

Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Appendix 18 to Deadline 4 Submission: Draft Site Integrity Plan

Relevant Examination Deadline: 4

Submitted by Vattenfall Wind Power Ltd

Date: March 2019

Revision B

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Date of Approval:	March 2019
Revision:	B

Revision A	Original Document submitted to the Examining Authority
Revision B	Revised Document Submitted to the Examining Authority
N/A	
N/A	

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Appendices referred to in this document

Appendix 21 to Deadline 2 revised Report to Inform Appropriate Assessment

Appendix 22 to Deadline 2 Draft Site Integrity Plan

Appendix 33 to Deadline 3 Development Consent Order

Appendix 3 to Deadline 4 Response to Deadline 3 submissions by Interested parties

1 Introduction

- 1 The current document provides the Site Integrity Plan (SIP) for Thanet Extension Offshore Wind Farm (Thanet Extension), in relation to the Southern North Sea (SNS) Site of Community Importance (SCI). The purpose of the SIP is to provide certainty that the conclusions of the Report to Inform Appropriate Assessment (RIAA, Appendix 21 to Deadline 2, REP2-018 and REP3-019), specifically the conclusion throughout of no adverse effect on integrity (AEoI), will remain valid. That certainty is provided through the identification of risk, in terms of relevant (noisy) works undertaken by projects other than Thanet Extension, and the inclusion of measures to manage that risk and ensure any in-combination impact would remain within the thresholds as defined within the RIAA and therefore the conclusions of no AEoI will be retained.
- 2 A draft SIP was first submitted by the Applicant at Deadline 2 (REP2-033), with comments received at Deadline 3 from Natural England (REP3-011 and REP3-020, together with inclusion in the relevant Statement of Common Ground REP3-070) and the Marine Management Organisation (REP3-039 and the relevant Statement of Common Ground, REP3-010). The revised draft SIP has been prepared in response to those comments, with all these comments and the Applicants response summarised in Appendix 3 to Deadline 4.
- 3 The proposed timeframe for the SIP, which allows for the conclusions of the RIAA to be revisited with the need for additional mitigation confirmed, has been amended below in response to comments received from Natural England as follows:





- 1. First review/ update of the SIP (and RIAA Addendum) to be issued to the MMO at least 4 months prior to the start date of the first geophysical survey.**

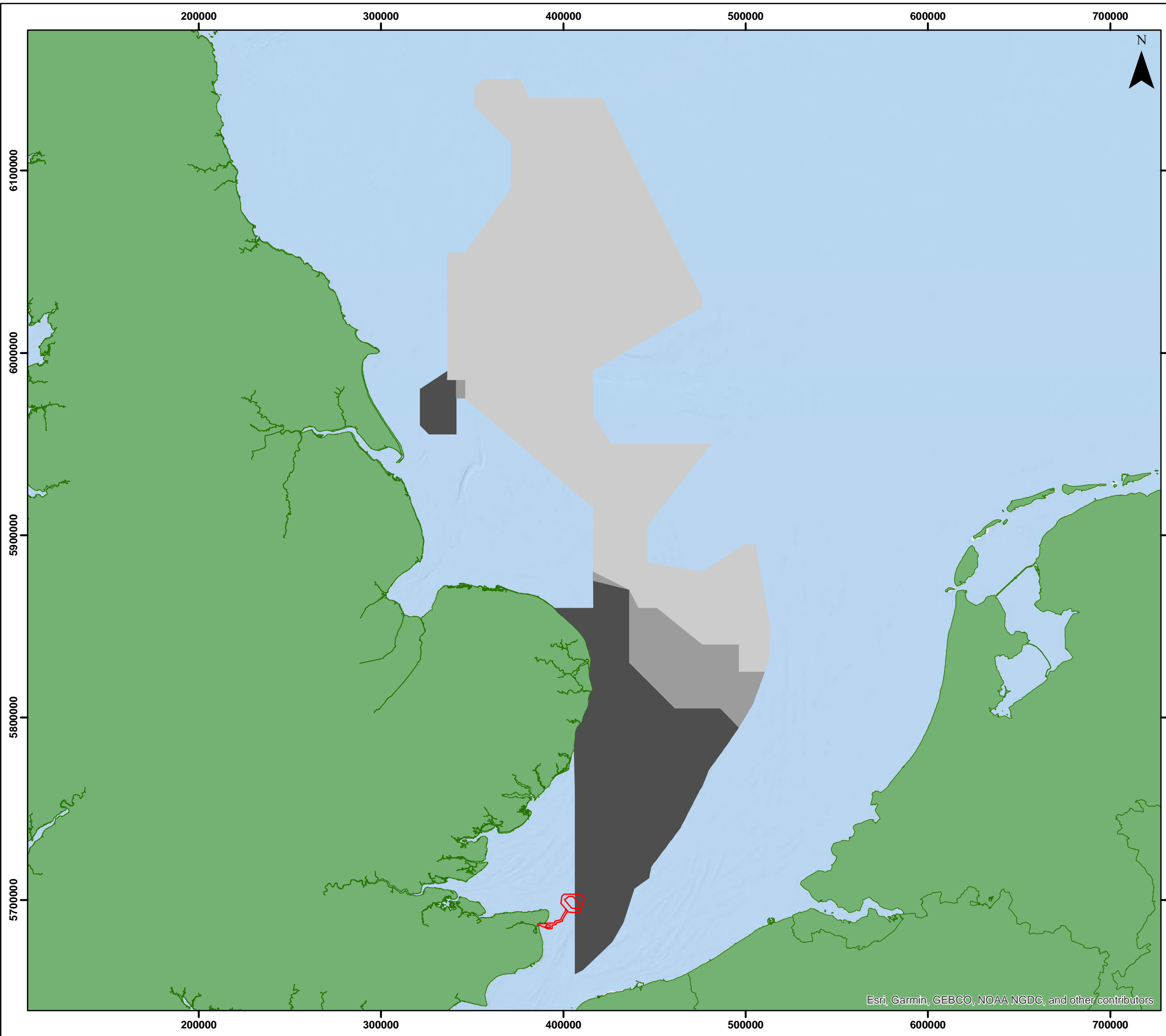
To be linked to the first 'noisy' event, being the first project specific activity relevant to the SIP. That event will be the first geophysical survey. dML conditions (contained within the revised draft Development Consent Order issued as Appendix 33 at Deadline 3, REP3-036, Schedule 11, Part 4 Conditions, Pre-construction plans and documentation 12(b) and Schedule 12, Part 4 Conditions, Pre-construction plans and documentation 10(c)), effectively require a construction programme and monitoring plan to be submitted to the MMO at least 4 months prior to the first survey. The SIP is included here specifically under Schedule 11, Condition 12(k) and Schedule 12, Condition 10(l). The SIP must be approved by the MMO prior to the commencement of the licensed activities. It is considered that provision of the revised SIP at the same time as the information regarding the relevant activity (i.e. the geophysical survey) is appropriate, as confirmation on the SIP would be required prior to undertaking the survey, and the SIP cannot be updated until certainty on the geophysical survey (regarding the project parameters alone but also in-combination) is available.
- 2. Second review/ update of the SIP (and RIAA Addendum) to be issued to the MMO at least 4 months prior to the start date of the next 'noisy activity' (geophysical survey and/or piling, with UXO to be addressed separately).**

Final review/ update of the SIP to be linked to the second relevant (noisy) activity. The SIP must be approved by the MMO prior to the commencement of the licensed activities. It is considered that provision of the revised SIP prior to the second relevant (noisy) activity is appropriate, as project design will be clarified at that point.

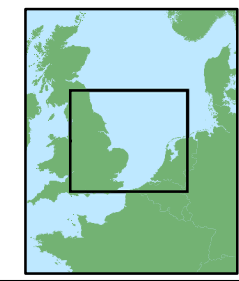
THANET EXTENSION OFFSHORE WIND FARM

Figure 1
Southern North Sea
cSAC/ SCI in Relation to
Thanet Extension

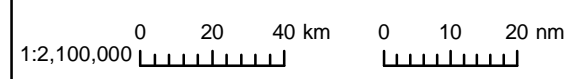
- Legend**
-  Offshore Red Line Boundary
 -  SNS cSAC/ SCI Summer and Winter
 -  Area SNS cSAC/ SCI Summer Area
 -  SNS cSAC/ SCI Winter Area



Datum: ETRS 1989
Projection: UTM31N



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Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Drg No	Fig1_SNScSAC		
Rev	0.1	Date	04/02/2019
By	PN	Layout	N/A

Figure 9.5

2 Final Design Plan

- 4 The final design plan for Thanet Extension is anticipated to fall within the Maximum Adverse Scenario, as defined in Section 5 of the RIAA (APP-031). A summary of the key final design plan parameters, as relevant to the SNS SCI, are provided below in Table 1. These parameters are deemed relevant as they relate to those effects screened in for Likely Significant Effect (LSE) and assessed as resulting in no AEol alone and in combination.
- 5 Confirmation of the Final Design Plan is part of the function of the SIP – as it is these that will confirm, for the project alone, if the existing conclusions within the RIAA remain valid. If the Final Design Plan alters, then confirmation will be required that those changes do not affect the existing conclusions of no AEol. An additional column has been added to Table 1 to allow for that confirmation to be added in subsequent iterations of the SIP.
- 6 For clarity, it should be noted that the location of Thanet Extension in relation to the SNS SCI (see Figure 1) is such that the following works are only relevant to the HRA process should they occur within the winter season (October to March inclusive). Works that occur within the summer season (April to September inclusive) are therefore not subject to the requirements of the SIP.

Table 1: Relevant Final Design Plan Parameters

Parameter	Final Design Plan	Any change to the Final Design Plan?
Pile driving (underwater noise)	<p>To occur within the array boundary only.</p> <p>Offshore construction to start 2021 at the earliest, being completed before the end of the winter season 2022-2023.</p> <p>Maximum of 36 foundations (34 turbines, 1 offshore substation, 1 met mast).</p> <p>Piling can occur at more than one foundation location in 24 hours, with the limit on the number of locations being practical only (i.e. speed of construction).</p> <p>Risk of lethal or injurious effects to be managed through a piling-MMMP, produced in agreement with Natural England and meeting requirements of European Protected Species Licensing (EPS).</p>	<p>To be confirmed for the subsequent issue of the SIP – should any parameters change, confirmation will be required as regards the existing conclusion of no AEoI, including the need for any additional mitigation</p>
Geophysical survey (underwater noise)	<p>To occur within the array and offshore export cable corridor boundary only.</p> <p>Timing unknown but assessed as occurring in the winter season 2019/20-2020/21</p> <p>Up to 10 survey days per season.</p>	<p>To be confirmed for the subsequent issue of the SIP – should any parameters change, confirmation will be required as regards the existing conclusion of no AEoI, including the need for any additional mitigation</p>
Disturbance from vessel traffic	<p>Maximum number of vessels per day of 48</p>	<p>To be confirmed for the subsequent issue of the SIP – should any parameters change, confirmation will be required as regards the existing conclusion of no AEoI, including the need for any additional mitigation</p>

Cable installation, seabed preparation and drilling (underwater noise)	No limitation relevant to the SNS SCI.	To be confirmed for the subsequent issue of the SIP – should any parameters change, confirmation will be required as regards the existing conclusion of no AEoI, including the need for any additional mitigation
Accidental pollution	Managed through the implementation of the PEMMP, produced in consultation with Natural England and provided for in the DCO as part of the standard dML requirements.	To be confirmed for the subsequent issue of the SIP – should any parameters change, confirmation will be required as regards the existing conclusion of no AEoI, including the need for any additional mitigation

- 7 The Applicant acknowledges that the RIAA also makes consideration of the potential need for clearance of unexploded ordnance (UXO). However, the clearance of UXO is not included under the Development Consent Order application and it is proposed to be licenced under a separate Marine Licence (ML) once further surveys have taken place to determine the likely number and nature of UXO present (if any) that will need clearance. The separate ML application for UXO clearance will include due consideration of the SNS cSAC/ SCI, include the need (if any) for a SIP at that time.
- 8 When the HRA is revisited (see Section 3 below) for confirmation of no AEoI (as per the timeframe identified in paragraph 13, section 1 above), confirmation will be provided within the updated SIP that the final design plan parameters identified in Table 1 remain valid. That process will follow the timetable identified under paragraph 3 above – namely at least 4 months prior to the first geophysical survey and again at least 4 months prior to the next relevant (noisy) activity. Should any material change(s) be apparent, then confirmation will be provided through the updated HRA process described below in Section 3 that the change(s) do not alter the conclusions of no AEoI.

3 Updated HRA

- 9 It is understood that Natural England expect an updated HRA to accompany the SIP process. To that end, the following programme is committed to:
- Issue of the RIAA with the application (document issued June 2018 at the time of application (APP-031)) COMPLETE;
 - Re-issue of the RIAA at Deadline 2 (Appendix 21 to Deadline 2, REP2-018 and REP3-0192), to enable various updates to be included. With respect to the SNS SCI, these included further consideration of French sites, updates to the in-combination assessment and reference to the SIP (REP2-033) COMPLETE;
 - Re-issue of a revised SIP (current document, Appendix 18 to Deadline 4) in response to comments received at Deadline 3 (COMPLETE);
 - Issue of an Addendum to the RIAA, together with SIP, according to the timetable stated in paragraph 13 in Section 1, to summarise changes (if any) to the assessment of AEoI for the SNS SCI only, alone and in-combination.
- 10 It is considered that adherence to that timetable, including delivery of the SIP for agreement with the MMO, will ensure discharge of Schedule 11, Condition 12(1)(k) and Schedule 12, Condition 10(1)(l) of the DCO.

4 Mitigation Measures

- 11 The RIAA (REP2-018 and REP3-019) includes existing mitigation commitments within Table 6.1 (of the RIAA).
- 12 Further detail on marine mammal specific mitigation is provided within the draft piling-Marine Mammal Mitigation Protocol (APP-146), prepared and agreed in consultation with Natural England. It is considered that these existing commitments provide sufficient mitigation to address the risk of mortality or injury in harbour porpoise and (unless the project parameters defined in Table 1 change, with this to be confirmed and addressed if necessary through the updated HRA process outlined in Section 3 above) no further mitigation would be required to address that risk. Consideration of further mitigation made here is therefore limited to disturbance of harbour porpoise only, as addressed through the threshold approach – specifically that of 20% per 24 hours and 10% per season (as defined in Section 9.6 of the RIAA, REP2-018 and REP3-019).
- 13 The RIAA concluded no AEoI for the SNS SCI, alone and in-combination. That conclusion is dependent on the project specific parameters outlined in Table 1 above but also on project parameters for those projects considered in-combination.
- 14 The marine mammal in-combination assessment presented within Section 12.3 of the RIAA is based on a standard tiering approach, which takes account of the project certainty (specifically how close a project is to construction and the remaining stages to be completed). The assessment identified the following remaining key risk, which can be summarised as follows:
 - Winter season 2019/2020 onwards – should East Anglia THREE progress from Tier 2 into Tier 1, which requires the project to achieve CfD, FID and start construction within the timeframe specified in Table 1 above for Thanet Extension.
- 15 Thanet Extension has confirmed that no geophysical works will be required before the end of March 2019, with the potential for such surveys included within the RIAA as a worst case scenario. Therefore the timeframe for relevant works have been adjusted accordingly within the SIP to reflect the earliest relevant activity being within the winter season 2019/20. The change does not alter the existing conclusions, as it represents a reduction in the number of seasons within the assessment.

- 16 The Spectrum seismic survey identified by Natural England is acknowledged, however given the location of the survey (at least 51km from the winter extents of the SNS cSAC/SCI) means that there is no potential for an in-combination effect with Thanet Extension and therefore no need to include the survey within the Thanet Extension in-combination assessment.
- 17 No other risks were identified with respect to the SNS SCI within the RIAA, however the commitment made in Section 3 above as regards a RIAA Addendum to be issued in the timeframe specified, provides additional certainty that should further unforeseen changes occur to plans and projects assessed in-combination, such changes can be addressed to confirm that no adverse effects on integrity will arise.
- 18 Table 2 of the JNCCs Advice on Activities for the SNS SCI¹ summarises the relevant mitigation with respect to disturbance and displacement effects in relation to piling. It is clear that the first step relates to the following primary mitigation measures:
- ‘by varying the schedule of piling, particularly if several developments are constructing at the same time and pile driving footprints do not overlap (i.e maximising area from which porpoise are excluded). Limited spatio-temporal restrictions may be needed’*
- 19 This is followed by secondary mitigation measures:
- ‘Other examples of mitigation include the use of sound dampers, methods that create a barrier to sound transfer (e.g. bubble curtains) and, more effectively, the use of alternative foundation types (e.g. gravity foundations, suction cups, floating turbines, drilling). Scheduling of activities may minimise cumulative exclusion from areas’*
- 20 For Thanet Extension, the focus of proposed mitigation is on the primary measures – i.e. management of activities – with such measures considered sufficient to ensure the thresholds for the cSAC/SCI (paragraph 11 of this document) will not be exceeded.
- 21 For the risks identified above, Thanet Extension commits (noting the removal of the previous point related to winter season 2018/19) to a watching brief to be maintained on East Anglia THREE, with progress and status reviewed, in line with the timeframe identified in paragraph 13, Section 1. Should an in-combination risk be identified at that point, then the following approach will be applied:
- Undertake management of project activities to ensure the project remains within thresholds; AND/OR

¹ <http://jncc.defra.gov.uk/pdf/SouthernNorthSeaConservationObjectivesAndAdviceOnActivities.pdf>

- Liaison with MMO, through compliance with the need to provide a construction programme, to determine if the in-combination effect could be managed so as to remain within thresholds (e.g. through foundation location planning, rate of construction etc); AND/OR
 - Seasonal restriction for Thanet Extension (effectively committing to limiting relevant (noisy) works that occur within the winter season(s), enabling works in-combination to be planned in a manner that avoids exceedance of the thresholds).
- 22 The reason that the above mitigation is deemed sufficient to provide certainty that no AEoI will result from disturbance associated with Thanet Extension alone or in-combination on the SNS cSAC/SCI is a combination of the seasonality of the SNS cSAC/SCI and the location of Thanet Extension, as the combination effectively means that any noisy works at Thanet Extension that occurs during the summer season (April to September inclusive) is not relevant to the HRA process (Thanet Extension being at least 229km from the summer extents of the SNS cSAC/SCI and therefore beyond the maximum 26km screening distance). It is only noisy works at Thanet Extension in the winter season (October to March inclusive) that have the potential to contribute to the thresholds. The inclusion in the mitigation of a seasonal restriction means the mitigation is wholly within the ability of the Applicant to control, commit to and deliver. As a worst case, a complete winter season restriction on noisy activity could be implemented, resulting in no contribution to the thresholds and effectively removing Thanet Extension from all HRA considerations for the SNS cSAC/SCI. The actual need for such a seasonal restriction (if any) will be determined at the point the final SIP is drafted, and may in practice result in a single winter season being excluded, or a single month, or a combination or no restriction. The mitigation is unambiguous (e.g. it does not affect the 26km EDR) and does not require different construction techniques, different infrastructure or different/additional equipment on site, nor does it require liaison or discussion with other developers.
- 23 It is considered that the above mitigation measures provide certainty that the risks identified within the RIAA (as summarised under paragraph 14 above) can continue to be addressed through management of activities at Thanet Extension, thus continuing to avoid the risk of an AEoI.
- 24 It is therefore considered that there is no requirement to consider the need for additional mitigation measures at Thanet Extension, such as the secondary mitigation measures identified above.
- 25 Thanet Extension proposes the following process for review of the RIAA and drafting of the SIP and the determination of whether any mitigation measures are required and which would need to be applied (if any):

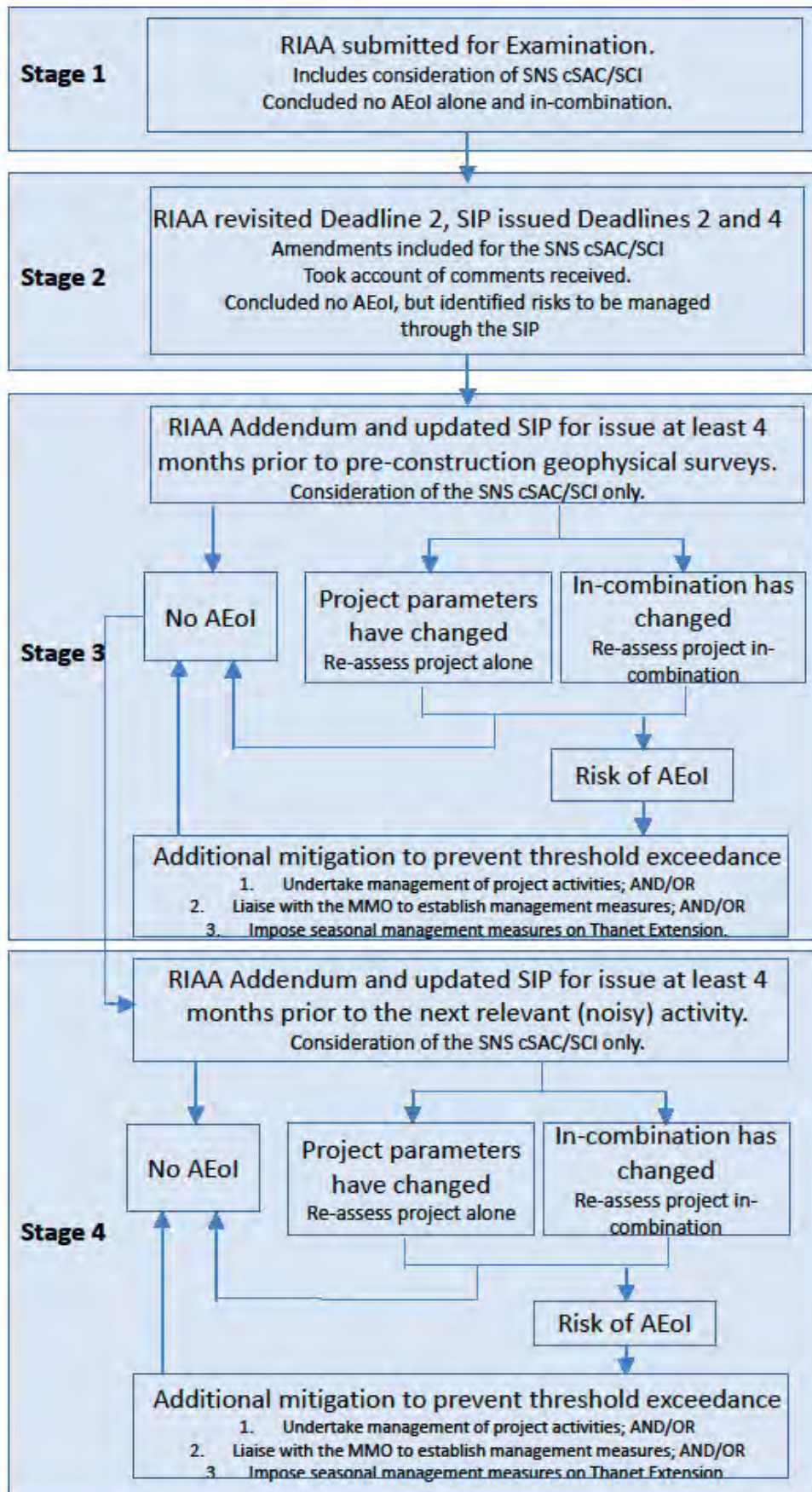


Figure 2: Proposed flow process for review of the RIAA and SIP

5 Review of Consents

- 26 Table 2 of the BEIS Review of Consents (RoC) identified no need to include Thanet Extension in the process, with the project listed as Tier 4. Table 75 of the RoC went on to exclude Thanet Extension from the in-combination assessment of underwater noise and physical impact on the seabed. No underwater noise modelling was undertaken for Thanet Extension. No further consideration of the RoC is therefore required here.

6 Additional Licencing Requirements

- 27 It is acknowledged that additional licenses will be required for the relevant (noisy) works at Thanet Extension. As highlighted within the RIAA, such works are expected to include:
- EPS License. It is expected that an injury licence will be required for UXO clearance (if required), although the risk of disturbance is considered to be very low. An EPS licence for disturbance during piling is also anticipated to be required; and
 - Marine License. Should it be confirmed that UXO clearance is required, a Marine Licence will be sought.
- 28 The above licenses will be drafted in consultation with Natural England and the Marine Management Organisation.