risk in this location. This is on the basis that anecdotal information did not indicate a historic risk associated with surface water flooding in this location.

51. The Applicant also notes that the national surface water mapping does not necessarily provide definition between whether an area shown to be at risk of surface water flooding comprises an overland flow path, where there may be minimal water depth, compared with an area where surface water ponding may result in a greater depth of water.
52. The Applicant therefore undertook hydraulic modelling in this area to better understand the existing baseline surface water flood risk with the aim of identifying the areas at low risk of flooding in this location.
53. Additionally, the Applicant adopted a sequential approach to the location of the Onshore Substation within the wider DCO Limits, i.e. reducing the footprint and micro-siting the Onshore Substation platform such that it is principally in an area at very low risk of surface water flooding.
54. Therefore, the Applicant considers the Sequential Test has been appropriately applied by locating the Onshore Substation principally in an area at low risk of surface water flooding.
55. As such, the Applicant does not consider it reasonable to revisit or undertake further consideration of the site selection process, especially given as the current approach is in accordance with the guidance provided in Paragraph 023 of the updated PPG which states:

*“The approach is designed to ensure that areas at little or no risk of flooding from any source **are developed in preference** to areas at higher risk. This means avoiding, **so far as possible**, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding....”*

56. The Applicant has added the above **bold** for emphasis. The updated PPG clearly indicates that, through following the Sequential Test, applicants should avoid, so far as possible, development in current and future medium and high flood risk areas.
57. The Applicant reiterates that through micro-siting within a wider site at low risk of surface water flooding, the Onshore Substation infrastructure is also principally located in an area at low risk of surface water flooding. This is in accordance with the first sentence within the extract of Paragraph 023 of the updated PPG reproduced above, whereby areas at little or no risk of flooding from any source are developed in preference to areas at higher risk.
58. The Applicant has consulted Norfolk County Council in their role as the LLFA regarding the above. Engagement is ongoing and it is anticipated that agreement with regard to surface water flood risk and drainage matters will be reached during Examination.
59. The approach taken by the Applicant is also in accordance with recent case law, which has considered the correct approach to the Sequential Test. In *Substation Action Save East Suffolk Limited, R (On the Application Of) v Secretary of State for Business Energy and Industrial Strategy* ([2022] EWHC 3177 (Admin)) the court considered the approach to flood risk taken by the Secretary of State in granting the East Anglia One North and East Anglia Two Offshore Wind Farm DCOs.

60. In that case, the court found that, whilst the NPPF and PPG require surface water flooding to be taken into account when considering the location of the development, beyond that there was no further direction, at the time, as to how surface water is to be factored into the application of the Sequential Test. The claimants' argument that it must be positively demonstrated that there are no alternative sites reasonably available for the development within a lower surface water flood risk area was dismissed.
61. In *Wathen-Fayed v Secretary of State for Levelling Up, Housing And Communities* [2023] EWHC 92 (Admin), the court also considered the Sequential Test. Whilst the case centred around the need to apply the Sequential Test at all in areas within Flood Zone 1, there is relevant commentary in terms of how any residual flood risk can be properly managed. In this case, the judge found that there was no reason in principle not to take into account the ability to effectively manage the risk of flooding at the site by way of condition.
62. Therefore, it is concluded that the approach adopted by the Applicant is in accordance with the policy set out in the NPPF (2021) and the supporting guidance provided in the updated PPG published in August 2022.
63. As such, it is the view of the Applicant that all elements of SEP and DEP are in accordance with the Sequential Test, and this has been given substantial consideration within **Appendix 18.2 - Flood Risk Assessment** [AS-023].
64. As noted above, the Applicant is intending to make a non-material change to the **draft DCO** [AS-009], comprising the removal of the proposed Anglian Water foul sewer connection at the Onshore Substation. As a result, a number of supporting documents to the DCO application are being updated.
65. This will include the production of an **Addendum to the Flood Risk Assessment** (Revision A) [document reference 12.61], to be submitted at Deadline 2, which will incorporate a summary of updated policy and guidance documents including, but not limited to, the updated PPG.
66. However, the Applicant does not consider that either the additional work or the summary related to the updated PPG will alter the conclusions of the assessment set out in **Appendix 18.2 – Flood Risk Assessment** [AS-023].