



Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Report to Inform Appropriate Assessment (RIAA)
(Onshore) Technical Note

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Table of Contents

REPORT TO INFORM THE APPROPRIATE ASSESSMENT (ONSHORE) TECHNICAL NOTE		6
1	Introduction.....	6
2	Replacement text for the RIAA.....	6
2.1	Section 5 Summary of Screening.....	6
2.2	Section 6.2 Baseline and Current Conservation Status.....	7
2.3	Section 6.4 Assessment of Potential Effects	7

Table of Tables

Table 5-2: Summary of Designated Sites and Features Screened In.....	6
Table 6-4: Summary of Potential Effects Screened Into the HRA.....	7



Glossary of Acronyms

CIRIA	Construction Industry Research and Information Association
CoCP	Code of Construction Practice
DCO	Development Consent Order
DEFRA	Department for the Environment and Rural Affairs
DEL	Dudgeon Extension Limited
DEP	Dudgeon Offshore Wind Farm Extension Project
eDNA	Environmental Deoxyribonucleic Acid
HRA	Habitats Regulations Assessment
INNS	Invasive Non-Native Species
km	Kilometre
LLFA	Lead Local Flood Authority
PPG	Planning Practice Guidance
RIAA	Report to Inform the Appropriate Assessment
SAC	Special Area of Conservation
SEL	Scira Extension Limited
SEP	Sheringham Offshore Wind Farm Extension Project
WQ	Written Questions

Glossary of Terms

Dudgeon Offshore Wind Farm Extension Project (DEP)	The Dudgeon Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
DEP onshore site	The Dudgeon Offshore Wind Farm Extension onshore area consisting of the DEP onshore substation site, onshore cable corridor, construction compounds, temporary working areas and onshore landfall area.
Landfall	The point at the coastline at which the offshore export cables are brought onshore, connecting to the onshore cables at the transition joint bay above mean high water
Onshore cable corridor	The area between the landfall and the onshore substation sites, within which the onshore cable circuits will be installed along with other temporary works for construction.
Onshore Substation	Compound containing electrical equipment to enable connection to the National Grid.
Order Limits	The area subject to the application for development consent, including all permanent and temporary works for SEP and DEP.
Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Shoal Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
SEP onshore site	The Sheringham Shoal Wind Farm Extension onshore area consisting of the SEP onshore substation site, onshore cable corridor, construction compounds, temporary working areas and onshore landfall area.
The Applicant	Equinor New Energy Limited. As the owners of SEP and DEP, Scira Extension Limited and Dudgeon Extension Limited are the named undertakers that have the benefit of the DCO. References in this document to obligations on, or commitments by, 'the Applicant' are given on behalf of SEL and DEL as the undertakers of SEP and DEP.

REPORT TO INFORM THE APPROPRIATE ASSESSMENT (ONSHORE) TECHNICAL NOTE

1 Introduction

1. This document presents the Applicant's updates to the **Report to Inform Appropriate Assessment** (RIAA) [APP-059] in relation to the screening of the River Wensum Special Area of Conservation (SAC). The updates have been made in response to the first round of Written Questions (WQ1) [PD-010] that contain specific questions (WQ1.14.1.2), directed at the Applicant, concerning the River Wensum SAC including: the potential for bentonite breakout; effects on species; and any need to alter the screening matrices. The Applicant's response to this question presented in **The Applicant's Responses to the Examining Authority's First Written Questions** [REP1-036] included a commitment to provide at Deadline 2 a Technical Note that updated the screening process with the screening in of white-clawed crayfish *Austropotamobius pallipes*, brook lamprey *Lampetra planeri* and Bullhead *Cottus gobio*.
2. This document is that Technical Note.
3. This document provides text that specifically relates to the Habitats Regulations Assessment (HRA) process and updates Section 5.1 (Screening Conclusions - Onshore National Site Network Sites) and Section 6 (Onshore National Site Network Sites) of the RIAA [APP-059] in respect of the River Wensum SAC.
4. As the owners of the Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP), Scira Extension Limited (SEL) and Dudgeon Extension Limited (DEL) are the named undertakers that have the benefit of the Development Consent Order (DCO). References in this document to obligations on, or commitments by, 'the Applicant' are given on behalf of SEL and DEL as the undertakers of SEP and DEP.

2 Replacement text for the RIAA

2.1 Section 5 Summary of Screening

5. The following is a replacement row for the River Wensum SAC in Table 5.2 (Summary of Designated Sites and Features Screened In) of the **RIAA** [APP-059]. Features in **bold** are screened in and are in addition to those presented in the **RIAA** [APP-059].

Table 5-2: Summary of Designated Sites and Features Screened In

Site	Features	Rationale
River Wensum SAC	<ul style="list-style-type: none"> • H3260 Watercourses of plain to montane levels with <i>R. fluitantis</i> • S1016 Desmoulin's whorl snail • S1092 White-clawed crayfish • S1096 Brook lamprey • S1163 Bullhead 	There is potential for both direct and indirect effects upon both the features of the site and the supporting habitats.

2.2 Section 6.2 Baseline and Current Conservation Status

6. The following is replacement text for the sections as listed.

2.2.1 Section 6.2.1.2, Paragraph 8

7. Potential effects upon white-clawed crayfish, brook lamprey and bullhead were screened out in the **Habitats Regulations Assessment Screening Report** [APP-060]. This was reflected in the **RIAA** [APP-059] as submitted with the application. On re-consideration of the small risk of bentonite breakout and the requirement to carry out screening without accounting for mitigation measures, all of the qualifying features of the Wensum SAC have now been screened in.

2.3 Section 6.4 Assessment of Potential Effects

8. The following is replacement text for the sections as listed. Features and potential effects in **bold** are in addition to those presented in the **RIAA** [APP-059].

2.3.1 Section 6.4.1 River Wensum SAC, Table 6-4

Table 6-7: Summary of Potential Effects Screened Into the HRA

Qualifying feature	Potential effects
<i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	Direct effects on <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation present within ex-situ habitats of the SAC during the construction phase.
	Indirect effects on <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation present within the SAC boundary arising from geology / contamination and groundwater / hydrology effects during the construction phase.
	Indirect effects on <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation present within ex-situ habitats of the SAC arising from geology / contamination and groundwater / hydrology effects during the construction phase.
Desmoulin's whorl snail	Direct effects on Desmoulin's whorl snail present within ex-situ habitats of the SAC during the construction phase.
	Indirect effects on Desmoulin's whorl snail present within the SAC boundary arising from geology / contamination and groundwater / hydrology effects during the construction phase.
	Indirect effects on Desmoulin's whorl snail present within ex-situ habitats of the SAC arising from geology / contamination and groundwater / hydrology effects during the construction phase.
White-clawed crayfish	Direct effects on white-clawed crayfish present within ex-situ habitats of the SAC during the construction phase.
	Indirect effects on white-clawed crayfish present within the SAC boundary arising from geology / contamination and groundwater / hydrology effects during the construction phase.
	Indirect effects on white-clawed crayfish present within ex-situ habitats of the SAC arising from geology / contamination and groundwater / hydrology effects during the construction phase.

Qualifying feature	Potential effects
Brook lamprey	Direct effects on brook lamprey present within ex-situ habitats of the SAC during the construction phase.
	Indirect effects on brook lamprey present within the SAC boundary arising from geology / contamination and groundwater / hydrology effects during the construction phase.
	Indirect effects on brook lamprey present within ex-situ habitats of the SAC arising from geology / contamination and groundwater / hydrology effects during the construction phase.
Bullhead	Direct effects on bullhead present within ex-situ habitats of the SAC during the construction phase.
	Indirect effects on bullhead present within the SAC boundary arising from geology / contamination and groundwater / hydrology effects during the construction phase.
	Indirect effects on bullhead present within ex-situ habitats of the SAC arising from geology / contamination and groundwater / hydrology effects during the construction phase.

9. Insert the following new sections as numbered in the [RIAA](#) [APP-059]:

2.3.2 Section 6.4.1.1.3 White-clawed crayfish

10. The white-clawed crayfish survey [APP-222] carried out in 2021 at the watercourse crossing point using the eDNA technique did not find evidence of white-clawed crayfish presence. The desk study provided evidence of white-clawed crayfish present 1-2km upstream in 2009 and in 2018.
11. As the qualifying feature is not present within the Order limits no direct effects are expected. However, this species has been present further upstream of the watercourse crossing point that is outside of the Order limits, and therefore for the purposes of this assessment it has been assumed that this species may be present within this reach of the River Wensum.
12. Direct effects on this species that inhabits the River Wensum are avoided because the cables and the ducts within which they are located pass under the River Wensum using trenchless techniques, as detailed in the embedded mitigation described in Section 6.3.1 and Table 6-2 of the [RIAA](#) [APP-059].
13. Indirect effects on this species that inhabits the River Wensum through potential changes to local hydrological conditions from the construction of SEP and DEP do not have the potential to change the structure and function of the riverine in-stream habitat because the cables and the ducts within which they are located pass under the River Wensum using trenchless techniques.
14. The potential exists for indirect effects on this species through the supply of sediments into the river during construction processes carried out within the floodplain and the accidental release of lubricants, fuels, oils and drilling fluid (bentonite) from construction machinery working within the floodplain. The proposed works will entail vehicle tracking and earthworks associated with trenchless crossing

techniques, including a drilling rig, haulage vehicles earth-moving equipment that will be operating within the floodplain adjacent to the River Wensum for approximately two months.

15. The following mitigation measures, secured in the updated **Outline Code of Construction Practice (Revision B)** submitted at Deadline 1 [REP1-023] will be put in place to minimise the risk of sediment or pollutant release into the watercourses which are functionally connected to the River Wensum.

2.3.2.1 Sediment management

16. To minimise potential impacts from the construction phase on land, surface water or groundwater receptors, the Applicant has committed to the following measures:
- Temporary works areas (e.g. construction compounds and trenchless crossing areas) within the onshore development area may comprise hardstanding of permeable material, such as gravel aggregate or alternatively matting/timber or similar, underlain by geotextile or another suitable material to a minimum of 50% of the exposed area. This would minimise the area of open ground;
 - Changes in surface water runoff resulting from the increase in impermeable area from the construction of the onshore cable corridor and particularly the onshore substation will be attenuated and discharged at a controlled rate, in consultation with the Lead Local Flood Authority (LLFA) and the Environment Agency. This controlled runoff rate will be equivalent to the greenfield runoff rate;
 - Limiting extent of open excavations along the onshore cable route to short sections at any one time (work fronts). Topsoil would be stripped from the entire width of the onshore cable route for the length of the work front and stored and capped to minimise wind and water erosion within the onshore cable route;
 - Once all the trenching is completed and back-filled within each work front, the stored topsoil will be re-distributed over the area of the work front, with the exception of the running track and any associated drainage;
 - Mobilisation areas within the onshore project area will comprise hardstanding of permeable gravel aggregate underlain by geotextile, or other suitable material;
 - Minimising of subsoil exposure and retention of strips of undisturbed vegetation on the edge of the working area where possible;
 - Where surface vegetation has been removed (with the exception of arable crops), this will be reseeded to prevent future runoff;
 - On-site retention of sediment will be maximised by routing all drainage through the site drainage systems;

- Measures to intercept sediment runoff at source in the drainage system using suitable filters to remove sediment from water discharged to the surface drainage network;
- Cleaning of the wheels of vehicles leaving site to prevent the accumulation of soil and sediment on road surfaces. Traffic movements would be restricted to minimise surface disturbance;
- Routeing the cable to avoid water resources and flood risk receptors where possible; and
- In locations where large areas of exposed ground lie adjacent to watercourses, buffer strips of vegetation will be retained where possible to prevent runoff.

2.3.2.2 Pollution prevention

17. The working methodology will follow construction industry good practice guidance, as detailed in the Environment Agency's Pollution Prevention Guidance (PPG) notes (including PPG01, PPG05, PPG08, PPG21 and PPG22), and CIRIA's 'Control of water pollution from construction sites – A guide to good practice' (2001), including:
- Spill kits will be available on site at all times and staff will be trained in their use.
 - Sand bags or stop logs will also be available for deployment on the outlets from the site drainage system in case of emergency spillages.
 - Equipment will be regularly checked to ensure leakages do not occur.
 - Refuelling of construction plant will be restricted to designated impermeable areas.
 - All fuels, oils, lubricants and other chemicals will be stored in an impermeable bund with at least 110% of the stored capacity.
 - Suitable biosecurity protocols will be put in place during the works in order to minimise the risk of contamination and the spread of the invasive non-native species (INNS).
18. Further detail on INNS protocols is given in the updated **Outline Ecological Management Plan (Revision B)** submitted at Deadline 1 [REP1-027].

2.3.2.3 Bentonite breakout

19. Bentonite is an inert clay-based material used as a lubricant at the drill head during trenchless crossing techniques – comprising 95% water and 5% clay. It does not represent a pollutant but can cause smothering of habitats if not contained.
20. For small breakouts it may cause more damage to the sensitive habitats to attempt to contain the breakout and remove the escaped material, i.e. trampling of grassland associated with responding to the breakout and the potential for exposing bare ground. A Bentonite Breakout Plan will be developed and will be included in the final CoCP (**Outline Code of Construction Practice (Revision B)** [REP1-023]), which



will define the approach for responding to breakouts. The steps of the contingency plan will include:

- Measures to ensure drilling stops once a breakout is reported (there will be a drop in pressure at the drill head).
- Measures to contain the breakout, for example sand bags, to minimise the extent of any smothering.
- Measures to remove the released bentonite if a significant volume of material is contained – for example pumped back to the bentonite lagoon within the trenchless crossing compound, or pumped to the interceptor drains, or pumped to the mobile settling tanks that will be used for managing sediment traps.
- The exact specification for the contingency plan will be informed by further ground investigation and the specific design of the trenchless crossing.

21. These mitigation measures are considered suitable for minimising the risk of sediment / pollutant release directly or indirectly into the River Wensum down to a negligible level.

2.3.2.4 Conclusion

22. In light of the negligible risk of the proposed works affecting the River Wensum following implementation of the mitigation measures outlined above, and the commitment to cross the River Wensum using trenchless techniques, there would be **no adverse effect on the integrity of the River Wensum SAC in relation to the conservation objectives for white clawed crayfish.**

2.3.3 Section 6.4.1.1.4 Brook lamprey

23. The desk study that accessed the Environment Agency National Fish Population Database returned records of brook lamprey within the watercourses within the Order limits. The River Wensum SAC has not been the subject of project-specific baseline fish surveys. For the purposes of this assessment it has been assumed that this species may be present within this reach of the River Wensum.
24. Direct effects on this species that inhabits the River Wensum are avoided because the cables and the ducts within which they are located pass under the River Wensum using trenchless techniques, as detailed in the embedded mitigation described in Section 6.3.1 and Table 6-2 of the **RIAA** [APP-059].
25. The potential for SEP and DEP to change local surface water, groundwater and hydrological conditions, during its construction phase is covered above for indirect effects on white-clawed crayfish. The mitigation for potential effects and therefore the conclusion is the same for brook lamprey.
26. Following implementation of the mitigation measures outlined in **Sections 2.3.2.1 to 2.3.2.3** above, and the commitment to cross the River Wensum using trenchless techniques, there would be **no adverse effect on the integrity of the River Wensum SAC in relation to the conservation objectives for brook lamprey.**

2.3.4 Section 6.4.1.1.5 Bullhead

27. The desk study that accessed the Environment Agency National Fish Population Database returned records of bullhead within the watercourses within the Order limits. The River Wensum SAC has not been the subject of project-specific baseline fish surveys. For the purposes of this assessment it has been assumed that this species may be present within this reach of the River Wensum.
28. Direct effects on this species that inhabits the River Wensum are avoided because the cables and the ducts within which they are located pass under the River Wensum using trenchless techniques, as detailed in the embedded mitigation described in Section 6.3.1 and Table 6-2 of the [RIAA](#) [APP-059].
29. The potential for SEP and DEP to change local surface water, groundwater and hydrological conditions, during its construction phase is covered above for indirect effects on white-clawed crayfish. The mitigation for potential effects and therefore the conclusion is the same for bullhead.
30. Following implementation of the mitigation measures outlined in [Sections 2.3.2.1](#) to [2.3.2.3](#) above, and the commitment to cross the River Wensum using trenchless techniques, there would be **no adverse effect on the integrity of the River Wensum SAC in relation to the conservation objectives for bullhead.**

References

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