

**HABITATS REGULATIONS ASSESSMENT FOR AN  
APPLICATION UNDER THE PLANNING ACT 2008**

**The Lower Thames Crossing**

**25 March 2025**

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# 1. INTRODUCTION

## Background

- 1.1 This document (“the HRA Report”) is a record of the Habitats Regulations Assessment (“HRA”) that the Secretary of State for Transport has undertaken under regulation 63 of the Conservation of Habitats and Species Regulations 2017 (“the Habitats Regulations”) in respect of the Development Consent Order (“DCO”), for the proposed ‘Lower Thames Crossing’ (“the Development”). The HRA Report includes an appropriate assessment for the purposes of regulation 63 of the Habitats Regulations.
- 1.2 The Habitats Regulations were amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (“the 2019 Regulations”) and the amendments were taken into account in the preparation of this HRA Report. Reference to the Habitat Regulations in this HRA Report are therefore to the latest amended version, unless otherwise stated.
- 1.3 National Highways (“the Applicant”) submitted an application for development consent (“the Application”) to the Planning Inspectorate (“the Inspectorate”) on 31 October 2022 under section 37 of the Planning Act 2008 (“PA 2008”). The Development to which the Application relates is described in more detail in Section 2 of this HRA Report.
- 1.4 The Development constitutes a Nationally Significant Infrastructure Project (“NSIP”) by virtue of it being the ‘construction’ of a new highway within the meaning of section 14(1)(h) and meets the definition set out in section 22(1) requiring development consent in accordance with section 31 of the PA 2008. In addition to the highway NSIP the Development requires the relocation of gas pipelines and above ground electric lines each of which constitute NSIP development under section 14(1)(f) and section 20 and section 14(1)(b) and section 16 of the PA 2008, respectively. The Development is therefore a highway, gas pipeline and electric line NSIP [ER 1.1.4].
- 1.5 The Application was accepted for Examination by the Inspectorate (under the delegated authority of the Secretary of State) on 28 November 2022.
- 1.6 The Applicant submitted three change requests to the Development during pre-Examination and Examination, as set out in Section 1.5 of the Examining Authority’s (“ExA”) Recommendation Report (“the Recommendation Report”) and Table A3 in Annex A of the same Report. Table A3 provides a full record of each request together with additional information submitted in support of it and the ExA’s Procedural Decisions in relation to the management of each request. All three requests were accepted by the ExA for Examination. Interested parties (“IPs”) and Affected Persons (“APs”) were invited to make submissions on the changes at relevant deadlines before the close of Examination. The Secretary of State notes that all documents related to the change requests have been considered by the ExA [ER 1.5.5].

- 1.7 A separate record of considerations relevant to the HRA has been set in Appendix D of the ExA Report. Relevant HRA screenings were undertaken for each change but no matters relevant to the HRA arose from any of the change requests [ER D.2.10].
- 1.8 The Examination commenced on 20 June 2023 and concluded on 20 December 2023. The ExA submitted the report of the Examination, including its recommendation to the Secretary of State for Transport, on 20 March 2024. A Written Ministerial Statement (24 May 2024) extended the decision deadline to 4 October 2024.
- 1.9 The Secretary of State's conclusions in relation to European sites have been informed by the Recommendation Report, documents and representations submitted during the Examination and responses to the Secretary of State's requests for comments and further information issued on 28 March 2024, 19 April 2024, 10 May 2024, 21 May 2024, 9 July 2024 and 26 July 2024, insofar as these have any bearing on the effects of the Development on European sites.

### **Habitats Regulations Assessment**

- 1.10 The Habitats Regulations contains the relevant provisions for the protection of European sites. This is the broad term which is used to refer to special areas of conservation ("SAC") and special areas of protection ("SPA"). SACs are designated for their habitat features and populations of non-avian species. SPAs are designated for their bird populations. These sites form the national site network which includes all SACs and SPAs currently designated and new SACs and SPAs designated under the Habitats Regulations (as defined in regulation 8).
- 1.11 The UK Government is also a signatory to the Convention on Wetlands of International Importance 1972 ("the Ramsar Convention"). The Ramsar Convention provides for the listing of wetlands of international importance. Ramsar sites do not form part of the national site network, but all Ramsar sites are treated in the same way as SACs/SPA as a matter of Government policy<sup>1</sup>.
- 1.12 For the purposes of this HRA Report, in line with the Habitats Regulations and relevant Government policy, the term "European sites" includes SACs, candidate SACs ("cSAC"), possible SACs ("pSAC"), SPAs, potential SPAs ("pSPA"), sites of community importance ("SCI"), listed and proposed Ramsar sites and sites identified or required as compensatory measures for adverse effects on any of these sites.
- 1.13 Regulation 63(1) of the Habitats Regulations requires that:
- "(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which-*
- (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and*

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<sup>1</sup> Paragraph 187 of the 2023 National Planning Policy Framework (NPPF)

*(b) is not directly connected with or necessary to the management of that site,*

*must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives..."*

1.14 Regulation 64(1) goes on to state that:

*"(1) If the competent authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be)."*

1.15 Additionally, regulation 68 states that:

*"Where in accordance with regulation 64—*

*(a) a plan or project is agreed to, notwithstanding a negative assessment of the implications for a European site or a European offshore marine site, or*

*(b) a decision, or a consent, permission or other authorisation, is affirmed on review, notwithstanding such an assessment,*

*the appropriate authority must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected."*

1.16 The Development is not directly connected with or necessary to the management of any European sites [ER D.6.1]. Accordingly, the Secretary of State for Transport, as the competent authority for the purposes of Transport NSIPs under the PA 2008, has undertaken an assessment in line with the requirements of the Habitats Regulations. This HRA Report (Sections 1 to 5) is the record of the appropriate assessment for the purposes of regulation 63 of the Habitats Regulations.

**The Report on the Implications for European Sites (RIES) and consultation with the appropriate nature conservation body**

1.17 The ExA, with support from the Inspectorate's Environmental Services Team, produced a Report on the Implications for European Sites ("the RIES"). The purpose of the RIES was to compile, document and signpost information submitted by the Applicant and IPs during the Examination up to and including Deadline 6 (31 October 2023). It was issued to ensure that IPs, including Natural England ("NE") as the appropriate nature conservation body ("ANCB") in respect of the Application for the Development, had been formally consulted on Habitats Regulations matters during the Examination. The consultation period ran from 14 November 2023 to 5 December 2023.

1.18 Regulation 63(3) of the Habitats Regulations requires competent authorities (in this case the Secretary of State), if they undertake an appropriate assessment, to consult the ANCB and have regard to any representations made by that body.

- 1.19 The ExA questioned the Applicant and NE on the positions reached regarding the Applicant's HRA [APP-487] but was a process that the ExA considered best undertaken through written questions and then through the RIES which in turn raised further supplementary questions [ER D.2.6]. The ExA sought clarification from NE in the RIES on whether the approach of using the conservation objective for Thames Estuary and Marshes SPA for Thames Estuary and Marshes Ramsar site was appropriate. NE confirmed agreement of this approach at Deadline 8 (5 December 2023) [ER D.4.5]. No other IPs raised matters in relation to conservation objectives during the Examination [ER D.4.6].

### **Changes to the Application during Examination**

- 1.20 In respect of the three change requests to the Application, identified at paragraphs 1.6 to 1.7 of this HRA Report and described at Section 1.5 of the Recommendation Report, the Secretary of State notes that no matters relevant to HRA arose from any of the change requests [ER D.2.10].

### **Documents referred to in this HRA Report**

- 1.21 This HRA Report has taken account of and should be read in conjunction with the documents produced as part of the application and Examination, together with the responses to the Secretary of State's request for comment and further information dated 28 March 2024, 19 April 2024, 10 May 2024, 21 May 2024, 9 July 2024 and 26 July 2024.
- 1.22 The Applicant provided a report entitled 'Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment' ("the Applicant's HRA Report") with the DCO application (APP-487). In addition, the Applicant included 'Appendix E (Screening Matrices)' with its HRA Report (APP-488). The same Report was submitted in duplicate as an appendix to the Environmental Statement (the "ES"). Unless otherwise stated, subsequent references to the Applicant's HRA Report in this Report refer to the version submitted with the DCO application (APP-487). At Deadline 8, the Applicant submitted an 'Assessment of the air quality effects on European sites following Natural England advice' (REP8-122).
- 1.23 The documents relied on in the preparation of this HRA Report are listed in Annex 1 of this HRA Report.

### **Structure of this HRA Report**

- 1.24 The remainder of this HRA Report is presented as follows:
- Section 2 provides a general description of the Development.
  - Section 3 describes the location of the Development and its relationship with European sites.
  - Section 4 identifies the European sites and qualifying features subject to likely significant effects, alone or in combination with other plans or projects (HRA Stage 1).

- Section 5 considers adverse effects on the integrity of European sites, alone or in combination with other plans or projects and summarises the Secretary of State's appropriate assessment and conclusions (HRA Stage 2).
- Section 6 summarises the Secretary of State's conclusion in respect of HRA Stages 1 and 2.

## 2. DEVELOPMENT DESCRIPTION

- 2.1 The Development is described in detail in Chapter 2 (Project Description) (APP-140) of the ES. The ExA summarised the main components of the Development in paragraphs 1.3.13 to 1.3.28 of the Recommendation Report, which should be read in conjunction with this HRA Report. The ExA also provided a short summary in the Overview of its Report, as follows:
- A general-purpose trunk road dual carriageway connecting the A2/M2 at Thong (Kent) to the M25 at Thames Chase (London Borough of Havering and Essex), south of Junction 29 (of the M25);
  - A major intersection at Thong connecting the Development to the A2/M2 and the local road network;
  - A twin pair of bored tunnels carrying the Development under the River Thames from Chalk (Kent) to Tilbury (Thurrock);
  - A tunnel service intersection at Tilbury;
  - A major intersection at Baker Street (Essex) connecting the Development northbound and southbound to:
    - the A13 westbound and eastbound (including to the A1014 Manorway to London Gateway Port);
    - the A1089 (and the Port of Tilbury); and
    - the local road network via the Orsett Cock Roundabout.
  - A limited intersection connecting the Development to the M25 northbound only and from the M25 southbound only at Thames Chase;
  - Improvements to the M25 at Thames Chase, via Junction 29 to Junction 28;
  - New and replacement public open spaces and recreational facilities;
  - The management of land to mitigate acoustic, landscape and visual effects;
  - The management of land to mitigate and/or compensate for biodiversity effects;
  - New bridges accommodating walkers, cyclists and horse riders (“WCH”); and
  - New and replacement WCH routes.
- 2.2 The Development also includes the diversion of gas supply infrastructure and electricity networks infrastructure to which Work Nos. OH7, G2, G3 and G4 apply, and these are NSIPs in their own right [ER 8.2.1, 12.2.1 and 15.2.1].
- 2.3 The main construction of the Development is anticipated to take up to six years and proposed to begin in early 2025 and open for use by traffic in late 2030 (Paragraph 2.5.1 of ES Non-Technical Summary (APP-486)). In the Written Ministerial Statement (9 March 2024) the Secretary of State set out that construction would be rephased by two years.
- 2.4 Decommissioning activities are not described in the ES or the Applicant’s HRA Report. Chapter 2 (Project Description) explains at paragraph 2.8.36 that



decommissioning is not likely before the end of its 120-year design life as the Development would have become an integral part of the Strategic Road Network ("the SRN"). It further notes that if decommissioning were to occur, then it would need to conform with the statutory processes at that time; an Environmental Impact Assessment or similar assessment would need to be undertaken in line with regulatory requirements at that future point in time.

- 2.5 The potential effects on European sites associated with the construction and operation of the Development are addressed in Section 4 of this HRA Report.

### **3. LOCATION OF THE DEVELOPMENT AND RELATIONSHIP WITH EUROPEAN SITES**

#### **Location and existing land use**

- 3.1 The Development lies in the administrative areas of Kent County Council (Gravesham, Tonbridge and Malling and Maidstone Borough Councils), the unitary authority of Thurrock Council, Essex County Council (Brentwood Borough Council) and Greater London (the London Borough of Havering). The Development is wholly in England [ER 1.3.11].
- 3.2 The Development is in a highly populated part of the country near urban areas including, but not limited to, Gravesend, Grays and Tilbury. Although close to these urban areas, the route of the Development passes mostly through rural areas within designated Green Belt. Its alignment seeks to reduce impact on environmental assets and communities. There are many footpaths, bridleways, National Cycle Routes, local cycle route and trails within the area to provide WCH with access and connectivity to surrounding areas (ES Chapter 2, paragraph 2.1.7).
- 3.3 Areas of the physical environment around the Development are designated for their important ecological, cultural heritage, geological and landscape features. There are a number of nationally important ancient woodlands, sites of special scientific interest ("SSSI") and sites of local biodiversity importance to the south of the River Thames and close to the A2. On the south bank of the River Thames, to the east of Gravesend and north-east of Chalk, are the Thames Estuary and Marshes Ramsar site and the Thames Estuary and Marshes SSSI. Further east the land is also designated as part of the Thames Estuary and Marshes SPA. Located north of the River Thames there are several local wildlife sites ("LWS") as well as other areas of ancient woodland and sites of ecological and local biodiversity importance (ES Chapter 2, paragraph 2.1.8).
- 3.4 The Kent Downs Area of Outstanding Natural Beauty ("AONB") is on land between the villages of Thong and Shorne and to the south of the A2. There are a number of designated conservation areas both north and south of the River Thames, such as the villages of Shorne and Cobham (south) and the settlements of East and West Tilbury (north). There are a number of listed buildings both north and south of the River Thames, particularly Grade II and II\*. There are also scheduled monuments on the south bank of the Thames, such as New Tavern Fort and Cliffe Fort. On the north bank of the River Thames is Coalhouse Fort battery and artillery defences, Tilbury Fort as well as a cropmark complex at Orsett next to the A13 (ES Chapter 2, paragraph 2.1.9).
- 3.5 The Development crosses floodplains associated with the River Thames, the Mardyke and West Tilbury Main. The Mardyke and West Tilbury Main lie to the north of the River Thames in Thurrock, with the former flowing into the River Thames at Purfleet Sluice and the latter flowing into the River Thames via Bowaters sluice. Some of the floodplain areas have flood defences. Several ordinary watercourses cross the Development, especially to the north of the River Thames (ES Chapter 2, paragraph 2.1.10).

- 3.6 There are a number of Air Quality Management Areas (“AQMA”) designated by Gravesham Borough Council, Thurrock Council and the London Borough of Havering which demonstrate the existing air issues in these areas. There is also an AQMA at the Dartford Crossing designated by Dartford Borough Council (ES Chapter 2, paragraph 2.1.11).
- 3.7 Several noise important areas have been designated south of Gravesend along parts of the A2, as well as along the A13 and M25. These are shown on Figure 2.3: Environmental Constraints Plan (Application Document 6.2) (ES Chapter 2, paragraph 2.1.12).

### **European sites potentially affected by the Development**

- 3.8 The Development is not directly connected with, or necessary to, the management of a European site [ER D.2.2].
- 3.9 The Applicant’s approach to identifying relevant European sites is explained in Section 5 of its HRA Report (APP-487). The European sites have been identified as a result of applying paragraph 2.5.4 of the DMRB LA115 criteria [paragraph 5.1.1]. The initial search area of 2km was extended to a radius of 30km for European sites where bat species are a qualifying feature.
- 3.10 The Applicant considered the potential for likely significant effects (“LSE”) on the following four European sites and their qualifying features:
- Thames Estuary and Marshes SPA;
  - Thames Estuary and Marshes Ramsar;
  - North Downs Woodlands SAC; and
  - Epping Forest SAC [ER D.6.1].
- 3.11 Figures showing the European sites identified in the Applicant’s assessment are provided in Appendix A of the Applicant’s HRA Report and reproduced here as Figure 1. The proximity of the sites to the Development is presented in Table 1 (taken from Table 2.2 of the RIES):

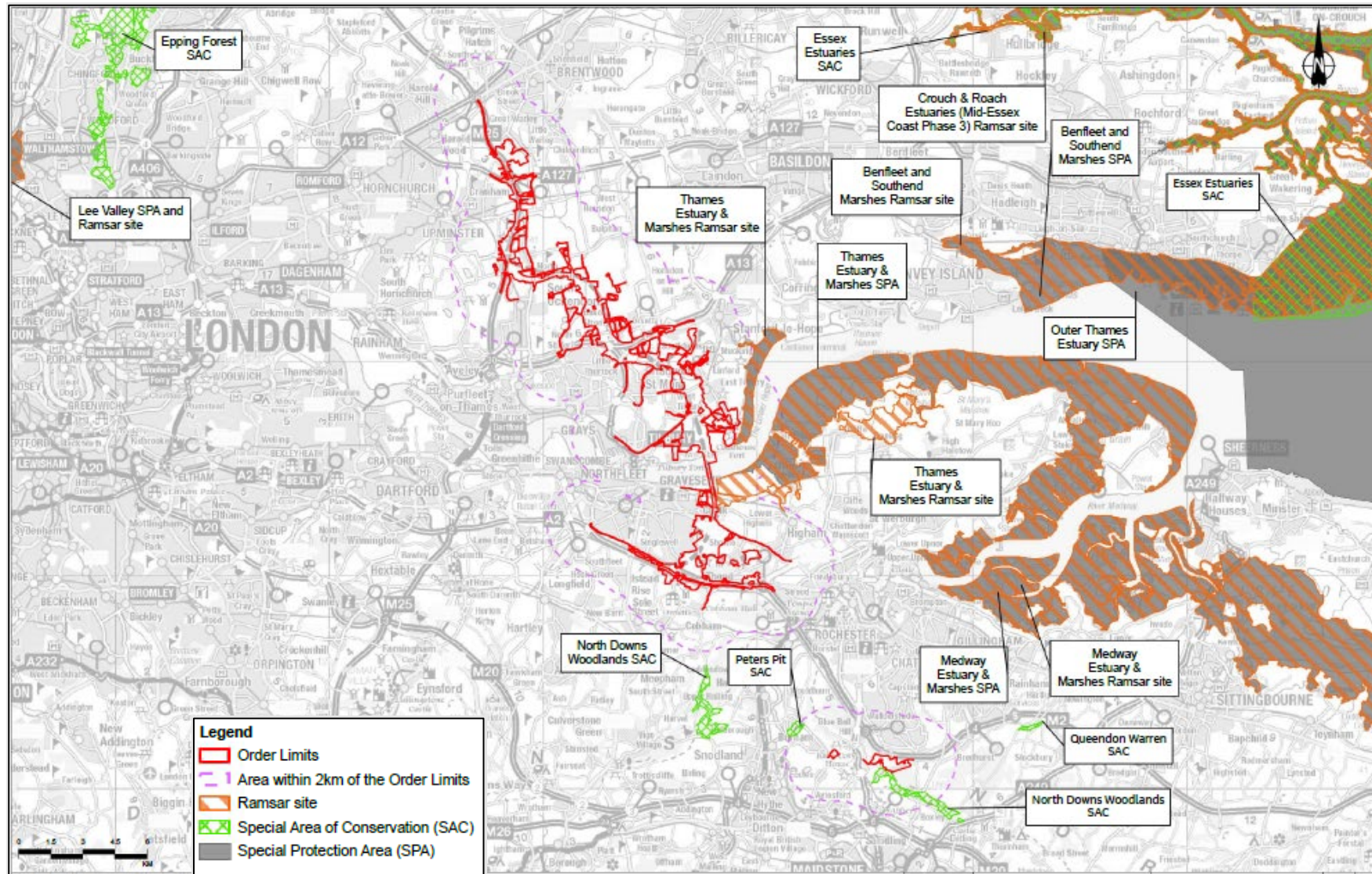
**Table 1 European sites screened into the Applicant’s assessment**

<b>Name of European Site</b>	<b>Distance to the DCO Order Limits</b>
Thames Estuary and Marshes SPA	0.1km east
Thames Estuary and Marshes Ramsar site	Adjacent to the Order Limits to the east
North Downs Woodlands SAC	Adjacent to the Order Limits to the south
Epping Forest SAC	19 km west

- 3.12 The Secretary of State notes that it was generally agreed by all IPs that the correct sites had been identified and included in the Applicants HRA Report and supporting evidence [ER 20.3.2].
- 3.13 In response to the RIES (ExQ1: PD-029), NE confirmed (REP4-338) that it agreed with the list of sites that the Applicant had considered in its HRA Report [ER D.2.15].

- 3.14 No additional European sites and non-UK European sites in the European Economic Area were identified in the Applicant's HRA Report or supporting reports for the ES. No transboundary impacts were raised for discussion by any IPs during Examination [ER D.2.16].
- 3.15 The Secretary of State notes that the ExA were satisfied that the Applicant had considered all relevant sites within its assessment, and she is therefore content to accept the ExA's recommendation that no other European sites or features need to be addressed in this HRA Report [ER D.2.17].
- 3.16 The main matters raised and discussed during Examination include [ER D.2.18]:
- The Applicant's conclusion of no likely significant effects (LSE) and adverse effect on integrity (AEol) from air quality on North Downs Woodland SAC;
  - the Applicant's conclusion of no LSE from air quality on Thames Estuary and Marshes SPA and Thames Estuary and Marshes Ramsar site;
  - the Applicant's overall assessment method, including plans and projects considered, for air quality in combination effects;
  - the design and implementation of the Applicant's mitigation for effects on functionally linked land (FLL) to Thames Estuary and Marshes SPA and Thames Estuary and Marshes Ramsar site;
  - the Applicant's conclusion of no AEol to Epping Forest SAC and 'without prejudice' mitigation measures; and
  - the age and appropriateness of baseline ecological data used to support the Applicant's HRA Report.
- 3.17 These matters are discussed in this HRA Report.
- 3.18 In its final statement of common ground (SoCG) (REP9A-052) Kent County Council maintained that environmental commitments integral to the Development that the Applicant considered in its conclusions for Thames Estuary and Marshes Ramsar site needed to be appropriate and capable of ensuring functionality of the marshes would not be affected during tunnel and road construction. The Applicant referred to its HRA Report that provides its conclusions, in particular to Section 6.2 on the efficacy of these commitments and to Section 7.1 on the likelihood of their success. No other IPs raised concerns on this matter [ER D.221].
- 3.19 The following matters were undisputed by other IPs, including NE:
- The sites and qualifying features considered by the Applicant in its assessment;
  - The impact-pathways with potential for LSE on Thames Estuary and Marshes SPA and Thames Estuary and Marshes Ramsar site (with the exception of underwater noise, see Section 4 below); and
  - The impact-pathways and potential for LSE on Epping Forest SAC.
- 3.20

Figure 1 Location of the Development in relation to the European sites affected.



## 4. STAGE 1: ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS (LSE)

### Potential effects from the Development alone

- 4.1 The Applicant identified potential impacts of the Development and considered these to have the potential to result in LSE alone as detailed in Tables 6.1 to 6.4 of its HRA [ER D.3.9].
- 4.2 The impacts considered by the Applicant to have the potential to result in LSE were:

#### Thames Estuary and Marshes SPA

- land take from the current functionally linked land (FLL) – terrestrial and aquatic environment;
- change in air quality – construction on FLL;
- change in surface water quality – construction / operation on FLL;
- introduction / spread of invasive non-native species (INNS) on FLL;
- species collision – operation on FLL;
- noise and vibration – construction / operation on FLL;
- visual disturbance – construction on FLL; and
- recreational disturbance – operation.

#### Thames Estuary and Marshes Ramsar site

- changes in air quality – construction;
- change in surface water quality / quantity – construction;
- change in groundwater quality / quantity – construction;
- introduction of INNS;
- species collision – operation;
- noise and vibration – construction / operation on site and FLL;
- visual disturbance – construction on site and FLL; and
- recreational disturbance – construction / operation on site and FLL.

#### Epping Forest SAC

- air quality – vehicle emissions – operation.

#### North Downs Woodlands SAC

- air quality – vehicle emissions – operation [ER D.3.10].

- 4.3 The Applicant's conclusions in respect of the Thames Estuary and Marshes SPA, the Thames Estuary and Marshes Ramsar site and North Downs Woodlands SAC were disputed by IPs [ER D.3.11].

- 4.4 The Secretary of State is satisfied that the Applicant's HRA Report has correctly identified all the potential effects on European sites from the Development alone.

#### **Potential effects from the Development in combination**

- 4.5 The Applicant's HRA Report provided that any development alone LSE identified as part of the HRA screening would also be considered to have a potential for LSE in combination. Such sites and features were taken forward to assess the potential for effects on integrity of the site [ER D.3.12].
- 4.6 Section 2 of the Applicant's HRA Report describes its approach to screening for LSE. Paragraph 4.4.1 of the Applicant's HRA Report notes that in completing its HRA due regard had been given to the relevant judgments listed in Table 4.2 of the Applicants HRA Report, which includes the ruling of the European Court of Justice ("ECJ") in *People Over Wind, Peter Sweetman v Coillte Teoranta* (C-323/17) ("the People Over Wind judgment"). This HRA Report also gives due regard to the ruling of the ECJ in *Landelijke Vereniging tot Behoud van de Waddenzee v Staatssecretaris van Landbouw* (C-127/02) ("the Waddenzee judgment").
- 4.7 Section 4.1 of the Applicant's HRA Report describes the methods applied for assessing what would constitute LSE [ER D.3.2]. The Design Manual for Roads and Bridges ("DMRB") LA 115 criteria were used to identify European sites that required assessment. In addition, DMRB LA 105 was used to assess air quality impacts and DMRB LA 113 for assessing the water environment.

#### **Survey data**

- 4.8 During the Examination, the Port of London Authority raised general concerns regarding the age of the Applicant's baseline terrestrial and marine surveys used for the HRA. This issue was explored by the ExA and whether there was the potential to affect the conclusions of the Applicant's HRA and the ES [ER D.3.5]. Views were sought through the RIES (QR1 and QR2: PD-048) with the ExA noting the Applicant's response that pre-application surveys would be used to update survey information and inform the detailed design. NE stated (REP8-154) that for projects of the scale of the Development where some design elements would be decided at a further detailed design stage, that updating survey data at a later stage was an appropriate action [ER D.3.6]. The ExA noted that pre-construction surveys are secured by the Applicant in its Code of Construction Practice ("CoCP") and within the draft DCO. The ExA considered that there are sufficient means to ensure that as design develops, appropriate ecological surveys will be undertaken, which is secured in the draft DCO Schedule 2 Requirements [ER D.3.8].
- 4.9 The Secretary of State is satisfied on the matter on the information contained in the surveys and such information will be updated as the design for the Development is progressed.

#### **Findings in relation to LSE**

- 4.10 The Applicant's HRA Report sets out in Section 6.2 its alone and in combination screening conclusions, with Tables 6.17 to 6.20 summarising those conclusions [ER

D.3.3]. Table 2 below represents the information on which the Applicant ruled out LSE.

- 4.11 The Applicant concluded no LSE from changes in light levels at both the Thames Estuary and Marshes SPA and Ramsar sites. The Applicant noted in its HRA (APP-487) at Table 6.16 that NE agreed with this conclusion. The ExA concluded that there was potential for LSE from this impact pathway (ER Table D1) but did not progress to Stage 2 Appropriate Assessment nor conclude that it disagreed with the Applicant. The Secretary of State has reviewed the Applicant's HRA Report and NE's response, and she is satisfied that LSE from changes in lighting can be ruled out.

**Table 2 Summary of conclusions where LSE were ruled out by the Applicant**

European Site	Potential LSE	Pathway (construction/operation)	Reason for concluding no LSE
Thames Estuary and Marshes SPA	Reduction in habitat area	Changes in groundwater quality and quantity – tunnel (c/o)	No pathway to effect
		Changes in surface water quality and quantity – associated functionally linked land (FLL) (c/o)	Inconsequential effects
		Change in air quality – dust emissions associated FLL (c)	Inconsequential effects
		Change in air quality – vehicle emissions (c/o)	No pathway to effect
		Introduction/spread of invasive non-native species (INNS) – associated FLL	Inconsequential effects
	Reduction in species density	Vehicle collision with species – associated FLL (o)	Inconsequential effects
		Utilities infrastructure collision – associated FLL	Inconsequential effects
	Disturbance to species	Changes in noise and vibration – underwater and above ground associated FLL (tunnel construction only)	Inconsequential effects
		Changes in light levels – associated FLL (c/o)	Inconsequential effects
		Changes in visual disturbance (vehicles in eyeline) – associated FLL (o)	Inconsequential effects
		Changes in recreational disturbance (wider visitor pressures) (c/o)	Inconsequential effects
	Changes to key indicators	None	None
	Climate change	None	None



European Site	Potential LSE	Pathway (construction/operation)	Reason for concluding no LSE
Thames Estuary and Marshes Ramsar site	Reduction in habitat area	Change in air quality – vehicle emissions (o)	No pathway to effect
		Change in air quality – dust emissions within the site and associated FLL (c)	Inconsequential effect
		Change in air quality – vehicle emissions (within the site) (c)	Inconsequential effects
		Changes in surface water quality and quantity – associated FLL (c/o)	Inconsequential effect
		Changes in groundwater quality and quantity – tunnel (within the site) (c/o)	Inconsequential effect
		Introduction/spread of INNS – associated FLL	Inconsequential effect
	Reduction in species density	Vehicle collision with species – associated FLL (o)	Inconsequential effect
		Utilities infrastructure collision – associated FLL	Inconsequential effect
	Disturbance to species	Changes in noise and vibration - tunnel construction only underwater and above ground - within the site and associated FLL)	Inconsequential effect
		Changes in light levels – within the site and associated FLL (c)	Inconsequential effects
		Changes in light levels – within associated FLL (o)	Inconsequential effects
		Changes in visual disturbance (vehicles in eyeline) – within associated FLL (o)	Inconsequential effects
		Change in recreational pressure (wider visitor pressures) (c/o)	Inconsequential effects
	Changes to key indicators	None	None
	Climate change	None	None
Epping Forest SAC	Disturbance to species	None	None
	Reduction in species density	None	None
	Changes to key indicators	None	None
	Climate change	None	None
North Downs Woodlands SAC	Reduction in habitat area	Change in air quality – vehicle emissions (within the site) (o)	Inconsequential effects

European Site	Potential LSE	Pathway (construction/operation)	Reason for concluding no LSE
	Disturbance to species	None	None
	Reduction in species density	None	None
	Changes to key indicators	None	None
	Climate change	None	None

4.12 Table 3 below lists the impact-pathways for which the Applicant could not rule out LSE and progressed to Stage 2 Appropriate Assessment.

**Table 3 Summary of conclusions where LSE were not ruled out by the Applicant**

European Site	Potential LSE	Pathway
Thames Estuary and Marshes SPA	Reduction in habitat area	Land take in the terrestrial and aquatic environment – (associated FLL)
	Reduction in species density	None
	Disturbance to species	Changes in noise and vibration – construction works and vehicles (associated FLL)
		Changes in noise and vibration – operation (associated FLL)
		Changes in visual disturbance – construction (people/machines in eyeline) (associated FLL)
		Change in recreational disturbance – operation (Tilbury Fields visitor pressures)
	Changes to key indicators	None
	Climate change	None
Thames Estuary and Marshes Ramsar site	Reduction in habitat area	Land take in the terrestrial and aquatic environment – (within the site and associated FLL)
		Changes in surface water quality and quantity – construction (within the site – the southern tunnel entrance compound discharge)
	Reduction in species density	None
	Disturbance to species	Changes in noise and vibration – construction works and vehicles (within the site and associated FLL)
		Changes in noise and vibration – operation (within associated FLL)
		Changes in visual disturbance – construction (people/machines in eyeline) (associated FLL)
		Change in recreational disturbance – operation (Tilbury Fields visitor pressures)
	Changes to key indicators	None
	Climate change	None
Epping Forest SAC	Reduction in habitat area	Change in air quality – vehicle emissions – operation (within the site)
	Disturbance to species	None
	Reduction in species density	None
	Changes to key indicators	None
	Climate change	None
North Downs Woodlands SAC	Reduction in habitat area	None

European Site	Potential LSE	Pathway
	Disturbance to species	None
	Reduction in species density	None
	Changes to key indicators	None
	Climate change	None

4.13 The ExA notes that, in its Relevant Representation (RR-0784), NE agreed with the conclusion of the Applicant's screening stage apart from the following [ER D.3.14]:

- conclusions of no LSE from underwater noise on the Thames Estuary and Marshes SPA birds;
- concerns with the approach to assessing air quality effects with regard to whether the Development's traffic model builds in the same data for in combination development as that used for Local Plans; and
- conclusions of no LSE on the North Downs Woodlands SAC.

4.14 The Port of London Authority ("PLA") also disputed the conclusion of no LSE for underwater noise on the Thames Estuary and Marshes SPA [ER D.3.15]. The conclusion of no LSE from visual disturbance and other impact-pathways was disputed by IPs and these matters were all explored further by the ExA through the RIES Table 2.3 (PD-048) [ER D.3.16]:

Thames Estuary and Marshes SPA/Thames Estuary and Marshes Ramsar site:

- underwater noise and vibration – construction;
- visual disturbance – construction.

Thames Estuary and Marshes Ramsar site:

- nitrogen deposition – operation;
- air quality – construction.

North Downs Woodlands SAC:

- air quality – operation.

4.15 The ExA sought clarification from IPs to confirm that all potential impact-pathways that could lead to an LSE had been considered by the Applicant in its HRA. NE explained (REP4-338) that while it considered all impact pathways had been included but that it disagreed with the approach taken by the Applicant to the in combination assessment for certain air quality pollutants and requested a further update at Deadline 5 [ER D.3.18]. The air quality in combination assessment was also queried by other IPs, in particular the approach to the identification of other plans and projects [ER D.3.19]. These were explored by the ExA through the RIES and outlined below.

**Thames Estuary and Marshes SPA and Thames Estuary and Marshes Ramsar site**

Underwater noise

- 4.16 The matters relating to underwater noise were examined by the ExA. The Applicant's assessment in its HRA (APP-487) identified potential disturbance effects from the tunnel construction beneath the River Thames to the majority of the qualifying features of the SPA and the Ramsar site and FLL (HRA Tables 6.1 and 6.2). However, the Applicant's modelling, described in its HRA paragraphs 6.2.89 to 6.2.91, concluded that both noise on underwater feeding birds and particle velocity (affecting invertebrate prey distribution) would not be affected by tunnel construction. The Applicant concluded that noise and vibration would not be perceptible in water column above the tunnel during construction when considered against the background noise and therefore that there would be no potential effects from the Development alone or in combination with other plans or projected [ER D.3.21].
- 4.17 The Applicant's conclusions of no LSE from this impact pathway alone and in combination was disputed by NE and PLA. NE noted that the Applicant's submission did not fully consider how noise can affect the hearing of birds underwater and the PLA also noted that different birds would exhibit different feeding behaviour [ER D.3.22].
- 4.18 In a technical note, the Applicant provided further evidence to support its conclusions that as tunnel noise would not be heard above background levels, there was no possibility of an effect from this impact pathway, which is contained in Annex C8 to its Statement of Common Ground ("SoCG") with NE (REP2-009) [ER D.3.23]. The ExA requested written confirmation from NE whether the additional evidence was sufficient to confirm a conclusion of no LSE from this impact pathway [ER D.3.24].
- 4.19 NE maintained that if noise could breach background levels, then a pathway would exist and that was a matter that should be explored through the appropriate assessment process. Nevertheless, NE considered that there was no risk of adverse effect on integrity ("AEoI") and the matter was a procedural point rather than an ecological risk. NE also considered that the Applicant had provided sufficient information in its HRA Report to be able to conclude that there would be no AEoI from this impact pathway [ER D.3.25].
- 4.20 The ExA investigated the matter further in the RIES to establish from PLA and NE which qualifying features were potentially affected and whether sufficient information had been supplied by the Applicant to support its conclusions. The PLA did not respond; but NE responded to confirm that it considered the LSE to be a potential impact on bird feeding behaviour on the waterbird assemblage qualifying feature. NE also continued to disagree with the Applicant where there was a LSE on the SPA and Ramsar site from this impact pathway [ER D.3.27].
- 4.21 The Applicant provided no further information to support its conclusions on this impact pathway but reiterated it considered sufficient information had been supplied in its HRA and technical note to allow the Secretary of State to undertake an AA [ER D.3.28].

- 4.22 In the final SoCG between the Applicant and NE, NE maintained that the matter was best addressed at the AA stage but nevertheless concluded that an AEol was unlikely. The Applicant maintained its position that no LSE would arise from underwater noise. The PLA noted (REP9-295) that no new information on underwater noise and vibration from tunnelling had been provided but deferred the matter to NE in its capacity as ANCB [ER D.3.29].
- 4.23 The ExA considered the available information and the views of NE as the ANCB and PLA and was content that the conclusions of the assessment are agreed and that the matter outstanding was that of a procedural matter [ER D.3.30]. The Secretary of State agrees with NE's view in that LSE cannot be ruled out and that this impact pathway should be progressed to the Stage 2 Appropriate Assessment, as a procedural matter.

#### Visual disturbance

- 4.24 The ExA noted a request from the PLA for further assessment for LSE from this potential impact pathway. The Applicant's response noted that this impact pathway is within its HRA Report at paragraphs 6.2.29 to 6.2.33 and 6.2.94 to 6.2.106. No further representations from the PLA or other IPs were received on this matter [ER D.3.31]. On further examination the PLA noted that the Applicant's Register of Environmental Actions and Commitments ("REAC") within the CoCP, First iteration of Environmental Management Plan ("fiEMP") (REP7-123) requires a 3m high noise-attenuation barrier to be installed and that would also provide visual screening. The Applicant in its HRA noted that false cuttings and noise attenuation barriers for human receptors are integral to the Development, and therefore there was no scope for visual disturbance to birds using the foreshore. The PLA considered there would be no effect from working on the foreshore in winter with the control measures in place. No other IPs raised concerns on this matter [ER D.3.32].
- 4.25 Based on the information provided the ExA was content that there would be no potential for LSE from visual disturbance due to the design of the Development in the vicinity of the Thames Estuary Marshes SPA and the Thames Estuary Marshes Ramsar site. The ExA was also satisfied that there are other relevant measures secured in the Applicant's final REAC which would minimise impacts on these sites but have not been relied upon to reach a conclusion of no LSE [ER D.3.33]. The Secretary of State notes that the ExA was satisfied that there are other relevant measures secured by the Applicant's final REAC which would minimise impacts, but these measures have not been relied upon to reach a conclusion of no LSE.
- 4.26 The Secretary of State is satisfied, with the information provided, that LSE can be ruled out from visual disturbance from the Development on the Thames Estuary Marshes SPA and the Thames Estuary Marshes Ramsar site.

#### **Thames Estuary and Marshes Ramsar Site**

##### Nitrogen deposition (operation)

- 4.27 At Deadline 1 (18 July 2023), nitrogen deposition impact during the operational phase of the Development was raised by the PLA in its Written Representation

(REP1-269) as requiring assessment for LSE. The Applicant noted (REP 2-046) that there were no intertidal habitats that could be affected within 200m of the Affected Road Network (“ARN”) because the new road is in the tunnel. The PLA and other IPs did not make further representations on this matter [ER D.3.34]. The PLA pointed out that the nitrogen critical load (“NCLo”) at the Ramsar site had reduced, as shown on the Air Pollution Information System from May 2023. However, in its Deadline 1 response (REP1-262) in relation to the new NCLo, NE stated that its *“current position is not to require reassessments of protected sites where previous decisions were made based on the earlier critical loads, and where planning applications are at an advanced stage of determination.”* This was noted by the PLA [ER D.3.35].

- 4.28 NE was satisfied with the Applicant’s rationale for screening out LSE during the operational stage of the Development as set out in its response to the ExA’s QR8 in the RIES [ER D.3.36]. It is noted that no other IPs submitted representations on this matter [ER D.3.37].
- 4.29 The Secretary of State notes that the ExA was satisfied with a conclusion of no LSE for this impact pathway based on the reasons provided by the Applicant and taking into account the view of NE as the ANCB [ER D.3.38].
- 4.30 The Secretary of State agrees that LSE can be ruled out from nitrogen deposition during the operational phase of the Development on the Thames Estuary and Marshes Ramsar site.

#### Air quality – dust (construction)

- 4.31 In relation to construction dust, the Applicant’s initial assessment (APP-487, paragraphs 6.2.4 to 6.2.7) identified control of dust at source, through the CoCP and other control documents, as a measure integral to the design of the Development (and not included to address impacts on the European sites). The Applicant concluded, therefore, that there would be no LSE on the Ramsar site’s qualifying features from changes in air quality during construction due to there being no impact pathway. The ExA queried the Applicant’s use of the phrase ‘where practicable’ in the drafting of the CoCP (ExQ1: PD-029); in some instances, the ExA considered that there could be potential for dust emissions to occur. The Applicant explained in its response (REP4-194) that a combination of control at source, monitoring (including onsite and offsite inspections) and compliance through the REAC would ensure there was no impact pathway. The ExA was satisfied with the response, but reviewed the ‘where practicable’ caveat and recommended a change to clarify that there must not be an inadvertent change that could lead to an impact [ER D.3.39].
- 4.32 The ExA was satisfied that there was no impact pathway and that construction dust from the Development on the Ramsar site was not progressed to Stage 2 Appropriate Assessment [ER D.3.39]. However, the Secretary of State sought clarification and following her consultation (9 July 2024) on this matter NE confirmed (23 July 2024) that it agreed *“with the conclusion within the Report on the Implications for European Sites that likely significant effects in respect to dust deposition, both alone and in combination with other plans and projects, for the Thames Estuary and Marshes SPA and Ramsar site can be screened out. This*

*conclusion was reached, subject to the good practice measures embedded within the project design (which are required irrespective of any potential impact pathways to the designated sites), being secured and implemented in full.”* The Secretary of State is satisfied that LSE from construction dust can be ruled out.

#### Air quality – nitrogen emissions (construction)

- 4.33 The Applicant’s initial assessment concluded that there would be no LSE on the Ramsar site’s qualifying features from changes in air quality during construction [ER D.3.39]. The Applicant provided at Deadline 2 a ‘without prejudice’ update on air quality (REP2-068) in response to matters raised by NE in the SoCG with the Applicant (APP-099) and its written representation (REP1-262). The ‘without prejudice’ update demonstrated that there was potential for LSE from construction vehicle nitrogen oxides (NO<sub>x</sub>) emissions, but no LSE from ammonia (NH<sub>3</sub>) emissions or nitrogen deposition [ER D.3.40].
- 4.34 At Deadline 5 (REP5-109), NE explained that they did not agree with the Applicant’s conclusion and that all three pollutants have the potential for adverse effects on site integrity [ER D.3.41]. In light of NE’s submissions, the Applicant prepared an updated HRA Report at Deadline 8 (REP8-122) to assess the air quality effects from vehicle emissions. The Applicant confirmed that this updated HRA Report was not on a ‘without prejudice’ basis and that there was potential of LSE from NO<sub>x</sub>, NH<sub>3</sub> and nitrogen deposition during construction both alone and in combination with other plans and projects [ER D.3.43].
- 4.35 The ExA concluded that this impact pathway could lead to LSE on the Thames Estuary and Marshes Ramsar site [ER D.3.44]. The Secretary of State agrees with this conclusion and that this impact pathway should be progressed to Stage 2 Appropriate Assessment.

#### **North Downs Woodland SAC**

#### Air quality (operation)

- 4.36 The Applicant’s HRA concluded no LSE from the Development alone on any of the qualifying features of the North Downs Woodlands SAC [ER D.3.45]. NE, the Campaign for the Protection of Rural England (“CPRE”) Kent and Tonbridge and Malling Borough Council all disputed the Applicant’s conclusion of no LSE. NE in its representation noted that this also meant disagreement with the conclusions of no in combination LSE during operation. The main area of disagreement from IPs was the Applicant’s method of assessing air quality impacts on the SAC [ER D.3.46].
- 4.37 In its representation, NE queried whether the Applicant had included all allocated developments (i.e. consented and unconsented) from Local Plans in its traffic modelling. NE also queried the use of ‘inconsequential’ NO<sub>x</sub> in the air quality modelling as both would affect the conclusions of no LSE [ER D.3.47].
- 4.38 NE also noted this would mean some projects could be included within the assessment that do not end up being developed, but this represented a more precautionary approach to the assessment. NE requested revisions to the

methodology and that further modelling be completed [ER D.3.48]. In addition to disputing the Applicant's method and assessment, CPRE Kent similarly questioned the developments included in the traffic modelling and the use of national growth models rather than local plans and projects [ER D.3.49].

- 4.39 To address NE's position, the Applicant provided a technical note appended to its SoCG with NE at Deadline 2 (REP2-068). The technical note provided a 'without prejudice' sensitivity test and assessment which indicated LSE from this impact pathway to this SAC [ER D.3.50]. At Deadline 8 (REP8-122), the Applicant concluded that there is potential for LSE at this SAC from the Development both alone and in combination with other plans and projects [ER D.3.51]. The ExA was content that NE's concerns were addressed by this conclusion [ER D.3.52] and the Secretary of State also agrees that this impact pathway should be progressed to Stage 2 Appropriate Assessment.

### **Likely significant effects from the development in combination**

- 4.40 The Applicant's HRA Report provided no specific in combination assessment for the screening stage. The Applicant describes that where LSE alone is identified as part of HRA screening of a project it would also be considered to have a potential for LSE in combination [ER D.3.12 to D.3.13].
- 4.41 The RIES indicates at paragraph 2.3.3 that in combination impacts were assessed in the Stage 2 Appropriate Assessment. The Secretary of State is in agreement with this approach.

### **LSE screening conclusions**

- 4.42 Based on the amended conclusion provided by the Applicant at Deadline 8, and taking into account the reasoning above, the ExA considered that the Development is likely to have significant effects on the qualifying features of the European sites identified when considered alone and in combination with other plans and projects [ER D.3.54].
- 4.43 The ExA was satisfied that the correct impact pathways considered to give rise to LSE on each site have been assessed [ER D.3.53]. The Secretary of State accepts this view.
- 4.44 The Secretary of State has summarised the European sites, pathways of effect and qualifying features for which an appropriate assessment is required in Table 4 below.
- 4.45 In reaching the conclusion of the screening assessment, the Secretary of State took no account of any measures intended to avoid or reduce the potentially harmful effects on the European sites.



**Table 4 European sites and qualifying features requiring appropriate assessment**

European site	Pathway of effect (construction/operation)	Relevant qualifying features
Thames Estuary and Marshes SPA	Changes in underwater noise and vibration (tunnel construction)	Internationally important populations of regularly occurring Annex 1 Species: <i>Avocet Recurvirostra avosetta</i> ; and Hen harrier <i>Circus cyaneus</i> .
	Changes in light levels (c / o)	Internationally important populations of regularly migratory species: Ringed plover <i>Charadrius hiaticula</i> ; Grey plover <i>Pluvialis squatarola</i> ; Dunlin <i>Calidris alpina alpina</i> ; Red knot <i>Calidris canutus islandica</i> ; Black-tailed godwit <i>Limosa limosa islandica</i> ; and Common redshank <i>Tringa totanus totanus</i> ;
	Species using functionally linked land	An internationally important assemblage of waterfowl
	Changes in noise and vibrations (c/o)	
	Changes in visual disturbance (c/o)	
	Changes in recreational pressure (c)	
	Change in recreational disturbance (c/o)	
Thames Estuary and Marshes Ramsar site	Changes in noise and vibration (c/o)	Ramsar criterion 5: Non-breeding waterfowl assemblage
	Changes in visual disturbance (c)	Ramsar criterion 6: Ringed plover <i>Charadrius hiaticula</i> ; Black-tailed godwit <i>Limosa limosa islandica</i> ; Grey plover <i>Pluvialis squatarola</i> ; Red knot <i>Calidris canutus islandica</i> ; Dunlin <i>Calidris alpina alpina</i> ; Common redshank <i>Tringa totanus totanus</i> ;
	Changes in recreational pressure (o)	Ramsar Criterion 2: The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates
	Land take from site	

European site	Pathway of effect (construction/operation)	Relevant qualifying features
	Changes in surface water quality and quantity (c)	
	Changes in underwater and above ground noise and vibration (tunnel construction only)	
North Downs Woodland SAC	Change in air quality – vehicle emissions (o)	<i>Asperulo-Fagetum</i> beech forests <i>Taxus baccata</i> woods of the British Isles
Epping Forest SAC	Change in air quality – vehicle emissions (o)	Northern Atlantic wet heaths with <i>Erica tetralix</i> European dry heaths Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer ( <i>Quercion robori-pretaeae</i> or <i>Illici-Fagenion</i> ) Stag beetle <i>Lucanus cervus</i> .

## 5. STAGE 2: APPROPRIATE ASSESSMENT

- 5.1 As LSE cannot be excluded, the Secretary of State as the competent authority is required to undertake an appropriate assessment to determine the implications for the conservation objectives of the affected European sites. In line with the requirements of regulation 63 of the Habitats Regulations:

*“(5)...the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site”; and*

*“(6) In considering whether a plan or project will adversely affect the integrity of the site, the competent authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given”.*

- 5.2 As noted in Section 1 of this HRA Report, the competent authority is obliged to consult the ANCB and have regard to any representations made by that body. For this purpose, the ExA prepared a RIES as set out in paragraphs 1.17 to 1.19 of this HRA Report. NE were actively engaged with the Examination and confirmed the Applicant's findings and outcomes in respect of HRA matters in their signed final SoCG at Deadline 9A (REP9A-014). The Secretary of State is therefore satisfied that NE have been consulted in line with regulation 63 of the Habitats Regulations.
- 5.3 If the competent authority in undertaking the appropriate assessment cannot exclude adverse effects on integrity (“AEoI”) of the affected European sites on the basis of objective scientific evidence, then it can only agree to a plan or project if it complies with the requirements of regulation 64 of the Habitats Regulations. Regulation 64 provides that the competent authority may agree to the plan or project only if satisfied that there are no alternative solutions and that the plan or project must be carried out for imperative reasons of overriding public interest. In addition, regulation 68 requires compensatory measures to be secured which maintain the overall coherence of the national site network.

### Conservation objectives

- 5.4 As mentioned in paragraph 1.13 above, where an appropriate assessment is required in respect of a European site, regulation 63(1) of the Habitats Regulations requires that it be an appropriate assessment of the implications of the plan or project for the site in view of its conservation objectives. Government guidance also recommends that in carrying out the Stage 1 Assessment (screening), applicants must check if the proposal could have a significant effect on a European site that could affect its conservation objectives.
- 5.5 The conservation objectives relevant to this HRA Report, as published by NE, are provided in Annex 3 of this HRA Report.
- 5.6 In addition to using the conservation objectives for each European site assessed, the Applicant also made reference to NE's supplementary advice supporting the relevant conservation objectives [ER D.4.3].

- 5.7 As conservation objectives for Thames Estuary and Marshes Ramsar site are not available, the Applicant considered that as the Ramsar site overlaps with the Thames Estuary and Marshes SPA, the conservation objectives for the SPA were sufficient to support the assessment of both the SPA and Ramsar site [ER D.4.4]. NE confirmed its agreement with that approach on the basis that both sites have overlapping qualifying features and in the absence of any stated site-specific objectives for the Ramsar site [ER D.4.5]. The Secretary of State is satisfied to proceed on the basis of this approach.
- 5.8 No other IPs raised matters relating to conservation objectives during Examination [ER D.4.6].

**Overall approach by Applicant to in combination air quality assessment in Stage 2**

- 5.9 The Applicant's approach to the in combination air quality assessment was set out in Section 7.2 of its HRA and subsequently updated in (REP8-122) following advice from NE [ER D.5.3]. The ExA reviewed the Applicant's approach to the in combination assessment in light of several IPs disputing the approach and was relevant to all sites considered in the Stage 2 Appropriate Assessment [ER D.5.4].
- 5.10 Appendix 16.2 to Chapter 16 (Cumulative Effects Assessment) of the ES provides a short list of projects used in the assessment. The Applicant's HRA Report also included permitting information obtained from the Environment Agency ("EA") in July 2020 to inform the list of plans and projects considered [ER D.5.5].
- 5.11 The IP's concerns on the Applicant's approach to determining which projects to include in the assessment included [ER D.5.6]:
- Traffic generating projects not operational at the opening year (2030) of the Development did not appear to be included and thus raise queries as to whether a worst-case year has been adopted for the assessment;
  - The method used a general national growth figure for traffic rather than a more locationally specific growth including traffic figures for developments allocated in Local Plans and as such may not be sufficiently precautionary; and
  - The method excluded consideration of any non-road-based nitrogen emitting developments not controlled by EA permits (e.g. small agricultural sites held on the local planning portal that could have locally important emissions).
- 5.12 NE also considered that the air quality assessment had not considered NO<sub>x</sub> and NH<sub>3</sub> separately in its assessment and had not addressed nitrogen deposition irrespective of NO<sub>x</sub> [ER D.5.7].
- 5.13 These matters were addressed in responses by the Applicant at Deadline 2 in the form of a technical note on air quality in Annex C.12 to its draft SoCG with NE (REP2-008) and a 'without prejudice' update to the air quality assessment (REP2-068) [ER D.5.8]. In its response (REP5-109), NE considered the 'without prejudice' assessment provided at Deadline 2 addressed the matter of the three pollutants but remained concerned about whether the overall approach to the in combination

assessment was suitably precautionary [ER D.5.11]. Following this advice on the method, the Applicant provided its final assessment of air quality at Deadline 8 (REP8-122) [ER D.5.13] and confirmed it was not on a 'without prejudice' basis [ER D.3.43].

- 5.14 In light of the concerns on the approach to the selection of projects for the in combination assessment, the ExA asked the Applicant to confirm the list of projects for its HRA. The Applicant explained (REP4-194) that the approach to identifying relevant projects was governed by the spatial extent of the impact pathways. In response to the ExA's request to confirm the list of projects used for the Applicant's HRA Report (ExQ1 Q11.9.8: PD-029), the Applicant also provided a list of non-vehicle emissions plans and projects considered to contribute to nitrogen deposition [ER D.5.9].
- 5.15 The Applicant's response (REP8-120) to the ExA's request (ExQ2, Q11.5.1: PD-040) supplied an updated HRA document bringing together all of the outstanding matters and to provide a plan to resolve them. The ExA set out that it needed to include a review of the in combination method and consequential conclusions. The ExA, noting the Applicant was preparing further traffic data for Deadline 6A, also requested in the RIES (QR10, QR11: PD-048) for the Applicant and local authorities confirm whether any of the updates would have a bearing on the HRA [ER D.5.12]. It was confirmed by the Applicant (REP8-120) that none of the transport modelling submitted to the Examination after Deadline 6 affected the assessment of effects in the HRA [ER D.5.14].
- 5.16 NE (REP8-154) set out that it did not agree with the Applicant's approach regarding local plan allocations which should be included within the in combination assessment and NE accepted that it was unlikely to reach agreement with the Applicant on this point by the end of the Examination [ER D.5.17]. It is noted that the updated assessment (REP8-122) takes account of NE's recommendation that NO<sub>x</sub>, NH<sub>3</sub> and nitrogen deposition are assessed as individual pollutants against the relevant critical level and critical load for each site. It is also noted that the Applicant utilised Natural England's 2018 guidance document '*Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001)*' which includes guidance on in combination assessments. NE agreed in the SoCG (REP9A-014) that the Applicant's approach to non-traffic in combination assessment was satisfactory but NE maintained its position that the approach did not recognise defined local plan allocations and was not as precautionary as required by the Habitats Regulations [ER D.5.16].
- 5.17 The Secretary of State notes that the ExA was satisfied that an assessment of AEoI from the Development in combination with other plans and projects can be based on this information and that no other plans and projects are required to be taken into account [ER D.5.18]. NE considered the non-traffic in combination assessment was satisfactory. The Secretary of State has no reason to disagree.

## **Thames Estuary and Marshes SPA and Thames Estuary and Marshes Ramsar site**

- 5.18 The Secretary of State has undertaken an objective scientific assessment of the implications of the Development on the qualifying features of the SAC, using the best available scientific knowledge. The assessment has been made in light of the conservation objectives for the SAC, which are set out in Annex 3 of this HRA Report. A summary of the Secretary of State's appropriate assessment is presented below.

### Construction and operation

- 5.19 The Applicant's HRA Report assessed the potential for AEoI resulting from the matters listed in Table 3 above. The Secretary of State notes that the ExA discussed these matters in relation to two broad impact pathways:
- Disturbance to key species using functionally linked land ("FLL"), which included;
    - noise;
    - recreational pressure; and
    - visual disturbance; and
  - Changes in surface water quality and quantity (Ramsar only) [ER D.5.35].
- 5.20 The Secretary of State has also included the following:
- Changes in underwater noise and vibration (tunnel construction only); and
  - Air quality (construction).

### Disturbance to key species

- 5.21 The Applicant considered effects on the site itself and on FLL. The definition of FLL was agreed with NE through the Applicant's Evidence Plan (APP-487, Appendix C) process. The definition was not disputed by any of the IPs during the Examination [ER D.5.36].
- 5.22 Two parcels of land within the Order Limits have been proposed to address the potential for disturbance. These are at Coalhouse Point and at the Metropolitan Police Firing Range and will provide wetland habitat for the qualifying bird species displaced from FLL by the Development. These land parcels are illustrated on Figure 2.4 Environmental Masterplan of the ES, updated at Deadlines 3 (REP3-098 to REP3-101) and 4 (REP4-124 to REP4-129), and secured through the Design Principles document [ER D.5.37].
- 5.23 Kent County Council agreed with the Applicant's proposals for the firing range site subject to the timing of the works being secured to avoid sensitive times of the year for birds. Essex Wildlife Trust and NE also noted that the mitigation needed to be fully ecologically functional before construction of the Development [ER D.5.38].
- 5.24 The ExA investigated whether seasonal work restrictions would affect the creation of habitat. NE had noted the difficulties in seasonal restrictions to work but advised

it expected that phasing work to periods when disturbance would have less impact on breeding and non-breeding birds should be further explored [ER D.4.40], but the Applicant considered that if the over-wintering and breeding seasons were avoided then there would not be a sufficient time window for habitat creation [ER D.4.39].

- 5.25 In relation to habitats being ecologically functional, the Applicant considered that would be the case once the scrapes and ditches were filled. The outline Landscape and Ecology Management Plan provided details but the ExA noted that timeframes were not set out for such work to be undertaken and completed [ER D.5.41].
- 5.26 In light of the Applicant's Deadline 7 response (REP7-187) to NE's views on timings of works at Coalhouse Point, NE stated (REP8-154) that their concerns were resolved. Furthermore "*Natural England is now satisfied that there is unlikely to be an adverse impact to breeding birds as a result of the proposed timing of mitigation measures*". NE also stated that breeding birds associated with the South Thames Estuary and Marshes SSSI (and hence the SPA and the Ramsar site) were not using the areas of the site close to Milton Compound and as such adverse effects are unlikely as a result of the proposed timing. The mitigation is detailed in commitment HR002 of the REAC [ER D.5.42].
- 5.27 NE pointed out (REP8-154) that a period of 10 years of monitoring is required for the proposed mitigation at Coalhouse Point but that NE is content with all other matters related to Coalhouse Point [ER D.5.43]. In response to the RIES, the Applicant confirmed that the wetland habitat would be constructed prior to the main works at the North Portal site and is secured through commitment HR010 of the REAC. Following a number of technical notes and meetings, NE confirmed in the final SoCG that the information was "*sufficient to for it to be confident in the conclusions of the HRA on this matter*". Furthermore, NE confirmed (REP9A-122) that AEoI of the Thames Estuary and Marshes SPA can be ruled out and the key factors in reaching this conclusion include [ER D.5.44]:
- The affected area is grazed land reducing potential for nitrophilic grasses to take over (i.e. grazing removes these grasses); and,
  - The impact is temporary, occurring during the construction period only.

#### Changes to surface water quality and quantity

- 5.28 The Marine Management Organisation and Thurrock Council discussed with the Applicant on the proposed water control structures required to provide water for the proposed wetland at Coalhouse Point [ER D.5.45]. The provision for water control structures at Coalhouse Point is secured as part of the licensable marine activities in Schedule 15 of the draft DCO. NE was unable to agree with the conclusions of AEoI on the FLL without further information on the deliverability and viability of Coalhouse Point [ER D.5.46].
- 5.29 It is noted that the Applicant and the EA have been working to secure a water supply for a proposed tidal exchange structure at Coalhouse Point needed to create the required wetland habitat. EA in REP1-225 expressed a preference for the Applicant to use an existing drain for this water supply to avoid disturbance to existing flood defence embankments. NE advised (REP3-193) that water should be sourced from

a tidal exchange structure in the sea wall to provide a saline water supply. The Applicant explained in its draft SoCG (REP5-034) with the EA that the choice of water control structure was still under discussion [ER D.5.47].

- 5.30 The Applicant supplied further information on the licensing for the water supply in the Applicant's Consents and Agreements Position Statement (REP4-098). The draft SoCG with the EA provided details of the proposed design of a new water level control inlet structure through the existing flood defences. The ExA noted that the Applicant considered these to be feasible and that licensing would be determined as part of the detailed design and informed by water demand estimates. The ExA further noted that the alternative of using existing infrastructure within Coalhouse Fort moat would require a legal agreement with TC but that such an agreement may not be achieved within the DCO timescales [ER D.5.48].
- 5.31 The Applicant concluded in their Flood Risk Assessment ("FRA") that the new wetland would not have an adverse impact on flooding elsewhere. The FRA notes that an inspection and maintenance plan would be developed in the detailed design to address residual risks of the control structure failing. At Deadline 6 (REP6-152), NE noted that it was continuing to work with the Applicant on the mitigation proposals [ER D.5.49] but that the works to install the water control structures would have the potential to disturb wintering qualifying birds using the foreshore and that amendments were required to the existing mitigation measures, particularly commitment HR011 of the REAC [ER D.5.50].
- 5.32 As noted above, NE considered (REP8-154) that a period of 10 years of monitoring was required for the proposed mitigation location at Coalhouse Point for the ecological measures but that this should be extended beyond 10 years for the operation of the regulated tidal exchange gate. On all other matters in relation to Coalhouse Point the ExA noted that NE was content [ER D.5.51].
- 5.33 By Deadline 9, noting the changes to the seasonality of the works (commitment HR011 of the REAC) the Applicant had made and having no further comments on QR13 of the RIES, NE confirmed in their final SoCG that the information provided in a number of technical notes and meetings was "*sufficient to for it to be confident in the conclusions of the HRA in this matter*" [ER D.5.52].
- 5.34 The Secretary of State notes that the ExA was satisfied, given the above, that AEol can be ruled out from changes to water quality and quantity on the qualifying features of the Thames Estuary and Marshes SPA and the Thames Estuary and Marshes Ramsar site from the Development alone or in combination with other plans and projects.

Changes in underwater noise and vibration (tunnel construction only)

- 5.35 As noted above, both NE and the PLA disputed the conclusion of no LSE from this impact pathway from tunnel construction beneath the River Thames to the majority of qualifying features of the SPA and Ramsar site and FLL alone and in combination. The Applicant's modelling indicated that noise on underwater feeding birds would not be affected by tunnel construction. The modelling also indicated for particle velocity, affecting invertebrate prey distribution, would not be affected by tunnel



construction. The Applicant concluded that noise and vibration would not be perceptible in the water column above the tunnel during construction when considered against the background noise and therefore there would be no potential project alone or in combination effects with other plans and projects [ER D.3.21].

- 5.36 In its response to NE's view (RR-0784) that the assessment had not considered fully how noise can affect birds' hearing underwater, and the PLA noting (REP1-269 and REP3-217) that different birds exhibit different feeding behaviour and sensitivities and are likely to have differing responses to underwater noise and vibration [ER D.3.22], the Applicant provided a technical note to support its conclusions that tunnel construction noise would not be heard above background levels and there was no possibility of an effect [ER D.3.23]. NE contested this in its response to the ExA written questions (ExQ1: PD-029), noting that a pathway would exist if noise could breach background levels, which meant LSE could not be screened out and this pathway was progressed to Stage 2 as a procedural matter rather than an ecological risk. However, following provision and review of the Applicant's technical note, NE were satisfied that there was no risk of AEoI from this impact pathway and that the Applicant had sufficiently addressed matters [ER D.3.25].
- 5.37 In relation to bird feeding behaviour, PLA considered the Applicant had not responded to the potential effects of underwater noise and vibration on bird feeding behaviour [ER D.3.26]. The ExA investigated this matter further in the RIES (QR4: PD-048) to establish from the PLA and NE what qualifying features were potentially affected and whether sufficient information had been provided by the Applicant to support its conclusions. The PLA did not respond but NE confirmed (REP-154) that it considered the LSE to be a potential impact on bird feeding behaviour of the waterbird assemblage qualifying feature and continued to disagree with the Applicant on whether there was a LSE on the SPA and Ramsar site from this impact pathway [ER D.3.27]. The Applicant did not provide any further information to support its position, in response to the RIES (QR3 and QR5: PD-048), on the basis that sufficient information had already been provided in its HRA Report and in the technical note at Annex C.8 of its draft SoCG with NE at Deadline 7 (REP7-106) to show that the noises and vibrations would not be above background levels [ER D.3.28].
- 5.38 The PLA noted that no new information on underwater noise and vibration from tunnelling had been provided by the Applicant and deferred to NE in its capacity as the ANCB. NE, in its final SoCG with the Applicant, maintained the matter was better addressed at the AA stage but also considered that an AEoI was unlikely [ER D.3.29].
- 5.39 The ExA was content that the conclusions are agreed, and the outstanding matter is that of a procedural nature [ER D.3.30].
- 5.40 The Secretary of State agrees with the ExA that the Applicant has provided sufficient evidence to conclude that AEoI from underwater noise on the qualifying features of the Thames Estuary SPA and Thames Estuary Ramsar site can be ruled out.

#### Air quality (construction)

- 5.41 The Applicant provided an assessment of the potential for AEol from changes in air quality from vehicle emissions during construction in its HRA Report. It was accepted by NE (REP5-109) that this impact would occur only from vehicle emissions during construction and that there was no impact from operational traffic. This position was agreed by the ExA for both alone and in combination effects [ER D.5.25].
- 5.42 The Applicant's assessment predicted that there would be increases in NO<sub>x</sub> during construction of the Development resulting in an exceedance of the NO<sub>x</sub> critical level at the SPA and the Ramsar site during the first two years of construction [ER D.5.26].
- 5.43 The Applicant concluded this increase would not result in an AEol of the SPA and the Ramsar site either alone or in combination with other plans and projects. The reasoning was that the construction activities would be time limited and that only a small area of qualifying feature habitat would be affected, such that the 'maintain' target for air quality would not be affected and the Development would not undermine the conservation objectives [ER D.5.27].
- 5.44 However, the Applicant's conclusions in relation to NH<sub>3</sub> and nitrogen deposition were disputed by NE for the project alone. Only NO<sub>x</sub> was assessed with the AA and NE stated that the conservation objective to maintain NO<sub>x</sub> below the critical level would be undermined by the project alone for at least 2 years and in combination for potentially the five year period of development as the critical level would be exceeded where it is currently not exceeded (per APIS). NE indicated that it was not possible to conclude on the basis of the evidence provided that the conservation objectives of the SPA and Ramsar site would not be undermined by the construction of the Development alone or in combination with other plans and projects. NE disagreed at present with the conclusion that AEol can be excluded on the basis of NO<sub>x</sub> concentrations, and that NH<sub>3</sub> and nitrogen deposition should have been considered in the AA in their own right (REP5-109) [ER D.5.28].
- 5.45 The ExA noted NE's comments that the SPA and the Ramsar site are designated for their bird interest. The consideration was therefore whether higher nitrogen would result in a change in vegetation patterns (species/communities or saltmarsh zonation) that could make it less suitable for the qualifying bird features. NE concluded that provided further evidence on nitrogen deposition and NH<sub>3</sub> were provided in the assessment to the effect that AEol from this impact pathway could be excluded. The ExA noted that the Applicant provided this additional assessment its '*Assessment of the air quality effects on European sites following Natural England advice*' (REP8-122) [ER D.5.29].
- 5.46 The Applicant concluded (REP8-122) that there would be no AEol on the SPA and the Ramsar site and therefore mitigation measures were not needed [ER D.5.30].
- 5.47 In the final SoCG with the Applicant (REP9A-014), NE was satisfied with the conclusions in the revised assessment in relation to air quality effects on the SPA and the Ramsar site [ER D.5.31].

- 5.48 The Secretary of State notes that other IPs did not comment on or dispute the conclusions of no AEol from this impact pathway [ER D.5.32].
- 5.49 The Secretary of State notes that the ExA was also satisfied that this LSE pathway from the Development will not result in AEol on the SPA and Ramsar site both alone or in combination with other plans and projects [ER D.5.33].
- 5.50 The Secretary of State agrees with this conclusion and is satisfied that AEol on the Thames Estuary and Marshes SPA and the Thames Estuary and Marshes Ramsar site resulting from air quality changes during construction of the Development, both alone or in combination with other plans and projects, can be ruled out.

### **North Downs Woodland SAC**

- 5.51 The Secretary of State has undertaken an objective scientific assessment of the implications of the Development on the qualifying features of the SAC, using the best available scientific knowledge. The assessment has been made in light of the conservation objectives for the SAC, which are set out in Annex 3 of this HRA Report. A summary of the Secretary of State's appropriate assessment is presented below.

#### Changes in air quality – vehicle emissions (operation)

- 5.52 The Applicant provided an air quality assessment on the North Downs Woodland SAC in its HRA Report and its 'Without prejudice assessment of the air quality effects on European sites following Natural England advice' (REP2-068) and its 'Assessment of the air quality effects on European sites following Natural England advice' (REP8-122). The Applicant assessed the potential for AEol from changes in air quality from vehicle emissions during operation. It was accepted by NE (REP5-109) that impacts would occur from operational traffic emissions only and that there would be no impact from construction traffic [ER D.5.56]. The Secretary of State notes the ExA's agreement of this position for both alone and in combination impacts.
- 5.53 However, at Deadline 5 (REP5-109), NE disagreed with the Applicant's 'without prejudice' conclusions on the following matters as it considered [ER D.5.57]:
- The full footprint of nitrogen deposition exceedance had not been calculated;
  - The impact of NH<sub>3</sub> on integrity had not been assessed; and
  - The in combination assessment did not address the full extent of traffic from in combination plans and projects or appropriately "non-road" developments.
- 5.54 It was noted by the ExA that NE nevertheless considered that it was likely to be able to agree to a conclusion of no AEol because qualifying SAC features are not present within the area experiencing the greatest addition of nitrogen, and that there were no plans to extend the SAC qualifying features into this area of the SAC and therefore that the conservation objectives for these features would not be undermined from the pollution arising from the Development [ER D.5.58].

- 5.55 The Applicant provided an updated assessment at Deadline 8 addressing NE's concerns in providing an assessment for each nitrogen pollutant and an in combination assessment that included non-road developments, but maintained its position that the in-combination assessment was sufficiently precautionary. The Applicant concluded that no AEoI would occur either alone or in combination with other plans and projects [ER D.5.59].
- 5.56 While it still considered the Applicant's in combination approach was not as precautionary as required under the Habitats Regulations, NE confirmed in the final SoCG (REP9A-014) that the updated assessment and the air quality information supplied by the Applicant was sufficient for it to agree with the conclusions of no AEoI either alone or in combination with other plans and projects. [ER D.5.60].
- 5.57 The Secretary of State agrees with this conclusion that AEoI, both alone and in combination with other plans and projects, can be ruled out from changes in air quality during the operational phase of the Development on the North Downs Woodlands SAC.

### **Epping Forest SAC**

- 5.58 The Secretary of State has undertaken an objective scientific assessment of the implications of the Development on the qualifying features of the SAC, using the best available scientific knowledge. The assessment has been made in light of the conservation objectives for the SAC, which are set out in Annex 3 of this HRA Report. A summary of the Secretary of State's appropriate assessment is presented below.

#### Changes in air quality – vehicle emissions (operation) alone

- 5.59 The Applicant provided an air quality assessment on the Epping Forest SAC in its HRA Report, its 'Without prejudice assessment of the air quality effects on European sites following Natural England advice' (REP2-068) and its 'Assessment of the air quality effects on European sites following Natural England advice' (REP8-122). The Applicant assessed the impacts from changes in air quality from vehicle emissions during operation. It was accepted by NE (REP5-109) that impacts would occur from operational traffic emissions only and there would be no impact from construction traffic [ER D.5.64]. The Secretary of State notes the ExA's agreement of this position for both alone and in combination impacts.
- 5.60 The Applicant's air quality model predicts where increases of more than 1% of the critical level or load for the three pollutants (NO<sub>x</sub>, NH<sub>3</sub> and nitrogen deposition) identified as requiring assessment by NE were likely to occur [ER D.5.65].
- 5.61 The assessment identified that concentrations of NO<sub>x</sub> and NH<sub>3</sub> were already exceeding the critical level without the Development in place. Surveys by the Applicant indicated that the SAC qualifying features, both habitat and species, were present within 200m of the ARN but did not identify any nitrogen sensitive species were present. Ellenberg values were used to identify nitrogen sensitive plant species in the area. Ellenberg values of three or less (indicative of species associated with more-or-less infertile sites) were used but none were identified, which suggests that

the habitat in the area is not nitrogen sensitive but does not imply that the qualifying habitats are not sensitive to nitrogen (REP8-122). The Applicant concluded that the historically high NO<sub>x</sub> concentrations and nitrogen deposition had resulted in a loss of nitrogen sensitive species with the 200m of the ARN and therefore no change in species composition was likely to occur with the Development in place. The Applicant also noted that the SSSI unit for this area of the SAC is considered by NE in its most recent condition assessment to be 'unfavourable recovering' [ER D.5.66].

- 5.62 The Applicant's updated assessment (REP8-122) indicates that there will be exceedances of the critical level and load thresholds for NO<sub>x</sub>, NH<sub>3</sub> and nitrogen deposition with the Development in place for a four-year period. The Applicant pointed out that the modelling approach was conservative, in that it assumed no changes in nitrogen deposition between the base year (2016) and opening year (2030). The Applicant also explained that improvements in vehicle technology were not included, such as the anticipated shift to the uptake of electric vehicles which will most likely result in reducing the emissions of NO<sub>x</sub>, NH<sub>3</sub>, and therefore the position is likely to be better than predicted in the model [ER D.5.67].
- 5.63 The Applicant's updated assessment (REP8-122) concluded that the proportions of qualifying habitat affected by increases in NO<sub>x</sub> and NH<sub>3</sub> would be very small (0.17 and 1.10% respectively of the qualifying habitat) and nitrogen deposition and the contribution of the project to the overall exceedance of the critical load would also be very small (0.76% and 0.5% respectively) from the Development during operation [ER D.5.68].
- 5.64 The Applicant concluded that there would be no AEoI from changes in air quality from vehicle emissions from the Development alone when operational [ER D.5.69]. This position was maintained by the Applicant in the final SoCG with NE (REP9A-014), but the matter was not agreed. NE indicated that with mitigation secured and enforceable it could agree with the conclusion. This matter is discussed further in the in combination assessment below.

Changes in air quality – vehicle emissions (operation) in combination with other plans and projects.

- 5.65 The details of the Applicant's air quality in combination assessment for Epping Forest SAC is presented in Sections 6.5.25 to 6.2.35 of '9.199 Assessment of the air quality effects on European sites following Natural England advice' (REP8-122).
- 5.66 Only one other plan or project was identified (North London Heat and Power) and the results are presented in Table 6.8 of the Applicant's updated air quality assessment (REP8-122). The assessment shows that the other project did not identify any changes in NO<sub>x</sub> and NH<sub>3</sub> and the Applicant concluded that the effect of these pollutants in combination with the Development is the same as the Development alone [ER D.5.70]. For nitrogen deposition, the combined change was 10% of the nitrogen critical load. The Applicant considered that the duration to be short term (four years) and that the length of time for which in combination effects could occur was also limited to four years. This period was considered too short for changes to be detected in the receiving vegetation, particularly as the most sensitive lichens and bryophytes were not abundant in the affected area. The Applicant

concluded that there would be no AEol on the qualifying features of the SAC [ER D.5.71].

- 5.67 NE did not agree (REP5-109) with the Applicant's conclusion of no AEol, indicating that the SAC is already exceeding the critical load and level for nitrogen deposition and NH<sub>3</sub> [ER D.5.73]. Reference was made to the supplementary advice that supports the conservation objectives for the SAC to:

*"Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System".*

- 5.68 NE considered that the reason for the low-quality habitat and lack of nitrogen sensitive species noted in the Applicant's survey was a result of long-term pollution at the SAC. Furthermore, it considered that this pollution is hindering the recovery of the SAC and hence the ability to meet the objective to 'restore' the site to at or below its critical levels or loads would be further affected by the Development [ER D.5.74].
- 5.69 Within its HRA Report, the Applicant submitted a 'without prejudice' mitigation proposal of a reduced speed limit on the M25 westbound between Junctions 26 and 27 for four years following completion of the construction phase and until the total NOx emissions with the Development fall below the total emissions at opening year without the Development [ER D.5.72].
- 5.70 NE considered (REP5-109) this mitigation to be effective in addressing the AEol, subject to it being secured through the Applicant's REAC (APP-099). NE suggested that the mitigation, along with monitoring of NOx, NH<sub>3</sub> and nitrogen deposition, should remain in place if pollutant values remain above pre-operational values in accordance with a monitoring plan. With this in place, NE agreed that a conclusion of no AEol could be reached in relation to the qualifying features of the SAC [ER D.5.75].
- 5.71 NE raised concern about government's announcement regarding the delay in the phasing out of petrol and diesel vehicles and the uncertainty this caused in the assessment, noting (REP5-109) it could change the length of time that mitigation was required [ER D.5.76]. The Applicant considered (REP6-117) that these changes would have no implications for its air quality modelling, conclusions or proposed monitoring in response to questions by the ExA (PD-040). The Applicant continued to maintain that no mitigation was required to reach a conclusion of no AEol for the SAC [ER D.5.77]. NE maintained that the proposal for monitoring and feedback would provide the certainty required by the Habitats Regulations to conclude that the Development would not result in an AEol of the SAC. NE also noted that it would address the concerns regarding the fleet composition and government policy [ER D.5.78]. The final SoCG recorded (REP9A-014) that the Applicant and NE did not reach agreement of no AEol, the need for mitigation measures or a monitoring plan [ER D.5.82].

- 5.72 In response to the ExA's question (QR21: PD-048) regarding the implementation of the speed limit measure, the Applicant indicated that it had no concerns with its implementation, other than it was not considered to be necessary [ER D.5.80].
- 5.73 In response to the ExA's other question (QR22: PD-048), with reference to the Dutch Nitrogen Case, about whether the Development would prevent or slow restoration of site-specific critical levels and loads and the implications for the Applicant's conclusions [ER D.5.79], the Applicant stated (REP8-120) that NE advice was to consider each project on a case-by-case basis and that it should not be assumed that all sites with existing exceedances should be considered as being subject to an adverse effect where a project is predicts further exceedances [ER D.5.81]
- 5.74 Taking account of the evidence provided, the Secretary of State notes that the ExA did not consider the Applicant had provided sufficient evidence to address NE's view that there would be AEol at Epping Forest SAC arising from vehicle emissions during operation of the Development. The ExA considered that reducing running speeds from 70mph to 60mph for four years between M25 Junctions 27 and 26 westbound appeared in principle to be an operable and effective mitigation measure and that, with this in place, the Applicant and NE agreed that AEol can most likely be excluded. The ExA also noted that, with monitoring in place, both parties agreed that any need for this control measure to be extended can also be provided for and a draft REAC measure is proposed as the means to implement this [ER D.5.83].
- 5.75 Table 3.2 in Annex C7 to the final SoCG with NE (REP9A-014) sets out a draft REAC commitment that provides for the delivery of the operational speed reduction westbound between Junctions 27 and 26 as a means to reduce traffic air emissions sufficiently to exclude this AEol. The Secretary of State notes that the ExA was content to recommend this measure in principle to address the outstanding disagreement between the Applicant and NE. She has further taken account of the ExA's conclusions of the importance to ensure that the speed limit for this section of the M25 for a four year period of operation is not impose without a clear understanding of its necessity in the air quality control context that is applicable at the relevant time and further that it should not be applied for any greater geographical or temporal extent than is required to achieve the necessary outcome [ER D.6.8].
- 5.76 The ExA proposed minor changes to the draft REAC measure advanced by the Applicant to ensure that a reduced speed limit is not imposed if it is not required at the time and that the extent and duration of the proposed speed limit reduction is contained to the minimum extent [ER D.5.84]. This was in recognition of the fact that there could be changes in the emissions profile of the vehicle fleet using the SRN in the period between consenting and commissioning the Development and/or the operational period which might contribute towards a reduction in the adverse effects from traffic emissions considered during the Examination [ER D.6.9].
- 5.77 The ExA noted that dialogue between the Applicant and NE will be required, using air quality modelling and monitoring, to identify a threshold for setting a speed limit and the geographical extent of road over which it should apply until the next monitoring point (if necessary varied by the Secretary of State). The ExA

recommended an annual review to evaluate the speed limit to be set and the geographical extent of the speed reduction [ER D.6.11].

- 5.78 The ExA considered that the Secretary of State can give effect to their amendment to the proposed REAC commitment without further consultation with the Applicant or NE because it is not averse to either party [ER D.6.12]. The Secretary of State agrees with this approach and the amendment. The Secretary of State concludes that AEoI on the Epping Forest SAC, both alone and in combination with other plans and projects, can be ruled out from changes in air quality during the operational phase of the Development with the mitigation secured through a REAC commitment.

#### **Overall conclusion of the appropriate assessment**

- 5.79 As the competent authority for Transport NSIPs, as defined under the PA 2008, the Secretary of State for Transport has undertaken an appropriate assessment under regulation 63 of the Habitats Regulations in relation to the Thames Estuary and Marshes SPA, the Thames Estuary and Marshes Ramsar site, the North Downs Woodland SAC and the Epping Forest SAC.
- 5.80 The Secretary of State is satisfied that, given the relative scale and magnitude of the identified effects on the qualifying features of these European sites and, where relevant, the measures in place to avoid and reduce the potential harmful effects, there would not be any implications for the achievement of the conservation objectives for the Thames Estuary and Marshes SPA, the Thames Estuary and Marshes Ramsar site, the North Downs Woodland SAC and the Epping Forest SAC.
- 5.81 Based on the submissions to the Examination, as summarised in the ExA's RIES, Recommendation Report and Appendix D to that Report, the Secretary of State is satisfied that the views of NE as the ANCB have been considered and that they are in agreement with the scope and conclusions of the Applicant's HRA assessment.



## **6. SUMMARY OF CONCLUSIONS**

- 6.1 The Secretary of State has carefully considered all the information presented within the application, during the Examination and the representations made by IPs, along with the Recommendation Report and the responses to the Secretary of State's further consultations.
- 6.2 The Development is not directly connected with, or necessary to, the management of a European site, and is likely to have a significant effect on the following European sites:
- Thames Estuary and Marshes SPA;
  - Thames Estuary and Marshes Ramsar site;
  - North Downs Woodland SAC; and,
  - Epping Forest SAC.
- 6.3 The Secretary of State therefore carried out an appropriate assessment to determine any adverse effects on the integrity of the above European sites. In conducting the appropriate assessment, the Secretary of State has applied the precautionary principle. The Secretary of State is satisfied that no reasonable doubt remains as to the absence of such effects.
- 6.4 Having carried out the appropriate assessment, the Secretary of State is satisfied that, when mitigation measures are taken into account, the Development will not adversely affect the integrity of the Thames Estuary and Marshes SPA, the Thames Estuary and Marshes Ramsar site, the North Downs Woodland SAC and the Epping Forest SAC.

## **Annex 1 Documents used to inform this HRA Report**

NB. This list is not exhaustive. The HRA Report is informed by the application and submissions to the Examination, together with submissions after the close of Examination.

### **Application Documents**

- Environmental Statement (including supporting figures and appendices)
- Habitats Regulation Assessment Screening Report and Statement to Inform an Appropriate Assessment

### **Examination documents produced by Applicant**

- Without prejudice assessment of the air quality effects on European sites following Natural England advice
- Assessment of the air quality effects on European sites following Natural England advice

### **ExA procedural documents**

- Report on the Implications for European Sites (RIES)

## Annex 2 Full list of qualifying features screened for LSE

Site name	Qualifying features
Thames Estuary and Marshes SPA	Hen harrier; <i>Circus cyaneus</i> (non-breeding)
	Pied avocet; <i>Recurvirostra avosetta</i> (non-breeding)
	Ringed plover; <i>Charadrius hiaticula</i> (non-breeding)
	Grey plover; <i>Pluvialis squatarola</i> (non-breeding)
	Red knot; <i>Calidris canutus</i> (non-breeding)
	Dunlin; <i>Calidris alpina alpina</i> (non-breeding)
	Black-tailed godwit; <i>Limosa limosa islandica</i> (non-breeding)
	Common redshank; <i>Tringa totanus</i> (non-breeding)
Thames Estuary and Marshes Ramsar	Ramsar Criteria 2: The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates
	Ramsar Criteria 5: Assemblages of international importance
	Ramsar Criteria 6: Species/populations occurring at levels of international importance
Epping Forest SAC	Northern Atlantic wet heaths with <i>Erica tetralix</i> ; Wet heaths with cross-leaved heath
	European dry heaths
	Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrub layer ( <i>Quercion roberi-petraeae</i> or <i>Ilici-Fagenion</i> ); Beech forests on acid soils
	Stag beetle; <i>Lucanus cervus</i>
North Downs Woodlands SAC	Semi-natural dry grasslands and scrubland facies: on calcareous substrates ( <i>Festuco-Brometalia</i> ); Dry grasslands and scrublands on chalk or limestone
	<i>Asperulo-Fagetum</i> beech forests; Beech forests on neutral to rich soils
	<i>Taxus baccata</i> woods of the British Isles; Yew-dominated woodland*

## Annex 3 Conservation objectives for sites considered in the appropriate assessment

The conservation objectives reproduced below are available from <http://publications.naturalengland.org.uk/category/6490068894089216><sup>2</sup>

NB. In the case of all European sites identified below, the conservation objectives are to be read in conjunction with the accompanying Supplementary Advice documents, which provide more detailed advice and information to enable the application and achievement of the objectives.

### Thames Estuary and Marshes SPA (Site Code UK9012021)

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'qualifying features' listed below), and subject to natural change:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- The extent and distribution of the habitats of the qualifying features;
- The structure and function of the habitats of the qualifying features;
- The supporting processes on which the habitats of the qualifying features rely;
- The population of each of the qualifying features; and,
- The distribution of the qualifying features.

#### Qualifying Features:

A082 *Circus cyaneus*; Hen harrier (non-breeding)

A132 *Recurvirostra avosetta*; Pied avocet (non-breeding)

A137 *Charadrius hiaticula*; Ringed plover (non-breeding)

A141 *Pluvialis squatarola*; Grey plover (non-breeding)

A143 *Calidris canutus*; Red knot (non-breeding)

A149 *Calidris alpina alpina*; Dunlin (non-breeding)

A156 *Lomosa limosa islandica*; Black-tailed godwit (non-breeding)

A162 *Tringa totanus*; Common redshank (non-breeding)

Waterbird assemblage

### Thames Estuary Marshes Ramsar (Site Code: UK11069)

#### Ramsar Criteria:

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<sup>2</sup> Accessed 04/04/2024

**2** The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates.

**5** Assemblages of international importance:

- Species with peak counts in winter: 45118 waterfowl (5-year peak mean 1998/99 – 2002/03)

**6** Species/populations occurring at levels of international importance:

**Qualifying species/populations (as identified at designation):**

**Species with peak counts in spring/autumn:**

Ringed plover, <i>Charadrius hiaticula</i> , Europe/Northwest Africa	595 individuals, representing an average of 1.8% of the GB population (5-year peak mean 1998/99 – 2002/03)
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Black-tailed godwit, <i>Lomosa limosa islandica</i> , Iceland/W Europe	1640 individuals, representing an average of 4.6% of the population (5-year peak mean 1998/99 – 2002/03)
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**Species with peak counts in winter:**

Grey plover, <i>Pluvialis squatarola</i> , E Atlantic/W Africa – wintering	1643 individuals, representing an average of 3.1% of the GB population (5-year peak mean 1998/99 – 2002/03)
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Red knot, <i>Calidris canutus islandica</i> , W & Southern Africa	7279 individuals, representing an average of 1.6% of the population (5-year peak mean 1998/99 – 2002/03)
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(wintering)

Dunlin, <i>Calidris alpina alpina</i> , W Siberia/W Europe	15171 individuals, representing an average of 1.1% of the population (5-year peak mean 1998/99 – 2002/03)
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Common redshank, <i>Tringa totanus totanus</i> ,	1178 individuals, representing 1% of the GB population (5-year peak mean 1998/99 – 2002/03)
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## **Epping Forest SAC (Site Code: UK0012720)**

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'qualifying features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of the qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The population of qualifying species; and,
- The distribution of the qualifying species within the site.

### **Qualifying Features:**

H4010 Northern Atlantic wet heaths with *Erica tetralix*; Wet heaths with cross-leaved heath

H4030 European dry heaths

H9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer (*Quercion robur-petraeae* or *Ilici-Fagenion*); Beech forests on acid soils

S1083 *Lucanus cervus*; Stag beetle

## **North Downs Woodlands SAC (Site Code: UK0030225)**

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'qualifying features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats;
- The structure and function (including typical species) of qualifying natural habitats; and,
- The supporting processes on which qualifying natural habitats rely.

### **Qualifying features:**

H6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*); Dry grasslands and scrublands on chalk or limestone

H9130 *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils

H91J0 *Taxus baccata* woods of the British Isles; Yew-dominated woodland\*

\* Denotes a priority natural habitat or species