

# Lower Thames Crossing

## 9.89 Responses to the Examining Authority's ExQ1 Appendix G – 11. Biodiversity (Part 1 of 6)

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# 1 Introduction

## 1.1 Introduction

1.1.1 This document has been prepared by the Applicant to set out its responses to the Examining Authority's (ExA's) first round of written questions [\[PD-029\]](#).

1.1.2 These can be found in Tables set out under the following headings:

- a. Climate Change and carbon emissions (found in Appendix A)
- b. Consideration of alternatives (Found in Appendix A)
- c. Traffic and transportation (Found in Appendix B)
- d. Air quality (Found in Appendix C)
- e. Geology and soils (Found in Appendix D)
- f. Waste and materials (Found in Appendix D)
- g. Noise and vibration (Found in Appendix E)
- h. Road Drainage, water environment and flooding (Found in Appendix F)
- i. Biodiversity (Found in Appendix G)
- j. Physical effects of development and operation (Found in Appendix H)
- k. Social, economic and land-use considerations (Found in Appendix I)
- l. Draft Development Consent Order, planning obligations, agreements and adequacy of security (Found in Appendix J)
- m. The acquisition and temporary possession of land and rights (Found in Appendix J)
- n. General overarching questions (Found in Appendix J)

## 2 Responses to the Examining Authority's ExQ1 11

PINS ID	External Stakeholder (where applicable)	Question / Response
ExQ1_Q11.1.1	N/A	<p><b>Impacts of the Project on Saline Lagoon Fauna and Flora</b></p> <p>The Proposed Development at the north tunnel entrance proposes a surface water drainage discharge into adjacent watercourse systems, and in particular, a ditch system exhibiting characteristics of a brackish / saline lagoon habitat. To what extent has the potential to change habitat in this way been considered within the EIA and what mitigation is secured to maintain the saline lagoon flora and fauna? What amendments would be required to the submission in relation to potential saline mitigation in particular, and other watercourse flow regime habitat in general? There remains a level of uncertainty over the availability of water for the wetland habitat creation measures that are proposed. The Applicant is requested to be clear what sources are available to provide the level of water expected for the habitat creation without detriment to the existing water ecosystem in the marshes and sunken streams, and how these are secured. It is suggested that existing “sinking” streams at Swillers Lane and Shorne Ifield Farm, [REP1-408] may contribute to the ecosystem. What measures are to be employed to protect these sources and how is this to be secured?</p> <p><b>Response:</b></p> <p><i>Impacts of the Project on Saline Lagoon Fauna and Flora The Proposed Development at the north tunnel entrance proposes a surface water drainage discharge into adjacent watercourse systems, and in particular, a ditch system exhibiting characteristics of a brackish / saline lagoon habitat. To what extent has the potential to change habitat in this way been considered within the EIA and what mitigation is secured to maintain the saline lagoon flora and fauna? What amendments would be required to the submission in relation to potential saline mitigation in particular, and other watercourse flow regime habitat in general?</i></p> <p>The presence of three macroinvertebrate species indicative of saline lagoon habitat was reported by Natural England in their Deadline 1 Written Representation [REP1-262]. However, in their Deadline 3 submission, Natural England has provided an update to their Deadline 1 comments, stating the location of the ditch in which stenohaline species were recorded was reported inaccurately and the accurate position is from within a ditch outside the Project's Order Limits, close to Coalhouse Fort and the moats which surround it (see Natural England Deadline 3 Submission - Responses to comments on WRs [REP3-193]</p>

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p>paragraphs 1.7.8 – 1.7.10). The Applicant therefore remains confident that the baseline data used to inform the assessment of likely significant effects on macro-invertebrates, reported in Environmental Statement (ES) Chapter 8: Terrestrial Biodiversity [APP-146] is robust.</p> <p>The Applicant notes the statement from Natural England in paragraph 1.7.10 that the habitat creation at Coalhouse Point provides an ideal opportunity to create conditions that may align to saline lagoon habitats, and that their preference is for water to be sourced via a new tidal exchange structure within the seawall to ensure a saline water supply. The Applicant confirms that this commitment is already secured within the application in Deadline 1 Submission - 6.3 ES Appendix 2.2: Code of Construction Practice [REP3-104]:</p> <ul style="list-style-type: none"> <li>• REAC Ref HR010: The habitat creation at the land adjacent to Coalhouse Point, indicated on ES Figure 2.4: Environmental Masterplan [REP2-014, REP3-098, REP2-018, APP-162, REP3-100, REP2-022 to REP2-031] and described in Clause S9.13 of the Design Principles [REP3-110] will be carried out prior to the commencement of works at the Northern tunnel entrance compound. The water required to maintain a range of depths within the habitat consistent with the guidance in “Manage lowland wet grassland for birds”<sup>1</sup> will be secured prior to completion of the habitat creation works and will, unless otherwise agreed with the Secretary of State, be sourced from the River Thames by means of a water inlet with self-regulating valve or equivalent structure, passable by eels, constructed (in accordance with REAC commitment HR011) in the sea wall, at approximately TQ686761, to allow regulated tidal exchange, unless a formal agreement with Thurrock Council to release water on request from the Coalhouse Fort moat system is secured as shown on ES Figure 2.4: Environmental Masterplan, Section 9 [REP3-100].</li> </ul> <p>The Water Framework Directive Assessment [APP-478], in Section 4 assesses the effects of the Project’s construction and operation on surface waterbodies within the Project’s Zone of Influence. The assessment concludes that, following implementation of the measures embedded into the Project design, in combination with commitments to methods of construction and compound management, which are documented in ES Appendix 2.2: Code of Construction Practice (CoCP) [REP3-104], the spatial extent of effects on surface water bodies would be very localised. The assessment concluded that there would be no deterioration of biological quality, hydromorphology, physico-chemical or specific pollutant-supporting elements at the surface water body scale, at which WFD compliance is judged. In addition, the Project would not prevent the future attainment of the WFD objectives for each of the respective water bodies, nor</p>

<sup>1</sup> Defra (2021). Manage lowland wet grassland for birds. <https://defrafarming.blog.gov.uk/manage-lowland-wet-grassland-for-birds/>



PINS ID	External Stakeholder (where applicable)	Question / Response
		<p>pose barriers to implementing future measures described in the River Basement Management Plan to achieve these objectives. As detailed in the Statement of Common Ground between the Applicant and the Environment Agency [REP1-058], item 2.1.33, the WFD Assessment has been agreed with the Environment Agency.</p> <p>With reference to watercourse flow regime habitat in general, the Project design and mitigation addresses potential changes in water chemistry and water flow in the ditch system around the North Portal. During construction, the northern tunnel entrance compound temporary drainage pipeline and outfall would be installed as part of the North Portal excavations and the water collected, treated and discharged to the River Thames, west of the existing Tilbury Main outfall, via a pipeline crossing the intertidal mud with an outfall that allows for subtidal mid-water discharge. The new outfall will also discharge the compound site runoff after it has passed through the treatment ponds/lagoons. This is secured in ES Appendix 2.2: CoCP [REP3-104]:</p> <ul style="list-style-type: none"> <li>• REAC Ref. RDWE023: To mitigate potential effects on water quality and hydrodynamics within the River Thames, the discharge arrangement described in REAC ref. RDWE028 would be constructed and operational in advance of the excavation of the North Portal and tunnelling works, and would be used for the discharge of treated construction phase effluents. All effluents would receive treatment prior to discharge into the Thames to ensure compliance with the Environmental Permitting (England and Wales) Regulations 2016.</li> <li>• REAC Ref. RDWE028: Drainage from the northern tunnel entrance compound is proposed to outfall from the north side of the River Thames. The design of the discharge pipeline and outfall to the River Thames would provide for a subtidal mid-water discharge for effective dilution and dispersal, and to reduce disturbance to the intertidal zone. The discharge infrastructure would be designed in accordance with measures agreed with the MMO as detailed in the Deemed Marine Licence (DCO Schedule 15) [REP3-077].</li> </ul> <p>During operation, the road drainage would be collected, treated and discharged into the Tilbury Main. The tunnel drainage system would include collection, treatment and discharge via a pipeline and outfall to the Thames. The tunnel drainage outfall location is west of the Tilbury Main outfall at Bowaters Sluice and will be constructed in the flood defence from the landward side. There will be no structures or works occurring</p>

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		<p>within the habitats on the river side of the flood defence. These measures are underpinned in the CoCP <a href="#">[REP3-104]</a>:</p> <ul style="list-style-type: none"> <li>• REAC Ref. RDWE025: Drainage design would include treatment measures for highway runoff designed in accordance with Design Manual for Roads and Bridges (DMRB) CG 501 and CD 532 to meet the requirements specified for each outfall to surface watercourses identified in ES Appendix 14.3: Operational Surface Water Drainage Pollution Risk Assessment <a href="#">[APP-456]</a>. Further survey and sampling to define the flow regime and water quality of receiving watercourses would be carried out at proposed points of discharge to inform the detailed design of treatment measures.</li> <li>• REAC Ref. RDWE035: Retention ponds shall be provided at the locations identified in ES Figure 2.4: Environmental Masterplan Sections <a href="#">[REP2-014, REP3-098, REP2-018, APP-162, REP3-100, REP2-022 to REP2-031]</a>. New retention ponds shall be designed as vegetated drainage systems in accordance with the relevant provisions of DMRB CD 532 and will be sized to ensure no increase in flood risk outside of the highway boundary by providing for discharge that is attenuated to the 1 in 1 year greenfield runoff rate (or 1 litre per second, whichever is higher) for all events up to and including the 1 in 100 year rainfall event with climate change. Attenuation would be by means of vortex controls, orifice plates or a combination thereof. Discharge rates from existing retention ponds shall be reduced by at least 50% on current discharge rates. Overland flow paths shall be established to manage exceedance flows from retention ponds. Pollution control measures for retention ponds shall comprise the treatment systems as identified in Part 7 of ES Appendix 14.6: Flood Risk Assessment <a href="#">[APP466]</a>. Retention ponds would incorporate a lined sediment forebay with sufficient capacity to accommodate the first flush.</li> </ul> <p><i>There remains a level of uncertainty over the availability of water for the wetland habitat creation measures that are proposed. The Applicant is requested to be clear what sources are available to provide the level of water expected for the habitat creation without detriment to the existing water ecosystem in the marshes and sunken streams, and how these are secured. It is suggested that existing “sinking” streams at Swillers Lane and Shorne Ifield Farm, <a href="#">[REP1-408]</a> may contribute to the ecosystem. What measures are to be employed to protect these sources and how is this to be secured?</i></p> <p>The availability of water for wetland habitat creation south of the River Thames, and north of the River Thames at Orsett Fen, would be provided through groundwater levels. Excavations for the new ditches and</p>

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		<p>ponds at these locations would be to levels lower than existing groundwater levels and therefore there would be no detriment to the surrounding habitats.</p> <p>The water supply for wetland creation at Coalhouse Point, north of the River Thames is provided through an inlet structure within the sea defence, allowing controlled flow of river water into this area. These three wetland creation areas are secured in ES Figure 2.4: Environmental Masterplan, Sections 4, 9 and 12 [APP-162, REP3-100, REP2-026], with the control structure at Coalhouse Point detailed in the CoCP [REP3-104], REAC Ref HR010.</p> <p>Annex H of Natural England’s Deadline 1 Submission - Written Representation [REP1-262]: Lower Thames Crossing Technical Note: Coalhouse Point Mitigation Progress Update prepared by the Applicant and shared with Natural England 30 June 2023 demonstrates that a suitable water supply from the River Thames is secured for the wetland creation at Coalhouse Point through the water inlet structure. The volumes of water required, as shown in the water balance calculations within the technical note, would be inconsequential in relation to the volume of water within the river and therefore there would be no effect on the ecosystem of the River Thames. The Applicant is also considering other options for ensuring a water supply including using the existing arrangement at the Coalhouse Fort moat drainage channels. However, any options other than the water inlet structure would be considered at detailed design and, if proposed for implementation, would need to demonstrate the same level of certainty in providing adequate water as has been demonstrated for the water inlet structure.</p> <p>REAC commitment TB022 within ES Appendix 2.2: CoCP [REP3-104] states that the objective of the reinstatement of the land within the Milton Compound as biodiversity enhancement is to create additional ditch and pond habitats as well as grassland and scrub. The grassland and scrub habitat will have no effect on the water environment. The additional ditch and ponds will be isolated from the existing watercourses as shown in the indicative design in sheet 4 of ES Figure 2.4: Environmental Masterplan Section 4 (4 of 10) [APP-162] and so will have no effect on existing surface water ecosystems. The ditch and ponds will be designed to only hold water at existing groundwater levels and so no additional water resource will be required to achieve the objectives. Any volume of water from groundwater resources to fill the ditch and ponds will be inconsequential to the volume within the groundwater volume as a whole and therefore there would be no effect on the local groundwater ecosystem.</p>

PINS ID	External Stakeholder (where applicable)	Question / Response
ExQ1_Q11.1.2	N/A	<p><b>Tunnelling vibration on the marine environment</b></p> <p>Environmental Statement Chapter 9 – Marine Biodiversity [APP-147] includes consideration of the tunnel construction. Although mentioned in paragraph 9.6.132, vibration appears not to be mentioned in the following paragraphs, the emphasis being on noise effects. The Applicant should clarify the assessed effects of vibration on the marine environment, that is both the River Thames, the Thames and Medway Canal and the ordinary watercourses under which the tunnel is being constructed. In addition to the direct and indirect affect benthic infauna and fish receptors, are there possible effects on the bird population and its potential use of the marsh area both inside and outside the designated sites. Are the birds likely to be affected by the changes to benthic infauna and fish receptors, or indeed are birds likely to feel the vibration in their own right and become effected? If so, what mitigation could be provided?</p> <p><b>Response:</b></p> <p>In Environmental Statement (ES) Chapter 9: Marine Biodiversity [APP-147] vibration is also referred to as ‘particle velocity’. Particle velocity modelling has been undertaken and is described in paragraphs 9.6.131 and 9.6.136. Potential effects on marine invertebrate receptors in response to particle velocity have been assessed in paragraphs 9.6.137-9.6.146. The assessment concluded that the modelled vibration levels are lower than the sensitivity thresholds of the various studies reported for comparison purposes, and hence impacts on marine receptors would be not significant.</p> <p>Additional particle velocity modelling has been undertaken to verify the effects on freshwater receptors in the Medway Canal and ordinary watercourses, and the results indicate that the predicted levels fall below those reported to trigger a behavioural response in invertebrate species. It is worth noting that a live railway runs adjacent to the Medway Canal, and that receptors are likely to be acclimated to regular vibration effects as a result of the frequent passing trains. As the Thames and Medway Canal and watercourses are not within the marine environment, they are not assessed in ES Chapter 9: ES Chapter 8: Terrestrial Biodiversity [APP-146] and the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment [APP-487] assess these receptors.</p> <p>The Applicant has considered the potential disturbance effects to species from vibration during tunnel construction on the bird qualifying features of the Thames Estuary and Marshes Special Protection Area (SPA) and Ramsar site, plus adjacent functionally linked land. The conclusions of this were that no likely</p>

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		<p>significant effects were predicted. This is reported in the Habitats Regulations Assessment [<a href="#">APP-487</a>], Table 6.16.</p> <p>This conclusion has been agreed with Natural England in the Statement of Common Ground between National Highways and Natural England [<a href="#">REP2-008</a>], item 2.1.88:</p> <ul style="list-style-type: none"> <li>• <i>‘Natural England is in agreement with the HRA screening conclusions, apart from items 2.1.89 on underwater noise and 2.1.91 relating to North Downs Woodlands Special Area of Conservation (SAC). Natural England is continuing to hold constructive discussions with the Applicant on these matters.’</i></li> </ul>
ExQ1_Q11.2.1	N/A	<p><b>Species Surveys Limitations</b></p> <p>It has been noted by a number of IPs that some species surveys have not been conducted across whole areas in an appropriate fashion or at an appropriate time of year. This has the potential to affect the design of the mitigation proposed alongside the detailed design of the project. Can the Applicant provide examples where the alleged deficiency in the survey process is justified and compensated within the documentation, or are there areas that may require the submission to be amended, and if so, what amendments are expected?</p> <p><b>Response:</b></p> <p>Species and habitat surveys have been undertaken in line with guidance in respect to the methodology and timings of survey, as detailed in each individual technical appendix (Environmental Statement (ES) Appendices 8.1 to 8.23 [<a href="#">APP-390</a> to <a href="#">APP-419</a>]). Where surveys have not been carried out (i.e. where access has not been granted), this is explained under the assumptions and limitations in the terrestrial biodiversity appendices listed above, where appropriate. Where access was not granted, desk study data has been used to assess the likely terrestrial biodiversity receptors present. The Applicant accepts this is a limitation, and to ensure that the terrestrial biodiversity receptors present are confirmed prior to construction taking place, detailed pre-construction surveys will be carried out. These pre-construction surveys will be used to inform the final detailed mitigation strategy, particularly in respect of protected species, as this data will be used for the final draft Natural England derogation licences. These pre-construction surveys are secured in Schedule 2, Requirement 7 of the draft Development Consent Order (DCO) [<a href="#">REP3-077</a>].</p> <p>To ensure that mitigation proposals are sufficiently robust, the mitigation strategy has been designed to be precautionary. For example, with regards to water voles, the amount of suitable watercourse habitat being lost as part of construction is estimated to be 2.3km. To offset this loss, an offsite receptor site of 9km of</p>

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		<p>watercourse has been identified for water vole translocation. This will ensure that if more water voles are encountered than have been identified during the baseline surveys, there will be sufficient habitat for this translocation to take place. Conversely, if the minimum number of water voles required to maintain a viable reintroduction population (estimated at 40 individuals) is not captured during translocation work, an alternative receptor area on the Mardyke has been identified. New water vole habitat has been designed to link into the Mardyke, with a number of watercourses, reedbeds and ponds being created to offset the loss of habitat as a result of the Project. This approach is detailed in Section 4.2 of ES Appendix 8.20: Draft Water Vole Conservation Licence Application [APP-416].</p> <p>A further example of this precautionary approach is that being taken to mitigate the impacts on bats. The Applicant has developed a precautionary mitigation strategy in the event that roosts are discovered during pre-construction surveys which could be impacted by construction. The mitigation strategy for bats is detailed in ES Appendix 8.16: Draft EPS Mitigation Licence Application – Bats [APP-408]. The mitigation strategy has been developed using desk study information, baseline survey data and applying Licensing Policy 4<sup>2</sup> which says that mitigation and compensation measures need to be provided that cover the maximum impact of the activity, based on an assessment of plausible scenarios.</p> <p>Mitigation measures have been designed to address potential impacts on the assemblage of bat species found to be present during activity and roost surveys and from desk study records. Following Licensing Policy 4, the scale of these mitigation measures was determined using the number of trees located within the study area and the assemblage of bat species present. This provided an estimated total number of roosts potentially impacted by the Project which the mitigation strategy was designed to provide for (see page 3 of ES Appendix 8.16: Draft EPS Mitigation Licence Application – Bats [APP-408]). A matrix approach to mitigation requirements has then been followed which determines the type of replacement artificial roost structure provided for each roost type and species affected, including ratios of the number of artificial roost structures to be provided for each roost lost as a result of the Project. Artificial roost structures will be installed in existing woodland blocks within the Project Order Limits, as close as practicable to the location of the roosts affected.</p>

<sup>2</sup> Natural England (2022). European protected species policies for mitigation licences. Accessed August 2023. <https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences#policy-4-alternative-sources-of-evidence-to-reduce-standard-survey-requirements>



PINS ID	External Stakeholder (where applicable)	Question / Response
		<p>To address the potential loss of building roosts which would require similar built structures as mitigation, the provision for eight bat barn structures is included in the application and is detailed in the Works Plans (Volume A-C) [REP3-033; REP3-037; REP3-041].</p> <p>As such, it is the Applicant's view that the baseline data used to inform the assessment of likely significant effects reported in the ES Chapter 8: Terrestrial Biodiversity [APP-146] is robust, allowing accurate characterisation of potential impacts on ecological receptors. The approach to that assessment and the subsequent mitigation and compensation proposals presented in ES Chapter 8, examples of which are given above, are suitably precautionary and allow flexibility to provide for the findings of the pre-construction surveys secured within the draft DCO [REP3-077].</p>
ExQ1_Q11.2.2	N/A	<p><b>Species Surveys limitations</b></p> <p>What are the implications in the submitted documentation for the IPs' suggestion that there is a lack of full bryophyte surveys?</p> <p><b>Response:</b></p> <p>The Applicant considers that the lower plant surveys, including bryophytes, undertaken to support both the ecological impact assessment reported in Environmental Statement (ES) Chapter 8: Terrestrial Biodiversity [APP-146], and in the Habitats Regulations Assessment - Screening Report and Statement to Inform an Appropriate Assessment [APP-487], are sufficiently detailed and robust.</p> <p>Bryophyte surveys formed part of the lower plant surveys undertaken to inform the baseline for assessment. Phase 1 habitat surveys confirmed that most of the habitats affected by the Project are intensively managed arable agricultural land, which is less likely to support diverse bryophyte assemblages. Using the Phase 1 habitat data, nine areas of semi-natural habitat within the Order Limits were identified as having potential to support notable species or assemblages, which were taken forward as part of the lower plant (lichen and bryophyte) surveys. The survey results are reported in ES Appendix 8.2: Plants and Habitats [APP-391] Section 4.2.8; and ES Figure 8.4: NVC and Lower Plant Survey Locations [APP-265]. Of these nine sites, two were not possible to survey due to access restrictions. These limitations are reported in Appendix 8.2: Plants and Habitats [APP-391] Section 6.1.4. One further site, Epping Forest, was also subject to lower plant surveys as part of the botanical survey undertaken to support the Habitat Regulations Assessment. This is reported in the Habitats Regulations Assessment - Screening Report and Statement to Inform an Appropriate Assessment [APP-487].</p>

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		<p>The value of the bryophytes recorded within the Order Limits is reported in ES Chapter 8: Terrestrial Biodiversity [APP-146], Table 8.10 and Table 8.21. The conclusions in both tables show that the bryophyte assemblages south and north of the river were typical for woodland in those locations with the species recorded being common and widespread. Bryophytes were therefore not taken forward for further consideration as part of the assessment of likely significant effects. The conclusion of Appendix D in the Habitats Regulations Assessment - Screening Report and Statement to Inform an Appropriate Assessment [APP-487] was that the area surveys supported a species-poor assemblage of bryophytes.</p>
ExQ1_Q11.3.1	N/A	<p><b>Badgers</b></p> <p>Interested Parties (IP) suggest that the data has limitations based on timing and areas surveyed. Does the Applicant consider that additional surveys are required in order to complete the Detailed Design phase? What effect could there be on the assessment provided following completion of the surveys considered as being required to complete the Detailed Design phase?</p> <p><b>Response:</b></p> <p>The Applicant considers that the badger surveys carried out were robust and enabled a suitable precautionary assessment of the badger population present within the study area and the impacts on the badgers from both construction and operation. The extent of badger surveys is detailed in Environmental Statement (ES) Figure 8.29: Badger Survey Results (CONFIDENTIAL) [APP-290], and the limitations of these surveys are detailed in Section 6 of ES Appendix 8.12: Badger (CONFIDENTIAL) [APP-401]. The Applicant recognises the need for up-to-date pre-construction surveys prior to the formal submission of a Natural England badger development licence. These pre-construction surveys are referred to in ES Appendix 8.19: Draft Badger Development Licence Application (CONFIDENTIAL) [APP-415] paragraph 4.1.4; and are secured in the draft Development Consent Order [REP3-077]:</p> <p>Schedule 2 Requirement 7: Pre-construction surveys would be undertaken to ensure robust baselines were available to support detailed design of protected species mitigation strategies.</p> <p>Badgers are known to be very loyal to their main setts, as described in <i>Badgers and Development</i><sup>3</sup> below: “Within their territory badgers live in a number of underground tunnel systems called setts, which provide safety and shelter from the weather. Some setts are always occupied and are used also for breeding and</p>

<sup>3</sup> English Nature (2002). *Badgers and Development*. Peterborough: English Nature.



PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><i>raising young in the winter and spring. These main setts can be very extensive [...] Badgers are extremely loyal to these setts and will often continue to occupy them despite considerable disturbance.”</i></p> <p>As such it is not considered likely that these would be abandoned, or new main setts created in the interim, between the initial DCO surveys and the pre-construction surveys. If new main setts are discovered during the pre-construction surveys, then these will be included within the formal Natural England badger development licence, and the new mitigation strategy for these main setts will be agreed with Natural England. The Applicant considers that this has been addressed within the application, and the badger mitigation approach has been agreed with Natural England and a Letter of No Impediment has been granted. See item 2.1.70 of the Statement of Common Ground between (1) National Highways and (2) Natural England. Version 2.0 <a href="#">[REP2-008]</a>.</p>
ExQ1_Q11.4.1	N/A	<p><b>Short-term Habitat Loss</b></p> <p>The documentation submitted suggests that there will be an overall gain of habitats post construction, however there could be reduced habitat for nesting, roosting and foraging birds during the construction phase, including disturbance to birds within and outside of the Order Limits alongside bat roost and/or foraging and commuting habitat. Given that habitats can take time to establish, what measures are being placed on any contractor to mitigate this during the construction period?</p> <p><b>Response:</b></p> <p>The Applicant accepts that there will be a temporary loss of habitat during the construction phase. The impacts of this on each terrestrial biodiversity receptor are detailed within Section 8.6 of Environmental Statement (ES) Chapter 8: Terrestrial Biodiversity <a href="#">[APP-146]</a>. To mitigate the impacts from the temporary loss of this habitat, the following provisions are secured in ES Appendix 2.2: Code of Construction Practice (CoCP) <a href="#">[REP3-104]</a>. All the below mitigation measures to offset adverse effects of temporary habitat loss will be put in place prior to the impacts from construction occurring:</p> <p>Register of Environmental Actions and Commitments (REAC) commitment TB024: <i>‘In line with the obligations within the CoCP regarding lighting, construction site lighting will comply with the Institute of Lighting Professionals’ Guidance Notes for the Reduction of Obtrusive Light GN01/20 (2020) and the provisions of BS EN 12464-2:2014 Light and lighting – Lighting of workplaces Part 2: Outdoor workplaces (British Standards Institution, 2014), where applicable. The contractor will consult the Environmental Clerk</i></p>

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		<p><i>of Works over the application of these guidance and standards to avoid adverse effects on sensitive ecological receptors including retained bat roosts and watercourses.'</i></p> <p>REAC commitment TB002: <i>'Temporary fencing would be used to demarcate important and protected habitats, preventing construction access to protect them from accidental damage. Important and protected habitats include ecological translocation sites and retained woodland, trees and hedgerows shown on the Environmental Masterplan [<a href="#">REP2-014</a>, <a href="#">REP3-098</a>, <a href="#">REP2-018</a>, <a href="#">APP-162</a>, <a href="#">REP3-100</a>, <a href="#">REP2-022</a> to <a href="#">REP2-031</a>] except where the SoS has agreed to vary the demarcation of such retained woodland, trees and hedges having consideration for REAC commitment TB003. Fencing would be installed under the supervision of the Environmental Clerk of Works and in accordance with good practice guidance. It shall include tree protection measures specified in the Arboricultural Method Statement.'</i></p> <p>REAC commitment TB006: <i>'Employment of a suitably qualified and experienced Environmental Clerk of Works throughout the construction phase of the Project to supervise implementation of environmental mitigation and protection commitments.'</i></p> <p>REAC commitment TB004: <i>'Disturbance, and incidental mortality, of breeding birds would be avoided by timing vegetation clearance and structure removal outside of the bird nesting season (March to August inclusive) wherever possible. Where this is not possible, appropriate measures would be taken to avoid harming birds or their nests (such as temporary fencing around nesting sites where they are immediately adjacent to construction works), under supervision of a suitably experienced Environmental Clerk of Works.'</i></p> <p>REAC commitment TB009: <i>'Bat roosts that would be lost or heavily disturbed due to construction or operational activities would be removed under licence and alternative roosting structures would be provided in areas indicated on the Environmental Masterplan [<a href="#">REP2-014</a>, <a href="#">REP3-098</a>, <a href="#">REP2-018</a>, <a href="#">APP-162</a>, <a href="#">REP3-100</a>, <a href="#">REP2-022</a> to <a href="#">REP2-031</a>].'</i></p> <p>REAC commitment TB027: <i>'An air raid bunker within Shorne Woods containing a hibernation bat roost would be heavily disturbed as a result of the Project. A replica bunker would be constructed, prior to disturbance of the existing structure, within land between Shorne Woods and Great Crabbles Wood at a location to be agreed with Natural England. The bunker would be constructed from brick with blockwork covering, designed to provide similar internal temperatures and humidity levels to the existing air raid</i></p>

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		<p><i>bunker. Internally there would be additional brickwork and timber boarding approximately 150 x 75mm in size, on angles within the bunker allowing access behind them for bats. There would be 20 bat bricks installed in the internal walls.'</i></p> <p>REAC commitment TB012: <i>'Bird nest boxes would be provided within areas of retained woodland, trees and hedges shown on the Environmental Masterplan [REP2-014, REP3-098, REP2-018, APP-162, REP3-100, REP2-022 to REP2-031] to supplement the habitat creation by offsetting the loss of nesting opportunities whilst newly created habitats establish. A ratio of 10 assorted small nest boxes and one medium open fronted nest box per hectare of lost woodland/scrub would be adopted in accordance with BTO Field Guide No. 23, where it is reasonably practicable to erect this number of nest boxes. For hedgerows, a ratio of 10 assorted small nest boxes per kilometre of hedgerow would be adopted, where it is reasonably practicable to erect these numbers within retained vegetation. The measures would be implemented under the supervision of the Environmental Clerk of Works.'</i></p> <p>All of the above REAC measures are secured by Requirement 4, Part 1 of Schedule 2 of the draft DCO [REP3-077]. The draft DCO also secured the need for pre-construction surveys to update baseline data in Requirement 7, Part 1 of Schedule 2, which would inform those REAC measures listed above.</p>
ExQ1_Q11.4.2	N/A	<p><b>Categorisation of Bird Species</b></p> <p>NE has raised a query in relation to the categorisation of bird species associated with the Shorne Woods SSSI being given a county status in the assessment when, in the view of NE, these should be assigned a national status. Can the Applicant either provide justification for the approach taken or update the assessment to take this change into account.</p> <p><b>Response:</b></p> <p>Having reviewed Natural England's written representation, the Applicant believes that the concern around the categorisation of bird species relates to South Thames Estuary and Marshes Site of Special Scientific Interest (SSSI), and not Shorne Woods SSSI as reported here (see Section 5.2, paragraph 5.2.7 of Natural England's written representation [REP1-262]). This response therefore refers to South Thames Estuary and Marshes SSSI.</p>

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		<p>The importance or value of ecological features present within the study area of the Project has been assessed using the following guidance:</p> <ul style="list-style-type: none"> <li>• Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine<sup>4</sup></li> <li>• Design Manual for Roads and Bridges LA 108 Biodiversity<sup>5</sup></li> </ul> <p>These guidance documents provide a geographical frame of reference for determining the level of importance (value) of ecological features, with the methodology assigning importance within this frame of reference through the consideration of attributes, including rarity, legal status, population size, distribution and connectivity, and natural range. This approach is outlined in Table 3.9 in LA 108 and is presented in Table 8.5 of Environmental Statement (ES) Chapter 8: Terrestrial Biodiversity [APP-146]. Where appropriate, additional detail on biodiversity resources relevant to this assessment has been incorporated into Table 8.5, such as a geographical frame for reference associated with priority habitats, and the inclusion of the Red List of Threatened Species<sup>6</sup>, listed as being Near Threatened or Vulnerable.</p> <p>The importance assigned to all designated sites with Chapter 8: Terrestrial Biodiversity [APP-146] aligns with the level of designation afforded to each. For example, European designated sites are of international value, SSSIs including South Thames Estuary and Marshes SSSI are of national value, local wildlife sites are of county value. Where local wildlife sites support irreplaceable habitats such as ancient woodland, those sites are assigned national value to align with the value of those irreplaceable habitats. Habitats and species that form part of a site’s designation are captured within that stand-alone feature in terms of assigning importance and are, therefore, considered as part of the assessment of likely significant effects for that feature. Where these same habitats and/or species are present outside designated sites, in the wider zone of influence of the Project, these are valued separately using the appropriate geographical frame of reference relevant to the Project (see below). This approach allows a separate consideration of</p>

<sup>4</sup> Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. <https://cieem.net/wp-content/uploads/2019/02/Combined-EcIA-guidelines-2018-compressed.pdf>

<sup>5</sup> Highways England (2020). Design Manual for Roads and Bridges, LA 108 Biodiversity. <https://www.standardsforhighways.co.uk/search/af0517ba-14d2-4a52-aa6d-1b21ba05b465>

<sup>6</sup> International Union for Conservation of Nature. 2022. *The IUCN Red List of Threatened Species. Version 2022-2*. <https://www.iucnredlist.org/>

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		<p>the importance of habitats and species populations/assemblages across the wider Project zone of influence.</p> <p>Assigning importance to habitats and species populations/assemblages, as separate from those habitats and assemblages which are captured within designed site features, is less prescribed and considers at which geographic scale the loss of the habitat extent or species population within the zone of influence of the Project would be felt. For habitats, this takes into account not only the habitat type but factors such as diversity, size and connectivity. For species, this takes into account aspects such as the wider distribution of that species population within the UK. For example, the loss of a great crested newt meta-population in Kent might not be as significant as the loss of a great crested newt meta-population in Devon where the species is on the edge of its range.</p> <p>This approach, therefore, enables an ecological feature which forms a qualifying feature of a designated site, and is also present across the wider zone of influence of a project, to be covered by distinct levels of importance. Where the feature forms part of the qualifying interest of a designated site, it is considered as part of the importance of the designated site. Separately, where it is present across the wider zone of influence of a project, it is considered as a feature independently of the designated site and assigned a level of importance according to the geographic scale at which the loss of that population would be felt.</p> <p>Natural England raises the concern that the ornithological interest south of the River Thames is valued at a county level when the South Thames Estuary and Marshes SSSI, situated south of the River Thames is of national importance. In line with the approach outlined above, the Project values the SSSI as nationally important and, within the assessment of likely significant effects, considers the effect on the ornithological interest at the site as part of the potential impacts from the Project on this site. Separate to the valuation of importance and assessment of effects on the SSSI, the ornithological interest within the zone of influence of the Project south of the River Thames has been valued at county level importance, based on the ornithological assemblage recorded within the zone of influence of the Project, and the geographic scale at which the loss of that assemblage would be felt. This aligns with the framework provided by Highways England (2020) and CIEEM (2018). It is, therefore, not the case that the ornithological interest within the SSSI is considered to be important at the county level, rather that the qualifying ornithological interest of the SSSI is captured within the SSSI feature as being of national importance.</p> <p>The valuation of South Thames Estuary and Marshes SSSI is reported in ES Chapter 8: Terrestrial Biodiversity [<a href="#">APP-146</a>], Table 8.8, and the valuation of the ornithology assemblage south of the River</p>

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		Thames is reported in paragraphs 8.4.31 – 8.4.51. The assessment of likely significant effects on South Thames Estuary and Marshes SSSI, including its ornithological interest, is reported in paragraphs 8.6.18 - 8.6.25. The assessment for the ornithological assemblage south of the River Thames is reported in paragraphs 8.6.114 - 8.6.129.
ExQ1_Q11.4.3	N/A	<p><b>Breeding and Wintering Birds – Thames Estuary and Marshes SPA</b></p> <p>Can the Applicant set out the impact on the creation of wetland habitat should the introduction of seasonal work limitations for both over-wintering and breeding bird seasons be required? Are there other issues additional to water chemistry that could affect the introduction of such wetland habitat?</p> <p><b>Response:</b></p> <p>Wetland habitat creation (or indeed any activity) would not be possible if seasonal work limitations for both over-wintering and breeding bird seasons were to be required. The over-wintering and breeding bird seasons overlap and therefore there would be no seasonal window to carry out any works.</p> <p>There are no seasonal work limitations proposed for the creation of wetland habitats. However, measures detailed within Environmental Statement Appendix 2.2: Code of Construction Practice <a href="#">[REP3-104]</a>, provide mitigation for potential adverse effects on breeding birds as a result of construction activities:</p> <ul style="list-style-type: none"> <li>• Commitment TB004: Disturbance, and incidental mortality, of breeding birds would be avoided by timing vegetation clearance and structure removal outside of the bird nesting season (March to August inclusive) wherever possible. Where this is not possible, appropriate measures would be taken to avoid harming birds or their nests (such as temporary fencing around nesting sites where they are immediately adjacent to construction works), under supervision by a suitably experienced Environmental Clerk of Works.</li> <li>• Commitment TB006: Employment of a suitably qualified and experienced Environmental Clerks of Works throughout the construction phase of the Project to supervise implementation of environmental mitigation and protection commitments.</li> </ul> <p>This mitigation is a matter agreed with Natural England in item 2.1.68 RRE of the Statement of Common Ground between (1) National Highways and (2) Natural England <a href="#">[REP2-008]</a>.</p> <p>The Applicant is not aware of any other issues that could affect the introduction of a wetland habitat at Coalhouse Point other than those raised by Natural England in their Deadline 1 Submission - Written</p>



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		Representation (WR) <a href="#">[REP1-262]</a> and those relating to flood risk, which the Applicant is actively discussing with the Environment Agency.
ExQ1_Q11.5.1	N/A	<p><b>Badgers</b></p> <p>It has been suggested by IPs that habitat connectivity and fragmentation need to be considered, particularly through the construction period where loss of foraging area has been suggested. What is the expectation to be placed on any design team or contractor to address this concern, and how is it intended to be secured and measured? Is there a potential for significant effects to occur which has not been captured by the EIA?</p> <p><b>Response:</b></p> <p>The Applicant has assessed the temporary effects from construction of the loss of badger commuting and foraging areas, and the fragmentation impacts in paragraphs 8.6.202 and 8.6.422 of Environmental Statement (ES) Chapter 8: Terrestrial Biodiversity <a href="#">[APP-146]</a>. These impacts are also addressed in Section 5.4 of ES Appendix 8.19: Draft Badger Development Licence Application (CONFIDENTIAL) <a href="#">[APP-415]</a>. Although there will be temporary fragmentation and loss of foraging areas during the construction phase, individual territories will not be completely isolated as there is suitable foraging habitat on either side of the construction site. Where there is a possibility of a main sett becoming isolated or fragmented from suitable foraging habitat, the main setts are being closed and artificial main setts are being created in suitable areas of habitat within the badger territories that are affected as compensation (as detailed in Section 5.3 of ES Appendix 8.19: Draft Badger Development Licence Application (CONFIDENTIAL) <a href="#">[APP-415]</a>. These compensation measures will be put in place in advance of the main setts being closed. The Contractor's requirement to implement compensation is secured as a legal requirement of the Badger Development Licence and through Schedule 2, Part 1, Requirement 7 of the draft Development Consent Order <a href="#">[REP3-077]</a>. Due to the size of the construction footprint, it would not be possible to implement any effective mitigation to allow badgers to cross the construction area until the construction and establishment of the green bridges, viaducts, or other connecting features of the Project are completed. To mitigate the impacts on badgers during construction, the following mitigation measures that Contractors are required adopt are secured in ES Appendix 2.2: Code of Construction Practice <a href="#">[REP3-104]</a> are proposed:</p> <ul style="list-style-type: none"> <li>• REAC Ref. TB024: In line with the obligations within the CoCP regarding lighting, construction site lighting will comply with the Institute of Lighting Professionals' Guidance Notes for the Reduction of</li> </ul>

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		<p>Obrusive Light GN01/20 (2020) and the provisions of BS EN 12464-2:2014 Light and lighting – Lighting of workplaces Part 2: Outdoor workplaces (British Standards Institution, 2014), where applicable. The Contractor will consult the Environmental Clerk of Works over the application of these guidance and standards to avoid adverse effects on sensitive ecological receptors including retained bat roosts and watercourses.</p> <ul style="list-style-type: none"> <li>• REAC Ref. TB002: Temporary fencing would be used to demarcate important and protected habitats, preventing construction access to protect them from accidental damage. Important and protected habitats include ecological translocation sites and retained woodland, trees and hedgerows shown on Figure 2.4: Environmental Masterplan [<a href="#">REP2-014</a>, <a href="#">REP3-098</a>, <a href="#">REP2-018</a>, <a href="#">APP-162</a>, <a href="#">REP3-100</a>, <a href="#">REP2-022</a> to <a href="#">REP2-031</a>]. Fencing would be installed under the supervision of the Environmental Clerk of Works (ECoW) and in accordance with good practice guidance.</li> <li>• REAC Ref. TB006: Employment of suitably qualified and experienced Environmental Clerks of Works throughout the construction phase of the Project to supervise implementation of environmental mitigation and protection commitments.</li> <li>• REAC Ref. TB015: Monitoring of protected species during and post-construction would be in line with the requirements of the protected species mitigation licences (see Appendix 8:19: Draft badger development licence application (CONFIDENTIAL) [<a href="#">APP-415</a>]; and Appendix 2.2: the CoCP [<a href="#">REP3-104</a>]).</li> </ul> <p>The effect of habitat fragmentation on badger, which are locally important both to the south and north of the River Thames, is assessed as being slight adverse and not significant. The Applicant considers that this has been addressed within the application, and the badger mitigation and compensation approach has been agreed with Natural England and a Letter of No Impediment has been granted.</p>
ExQ1_Q11.5.2	N/A	<p><b>Monitoring of Success</b></p> <p>It is suggested that the application would benefit from ‘a robust approach to monitoring the success of all ecological and landscape mitigation measures’ and that it should be based upon ‘an ‘indicators of success’ approach which looks not just at the habitat establishment but also the species groups’.[initially RR-0784] To what level does the submission meet with these suggestions, and what measures would be required to be put in place to match this expectation? What effect would this have on the submitted documentation?</p>



PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><b>Response:</b></p> <p>The Applicant’s view is that the current submission allows for a robust approach to monitoring the success of ecological and landscape mitigation measures, as detailed and secured in the documents referenced below, which considers both habitat establishment as well as species groups.</p> <p>Species group monitoring commitments within the application align with the requirements of the five protected species draft mitigation licence applications reported in the following documents:</p> <ul style="list-style-type: none"> <li>• Environmental Statement (ES) Appendix 8.16: Draft EPS Mitigation Licence Application – Bats [<a href="#">APP-408</a>]</li> <li>• ES Appendix 8.17: Draft EPS Mitigation Licence Application - Great Crested Newts (1 of 5) [<a href="#">APP-409</a>]</li> <li>• ES Appendix 8.17: Draft EPS Mitigation Licence Application - Great Crested Newts (2 of 5) [<a href="#">APP-410</a>]</li> <li>• ES Appendix 8.17: Draft EPS Mitigation Licence Application - Great Crested Newts (3 of 5) [<a href="#">APP-411</a>]</li> <li>• ES Appendix 8.17: Draft EPS Mitigation Licence Application - Great Crested Newts (4 of 5) [<a href="#">APP-412</a>]</li> <li>• ES Appendix 8.17: Draft EPS Mitigation Licence Application - Great Crested Newts (5 of 5) [<a href="#">APP-413</a>]</li> <li>• ES Appendix 8.18: Draft EPS Mitigation Licence Application – Dormouse [<a href="#">APP-414</a>]</li> <li>• ES Appendix 8.19: Draft Badger Development Licence Application (CONFIDENTIAL) [<a href="#">APP-415</a>]</li> <li>• ES Appendix 8.20: Draft Water Vole Conservation Licence Application [<a href="#">APP-416</a>]</li> </ul> <p>The Applicant’s view is that the monitoring requirements committed to within the draft protected species licence applications provide a robust approach to monitoring the success of species groups.</p> <p>Section 8 of the outline Landscape and Ecology Management Plan (oLEMP) [<a href="#">REP3-106</a>] sets out the outline measures of success with details of the monitoring of habitat establishment for landscaping and ecological mitigation. The Applicant’s view is that this would adequately secure robust outline measures of success criteria for the creation of the semi-natural habitats which support the relevant species, such as woodland (including ancient woodland compensation planting), grassland, banks and ditches, ecological ponds, hedgerows and Open Mosaic Habitats. Detailed site-specific measures would be developed, in consultation with all relevant parties, as part of the development of the oLEMP, which is secured through requirement 3 of the draft DCO.</p>

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		<p>Taking these securing mechanisms and monitoring commitments into account, the Applicant would contend that no further amendments to the submitted documents are required. The Applicant acknowledges discussions at ISH6 in relation to monitoring of success for green bridges in particular and will provide further feedback on those specific matters as a part of post-hearing follow up.</p>
ExQ1_Q11.5.3	N/A	<p><b>Indigenous Planting</b></p> <p>Can the Applicant confirm that the Proposed Development will utilise indigenous species grown from seeds of local provenance to tie in with local vegetation when incorporating screening, wider offsite and ‘compensatory’ planting, and other habitat creation measures etc. How is the provenance of the seed stock to be measured and an appropriate source base secured? If not, how will such a commitment be secured? Will there be any influence on the timetable of the construction period and associated amendments to the assessments submitted should there be limitations on available seed stock? Noting that it is proposed that planting will be used to create a more naturalistic edge to proposed attenuation ponds/wetland areas, to avoid an overly engineered appearance, etc, what effect is that likely to have on the design of the attenuation and infiltration systems, their future maintenance and sustainability? Could this have an effect on the adequacy of the ponds shown within the submitted documents and if so, what effect will that have within the submitted documents and analysis?</p> <p>Response:</p> <p>The planting strategy for the Project shall be developed to ensure that species selection shall consider the local context, provenance and be appropriate to the locality. The planting shall also be designed to tie into the existing habitats and vegetation. This is covered by Clause LSP.02 Planting Strategy within the Design Principles document [REP3-110]. The Design Principles are secured via Schedule 2 Requirement 3 and 5 of the draft Development Consent Order [REP3-077].</p> <p>The outline Landscape and Ecology Management Plan (oLEMP) [REP3-106] contains the requirement that for all areas of proposed LE2.1 woodland planting, LE2.4 Linear belt of shrubs and trees, LE2.5 Shrubs with intermittent trees, LE2.7 Scattered trees and LE5.1 Individual Trees, the “<i>species mix and selection shall comprise local provenance stock, and species mixes shall be adapted to reflect the local character</i>”. The oLEMP is secured via Schedule 2 Requirement 5 of the draft Development Consent Order [REP3-077].</p>

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p>Clause 3006.6 of Series 3000 Landscape and Ecology of the Manual of Contract Documents for Highway Works, Volume 1 – Specification for Highway Works<sup>7</sup>, which the Contractors will work to, states:</p> <p><i>“Where the seed origin of native plant species is required to be of specific provenance, the provenance shall be determined and described in accordance with Forestry Commission Practice Note 8: Using Local Stock for Planting Native Trees and Shrubs. Written evidence of its provenance shall be provided to the Overseeing Organisation prior to planting, using the Provenance Certificate pro-forma in Appendix 30/6.”</i></p> <p>The Contractor is required to prepare a Co-ordinated Architecture and Landscape Design report which includes an outline strategy for the resourcing and procurement of planting stock. In line with the Contractor's procurement strategy, they will engage with suppliers to secure an adequate supply of seeds, aligning with the project's construction programme.</p> <p>Proposed attenuation basins are shown on the Figure 2.4 Environmental Masterplan (Sections 1 to 10) [<a href="#">REP2-014</a>, <a href="#">REP3-098</a>, <a href="#">REP2-018</a>, <a href="#">APP-162</a>, <a href="#">REP3-100</a>, <a href="#">REP2-022</a> to <a href="#">REP2-031</a>] and the Works Plans (Volume B and C) [<a href="#">REP3-037</a> and <a href="#">REP3-039</a>] and have been designed to a reasonable worst-case scenario in terms of basin/ pond shape and volume required for drainage. There is therefore an opportunity for detailed design to further integrate the drainage features into the landscape via naturalistic planting, in accordance with Clause LSP.17 Integration of infiltration basins and retention ponds in the Design Principles document [<a href="#">REP3-110</a>]. Clause LSP.17 states <i>“...the basins shall be designed to appear as naturalistic elements within the wider setting, with planting provided to soften edges where this is appropriate.”</i></p> <p>In addition to the design principle for a naturalistic design, Clause LSP.17 states that <i>“the drainage design shall incorporate Sustainable Drainage Systems (SuDS) that provide for runoff treatment and reduce the risk of flooding in local catchments by providing storage and attenuation”</i>. The design principle would not therefore compromise the intended function of the drainage features.</p> <p>The future maintenance and management of the attenuation basin/ ponds will be subject to Highways England's Design Manual for Roads and Bridges (DMRB) standards GM 701 Series 3000 (Highways England, 2020a) and GS 801 – Asset delivery asset inspection requirements Series 3000 (Highways</p>

<sup>7</sup> Standards for Highways (2008). Manual of Contract Documents for Highway Works Volume 1 – Specification for Highway Works. Series 3000 Landscape and Ecology. Accessed September 2023. <https://www.standardsforhighways.co.uk/tses/attachments/50e8c0e2-638d-493f-b929-7dd4733df88a?inline=true>

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p>England, 2020b), which establish the general maintenance and inspection requirements for all assets including (but not limited to) soakaways (lagoon/infiltration, pond, borehole and trench), balancing/attenuation ponds, wetland areas and ditches, including, as required, ecological condition assessments for motorways and all-purpose trunk roads. This is secured by REAC ref. RDWE012 <a href="#">[REP3-104]</a>.</p>
ExQ1_Q11.5.4	N/A	<p><b>Design Principles [APP-516]</b></p> <p>Table 4.3 ‘Project-wide design principles: Connecting processes’ makes a number of statements, however the Applicant is asked to clarify what allowance has been placed within the submitted documents if the design is amended following the process PRO.01 where comments and suggestions are raised by the National Highways Design Review Panel and are subsequently implemented? Similarly, in PRO.04, what is meant by “where reasonably practicable, within the constraints of the DCO”?</p> <p><b>Response:</b></p> <p>In responding to this question, the Applicant highlights that it is necessary to differentiate between the types of amendment which are capable of being implemented at the detailed design stage (should development consent be granted):</p> <ul style="list-style-type: none"> <li>• Expected amendments arising out of the detailed design processes such as those described in Design Principle PRO.02 (integrated design) <a href="#">[REP3-110]</a> that are in accordance with the constraints of the approved documents and plans. This is considered natural development of a preliminary design into a detailed design and is likely to include amendments to aspects not yet fixed at detailed design such as such as signage design, materials, final planting mixes and structural/architectural forms.</li> <li>• Design changes which require an application to made to the Secretary of State under article 6(3) and/or Requirement 3(1) of Schedule 2 to the draft DCO <a href="#">[REP3-077]</a>.</li> </ul> <p>The scope of the National Highways Design Review Panel would be expected to comment on designs within the constraints of the DCO. In the Applicant’s experience, this has been how the NHDRP operates. In the unlikely event that a matter was raised, the second route could be utilised subject to there being no new materially new or materially different environmental effects, or land use or acquisition constraints noting that the Order only authorises use within the Order Limits.</p>

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		<p>Independent design review is most successful as a formative process that influences the developing design. This is described in Design Review: Principles and Practice<sup>8</sup> which was co-authored by the Design Council, Landscape Institute, RTPI and RIBA and calls for reviews to be held as early in the design process as possible.</p> <p>Iteration is a necessary and expected part of any design process. The timing of an independent design review is crucial to its success in ensuring that comments arising from it can be incorporated in subsequent iterations of the design. Too early, the design proposals may not be mature enough to invite meaningful comment and review; too late, there is no time (and too much sunk-cost in design time) to make further iteration efficient.</p> <p>As noted in the Project Design Report Part A: Introduction and Project Background [APP-506], Sections 2.2 and 3.4, the use of a Design Panel is a condition of National Highways' Licence<sup>9</sup>. The Licence also stipulates '<i>The Licence holder has due regard to the advice and general recommendations of the Design Panel, and the particular observations of the Panel on specific schemes</i>'. As a result of these commitments, the Applicant has made extensive use of the NHDRP on other projects and has published useful guidance<sup>10</sup> on engagement with the panel and acknowledges the importance of the correct timing of a review. The guidance also describes the briefing process noting the engagement required with the panel on the type of review requested and the materials that are necessary to be presented. The agreement of how and when the Project (and/or component parts of it) will be reviewed will be subject of detailed negotiation between the NHDRP and the Applicant. This includes the potential need for follow-up reviews.</p> <p>Given that the timing and content of a Review is an iterative and collaborative process with NHDRP, and that amendment after engagement with the NHDRP is both an expected and desirable part of an iterative design process, and in light of the scale and complexity of the Project, the Applicant does not consider it</p>

<sup>8</sup> Design Council (2019). Design Review: Principles and Practice.

[https://www.designcouncil.org.uk/fileadmin/uploads/dc/Documents/Design%2520Review\\_Principles%2520and%2520Practice\\_May2019.pdf](https://www.designcouncil.org.uk/fileadmin/uploads/dc/Documents/Design%2520Review_Principles%2520and%2520Practice_May2019.pdf)

<sup>9</sup> Department for Transport (2015). Highways England: Licence. Accessed August 2023.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/431389/strategic-highways-licence.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/431389/strategic-highways-licence.pdf)

<sup>10</sup> National Highways (2022). Design Review at National Highways: A Guide. Accessed September 2023. [https://nationalhighways.co.uk/media/0k0pltds/design-review-at-national-highways\\_a-guide.pdf](https://nationalhighways.co.uk/media/0k0pltds/design-review-at-national-highways_a-guide.pdf)

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		<p>feasible or necessary to secure <i>within</i> the DCO a defined process for dealing with the scale of “amendment” that may require further review at this time.</p> <p>In relation to PRO.04, the phrase “where reasonably practicable” is used to provide a positive requirement to incorporate measures relating to “maximising biodiversity value” in relation to the detailed design of structures, buildings and landscape. The phrase “reasonably practicable” is a well-used and defined phrase in legal contexts. In short, it means that measures will be achieved subject to constraints which may impose unreasonable or excessively practical difficulties. In a different context, though instructive, the Court of Appeal (in its judgment in <i>Edwards v. National Coal Board</i>, [1949] 1 All ER 743) held that ‘Reasonably practicable’ is a narrower term than ‘physically possible’ and that “<i>a computation must be made by the owner in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk...is placed in the other, and that, if it be shown that there is a gross disproportion between them – the risk being insignificant in relation to the sacrifice – the defendants discharge the onus on them</i>”. This language is appropriate as it balances the aspiration to “maximise” so far as reasonable biodiversity value on the aforementioned structures, without contravening the constraints in the DCO or the Applicant’s requirement to ensure that it must always implement measures with the safety of its staff and road users in mind, as well as ensuring value for money for taxpayers.</p>
ExQ1_Q11.6.1	N/A	<p><b>West Tilbury Main Culvert</b></p> <p>Designated ‘Main Rivers’ are shown on the statutory ‘Main River Map’. It is noted that minimising the length of X-EFR-2-01 is an embedded measure that is secured by Design Principle S9.10 (Application Document 7.5) [APP-516] but: - Has the possible degradation of upstream habitat due to the long culvert becoming a “no-go” area for mammals and fish, been considered in the submitted Environmental Statement, if so, where? - What could be the effects on the conclusions of such an occurrence happening? What additional mitigation is likely to be required to be secured?</p> <p><b>Response:</b></p> <p>The potential for the culvert on the West Tilbury Main watercourse to act as a barrier to the passage of mammals and fish has been considered within the Water Framework Directive (WFD) Assessment [APP--478], Appendix 14.7 of the Environmental Statement (ES).                      Section 4 of the WFD Assessment report documents that the earthworks design has been modified to reduce the culvert length (from 83m to 46m), and the Project has committed to several embedded design</p>



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		<p>features to reduce the potential for a barrier effect, secured by the following commitments within the Code of Construction Practice <a href="#">[REP3-104]</a>:</p> <ul style="list-style-type: none"> <li>• Culvert inverts would be buried below existing bed levels to allow baseline bed levels, slopes and bed materials to be maintained (RDWE013).</li> <li>• Bankside vegetation would be reinstated at culvert entries and exits following the completion of construction works as soon as conditions are suitable for planting (RDWE009).</li> <li>• The West Tilbury Main culvert would be partially submerged at its downstream end to prevent perching, and a resting pool for coarse fish would be provided immediately downstream of the culvert, with a minimum depth of 0.3m (RDWE031).</li> <li>• The West Tilbury Main culvert would integrate a fish pass aid designed for eels and elvers, incorporating some form of matrix, such as bristles, to assist their migration by crawling/climbing instead of swimming (RDWE030).</li> <li>• At the culvert entrance, planting would be designed to ensure no sharp light/dark interface to encourage continued fish passage. This would be achieved by planting with a scrub mix that would include alder (RDWE021).</li> </ul> <p>The assessment explains that these measures would reduce habitat fragmentation and prevent barrier to fish passage. Downstream drift of upstream macrophyte seeds and invertebrate larvae would still function, and loss of habitat for in-channel macroinvertebrates would be reduced by retaining natural substrates in culvert beds and compensated for by habitat re-provision within the Mardyke catchment and localised improvements on the West Tilbury Main. The location of the West Tilbury Main culvert low down in the catchment would also lessen effects on upstream migration of winged invertebrates, with interruption limited to the very bottom of the catchment only.</p> <p>Culverting equates to less than 2% loss of open channel on the West Tilbury Main. Mitigation for channel and freshwater habitat loss is centred around land in the Mardyke catchment at Orsett Fen. The landscape currently comprises arable agricultural fields, with ditches at field boundaries; the Mardyke flows adjacent to the western boundary. A design has been developed for a range of freshwater habitats, including a network of ditches and open water bodies, and associated riparian vegetation, to create a net gain in water body re-provision and opportunities to create freshwater habitats of better quality than the habitats lost through culverting. Some compensation would also be provided in the West Tilbury Main catchment, associated</p>

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		<p>with the removal of three existing culverts on the watercourse and enlargement of another culvert (RDWE046), and reinstating another reach (approximately 125m) by undertaking works to unblock an existing culvert (RDWE047).</p> <p>The WFD Assessment concludes that with the implementation of mitigation measures outlined above the residual risk of deterioration at the water body scale for the Tilbury Main are negligible and therefore no further mitigation measures are proposed.</p> <p>In addition to the WFD Assessment above, the impacts of this culverting are also assessed within Sections 8.6.314 (for fish), 8.6.395 (for water voles) and 8.6.410 (for otters) in ES Chapter 8: Terrestrial Biodiversity [APP-146]. Where baseline or future baseline conditions suggest that watercourses may be used by commuting or foraging mammals, culverts have been designed to allow mammal passage (see ES Figure 2.4: Environmental Masterplan [REP2-014, REP3-098, REP2-018, APP-162, REP3-100, REP2-022 to REP2-031]) and the following specific mitigation measure is secured via REAC commitment RDWE044 – ensuring that mammal ledges would be installed in line with ES Appendix 14.6: Flood Risk Assessment - Part 10 [APP-477] design guidance for culverts.</p> <p>Additional supporting mitigation measures are secured via the Design Principles [REP3-110] in clauses S9.10 and PLA.05.</p> <p>The Applicant has concluded that, given the mitigation measures set out above, operational habitat fragmentation resulting from the use of the culvert would not result in any significant effects. As such, no additional mitigation is proposed.</p>
ExQ1_Q11.8.1	N/A	<p><b>Intra-project effects</b></p> <p>Please identify where the intra-relationships between terrestrial biodiversity and cultural heritage / landscape and visual /population and human health aspect assessments are considered? What potential factors were considered and how were these assessed? Or provide justification as to why these assessments were scoped out of assessment.</p>



PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><b>Response:</b></p> <p>The potential for interrelationships between terrestrial biodiversity and other environmental topics is discussed in Environmental Statement (ES) Chapter 8: Terrestrial Biodiversity [APP-146]. Within Section 8.3 assessment methodology, paragraph 8.3.54 identifies that there are interrelationship effects between different environmental topics, and that the assessment has drawn upon outputs of other topics to determine the nature and extent of such effects. Paragraph 8.7.1 within Section 8.7 cumulative effects, provides further detail on these interrelationships. Bullet points (b), (c) and (h) of this paragraph provide further information on the interrelationship that the terrestrial biodiversity assessment has with cultural heritage, landscape and visual, and population and human health, respectively.</p> <p>As described in ES Chapter 8: Terrestrial Biodiversity [APP-146] paragraph 8.7.1 bullet point (b), and replicated in ES Chapter 6: Cultural Heritage [Document Reference 6.1 Chapter 6 (3)], effects on heritage assets related to the terrestrial biodiversity assessment have been identified. These effects are presented in Section 6.6, assessment of likely significant effects, of ES Chapter 6: Cultural Heritage [Document Reference 6.1 Chapter 6 (3)] and ES Appendix 6.10: Assessment Tables [AS-052]. These assessments have considered the potential effects from the Project on the value of assets through physical impacts and changes to setting from the loss of existing habitats, and the introduction of ecological mitigation.</p> <p>ES Chapter 8: Terrestrial Biodiversity [APP-146] paragraph 8.7.1 bullet point (c), and ES Chapter 7: Landscape and Visual [APP-145] paragraph 7.7.1 bullet point (b), set out the interrelationship between the topics. These relate to effects on woodland and habitats which are key features of designated and non-designated landscapes within the study area, and the associated effects from proposed mitigation planting. ES Chapter 7, Section 7.4 baseline conditions, identifies the influence that biodiversity features have on the value of the landscape character of the study area. This valuation and potential impacts on biodiversity features has informed the assessment of significance of effects on the landscape features, as presented in Section 7.6, assessment of likely significant effects, and ES Appendix 7.9: Schedule of Landscape Effects [APP-384].</p> <p>ES Chapter 8: Terrestrial Biodiversity [APP-146] paragraph 8.7.1 bullet point (h), sets out the interrelationship with the population and human health topic. This information is replicated in ES Chapter 13: Population and Human Health [APP-151] paragraph 13.7.1 bullet point (d). The interrelationships relate to disturbance to species and degradation of sites and habitats from increased visitor pressure. Chapter 8, paragraphs 8.6.5 and 8.6.50, set out the assessment of construction phase terrestrial biodiversity effects</p>

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		<p>resulting from increased visitor pressure, as described in Chapter 13. Chapter 8, paragraphs 8.6.204 and 8.6.227, cover terrestrial biodiversity effects from visitor pressure during the operational phase.</p> <p>The interrelationships between topics are not disaggregated to show what effect relates to what topic, as the effects are reported based on the receptors/assets in the relevant topic chapter. The collaborative design approach taken for the Project and the integrated approach taken to the development of mitigation, has considered opportunities where measures related to multiple topics can be combined in a single location. For example, combining replacement habitat, landscape integration, visual screening and public open space. The interrelationships between topics have therefore been considered in the assessment of potential impacts resulting from the Project, as explained in ES Chapter 8: Terrestrial Biodiversity [<a href="#">APP-146</a>] paragraph 8.3.54.</p>
ExQ1_Q11.9.1	Natural England and Statutory Parties	<p><b>Technical and Advisory Notes</b></p> <p>The ExA seeks clarification whether all technical notes and advisory notes being developed and shared between the Applicant and statutory bodies have also been submitted to the Examination? Please provide a table signposting to the location of these within the Examination Library, or, where notes have not been submitted, supply copies. The following documents are noted as examples of those understood by the ExA as not having been supplied to the Examination, but this is not a closed list: -Natural England Advisory note on inconsequential nitrogen dioxide (NOx), 11 April 2023. -Technical notes on Coalhouse Fort water supply, June 2022 and February 2023. -Technical advice on underwater noise, 24 April 2023. Please also ensure that where copies of documents are provided that they are consistently titled and dated so that where references are made in the main text, it is clear which document they refer to.</p> <p><b>Response:</b></p> <p>The Applicant has shared numerous technical notes with statutory bodies (predominantly Natural England) in relation to the Habitats Regulations Assessment and received feedback and advice notes from them accordingly. Table C.8 of Appendix C (Evidence Plan) of the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment (HRA report) [<a href="#">APP-487</a>] provides details of the technical notes shared with statutory bodies throughout the development of the HRA report.</p> <p>The tables below detail all HRA-related technical notes that the Applicant has shared with statutory bodies and when they were shared with Natural England.</p>

PINS ID	External Stakeholder (where applicable)	Question / Response						
		<p>The technical notes that are pertinent to the matters relating to the HRA that remain under discussion or are not agreed in Natural England’s SoCG [REP2-008] are detailed in Table 1. It should be noted that a number of these earlier technical notes may have been superseded by later notes as the discussions have progressed with Natural England. The technical notes shared that do not relate to SoCG matters under discussion or not agreed are detailed in Table 2. The technical notes are annexed to this document, as noted in the third column of the table.</p> <p>Where Natural England has provided a response to a technical note, these are also annexed to this document, as noted in the third column of the table. All of Natural England’s responses were provided under their Discretionary Advice Service and were subject to the terms and conditions associated with this as detailed below:</p> <p><i>‘The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.’</i></p> <p style="text-align: center;"><b>Table 1 Technical Notes relating to Natural England’s SoCG matters 'under discussion' or 'not agreed'</b></p> <table border="1" data-bbox="683 1295 2072 1394"> <thead> <tr> <th data-bbox="683 1295 1265 1343">Document name</th> <th data-bbox="1265 1295 1550 1343">Date shared</th> <th data-bbox="1550 1295 2072 1343">Link to document</th> </tr> </thead> <tbody> <tr> <td data-bbox="683 1343 1265 1394">Air Quality Methodology briefing note</td> <td data-bbox="1265 1343 1550 1394">26 February 2020</td> <td data-bbox="1550 1343 2072 1394">Annex E1 to this document</td> </tr> </tbody> </table>	Document name	Date shared	Link to document	Air Quality Methodology briefing note	26 February 2020	Annex E1 to this document
Document name	Date shared	Link to document						
Air Quality Methodology briefing note	26 February 2020	Annex E1 to this document						

PINS ID	External Stakeholder (where applicable)	Question / Response		
		Feedback received by email from Natural England	02 April 2020	Annex E2 to this document
		Methodology for the assessment of in-combination effects	22 May 2020	Annex F1 to this document
		Feedback received from Natural England	30 June 2020	Annex F2 to this document
		HRA and EIA Evidence Technical Note Rev1 Air Quality from vehicle emissions	11 November 2021	Annex H to this document
		Technical note on the methodology for assessing speed limits	26 November 2021	Annex I to this document
		Note on Modelling Approach for Designated Sites	10 February 2022	Annex J to this document
		Coalhouse Point Mitigation Water Supply Structure	20 July 2022	Annex A to this document
		LTC technical note considerations of in combination development within traffic modelling	16 September 2022	Annex B to this document
		Without prejudice consideration of mitigation for air quality effects on Epping Forest SAC	14 October 2022	Annex C.7 of Natural England's Statement of Common Ground <a href="#">[REP2-008]</a>
		Coalhouse Point e-mail update 24 February 2023	24 February 2023	Annex C to this document
		Underwater noise and the effect on bird features of the Thames Estuary and Marshes SPA/Ramsar	06 April 2023	Annex C.8 of Natural England's Statement of Common Ground <a href="#">[REP2-008]</a>
		Natural England's air quality technical advice shared with National Highways and the Lower Thames Crossing Project Team 11 April 2023	11 April 2023	Annex G of Natural England's Written Representation <a href="#">[REP1-262]</a>
		Underwater noise e-mail update 24 April 2023	24 April 2023	Annex D to this document
		Technical Note Response to Natural England advice on air quality impacts on European Sites	30 June 2023	Annex C.12 of Natural England's Statement of Common Ground <a href="#">[REP2-008]</a>

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		Technical Note Coalhouse Point Mitigation Progress Update	30 June 2023	Annex C.13 of Natural England’s Statement of Common Ground <a href="#">[REP2-008]</a>																														
		Without prejudice assessment of the air quality effects on European sites following Natural England advice	03 August 2023	Deadline 2 submission <a href="#">[REP2-068]</a>																														
<b>Table 2 Technical Notes which do not relate to Natural England’s SoCG matters 'under discussion' or 'not agreed'</b>																																		
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		18 May 2020 Epping Forest detailed botanical survey briefing note – Revision 1	18 May 2020	Annex R to this document
		18 May 2020 HRA Briefing Note Ornithology baseline 30 June 2020 Feedback received from Natural England	18 May 2020	Annex U to this document Annex F2 to this document
		18 May 2020 Figures detailing European site locations in relation to ARN	18 May 2020	Annex V to this document
		22 May 2020 Approach to climate change assessment 30 June 2020 Feedback received from Natural England	22 May 2020 30 June 2020	Annex X to this document Annex F2 to this document
		22 May 2020 Figure showing land take in relation to European sites and functionally linked land	22 May 2020	Annex W to this document
		02 June 2020 Construction traffic modelling and AQ effects briefing 30 June 2020 Feedback received from Natural England	02 June 2020	Annex Z to this document Annex F2 to this document
		04 June 2020 Technical Note North Portal drainage discharge options 25 June 2020 Feedback received from Natural England	04 June 2020 25 June 2020	Annex Q1 to this document Annex Q2 to this document
		04 June 2020 Jetty Refurbishment Use and Decommissioning Paper 26 June 2020 Feedback received from Natural England)	04 June 2020 26 June 2020	Annex S1 to this document Annex S2 to this document
		04 June 2020 Technical Note North Portal Discharge Construction 25 June 2020 Feedback received from Natural England	04 June 2020 25 June 2020	Annex T1 to this document Annex T2 to this document

PINS ID	External Stakeholder (where applicable)	Question / Response		
		Technical Note Ramsar Advanced Grouting Tunnel and Main Tunnels Numerical Model (R1) Technical Note Baseline Water Balance for the Ramsar site (Filborough Marshes)	05 June 2020	Annex AA1 to this document Annex AA2 to this document
		10 June 2020 Land take methodology 30 June 2020 Feedback received from Natural England	10 June 2020	Annex Y to this document Annex F2 to this document
		22 July 2020 Stage 1 Screening Figure 31 – Predicted change in nitrogen deposition at European sites	22 July 2020	Annex BB to this document
		10 September 2020 DCO1.0 Stage 1 Screening – Appendix H – LA 105 NEA001 Comparison	10 September 2020	Annex CC to this document
		28 January 2021 Technical Note: Recreational disturbance - Additional analysis to support HRA screening	28 January 2021	Annex DD1 to this document
		24 June 2021 Feedback received from Natural England	24 June 2021	Annex DD2 to this document
		12 February 2021 Technical Note - Habitat enhancement to maintain baseline functionality of functionally linked land	12 February 2021	Annex EE to this document
		23 February 2021 Technical Note - Habitat enhancement to maintain baseline functionality of functionally linked land (Revision 1)	23 February 2021	Annex FF to this document
		09 March 2021 Technical Note - Dust measures	09 March 2021	Annex GG to this document
		09 March 2021 Technical Note - Operational Noise & Visual Disturbance (24 June 2021 Feedback received from Natural England)	09 March 2021 24 June 2021	Annex HH to this document Annex DD2 to this document



PINS ID	External Stakeholder (where applicable)	Question / Response		
		09 March 2021 Technical Note - No LSE from Lighting Construction and Operation	09 March 2021	Annex II to this document
		13 April 2021 Technical Note - Construction Noise and Mitigation 24 June 2021 Feedback received from Natural England	13 April 2021 24 June 2021	Annex JJ to this document Annex DD2 to this document
		13 April 2021 Technical Note - Ramsar Surface Water Ecology Baseline (Construction surface water discharge)	13 April 2021	Annex KK to this document
		22 April 2021 Technical Note - Habitat enhancement to maintain baseline functionality of functionally linked land (Revision 2) 28 July 2021 Feedback (partial) received from Natural England	22 April 2021 28 July 2021	Annex LL1 to this document Annex LL2 to this document
		22 April 2021 Technical note - Iteration of the extent of functionally linked land	22 April 2021	Annex MM to this document
		12 May 2021 Technical Note - Ramsar Surface Water Ecology Baseline (Construction surface water discharge) Revision 1 24 June 2021 Feedback received from Natural England	12 May 2021 24 June 2021	Annex NN to this document Annex DD2 to this document
		12 May 2021 Revised Technical Note - Dust measures (Revision 1) 24 June 2021 Feedback received from Natural England)	12 May 2020 24 June 2021	Annex OO to this document Annex DD2 to this document
		12 May 2021 Technical Note - No LSE from Lighting Construction and Operation Revision 1, 24 June 2021 Feedback received from Natural England	12 May 2021 24 June 2021	Annex PP to this document Annex DD2 to this document



PINS ID	External Stakeholder (where applicable)	Question / Response		
		11 August 2021 HRA Evidence Technical Note Rev 0: Air Quality from vehicle emissions 03 December 2021 Feedback received from Natural England	11 August 2021  03 December 2021	Annex QQ1 to this document  Annex QQ2 to this document
ExQ1_Q11.9.2	N/A	<p><b>Updated HRA Report</b></p> <p>Please can the Applicant provide an updated HRA Report that incorporates all updated information relevant to the HRA process supplied in technical documents submitted to the Examination, such as [REP2-068]?</p> <p><b>Response:</b></p> <p>The Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment (HRA report) [APP-487] as submitted provides all the information the Applicant considers is required for the HRA process. No further update of the HRA report is proposed as the information submitted with regard to the Epping Forest SAC mitigation (Annex A.7 of the Statement of Common Ground (SoCG) with Natural England (NE) [APP-099]) and Without prejudice assessment of the air quality effects on European sites following Natural England advice [REP2-068] as per NE advice were completed "without prejudice" and are not considered as updated information relevant to the HRA process but as information relevant to the SoCG with NE.</p> <p>The status of these items as "without prejudice" submissions is important as they are not the position the Applicant agrees with or is promoting. They are provided to assist with the Competent Authority's consideration of the HRA and comments from Interested Parties.</p>		
ExQ1_Q11.9.3	N/A	<p><b>Apparently Unreferenced Effects on the Southern North Sea Special Area of Conservation (SAC)</b></p> <p>The ExA notes reference to the Southern North Sea SAC (and its harbour porpoise qualifying feature) in ES Chapter 9 - Marine Biodiversity [APP-147] as a receptor that could be affected by the Proposed Development. However, this SAC is not referenced within the HRA Report [APP-487]. Please can the Applicant explain why it was not considered within the HRA LSE screening and provide an update to the HRA Report as necessary?</p> <p><b>Response:</b></p> <p>The Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate</p>		

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p>Assessment (HRA report) [APP-487] identified all of the European sites that could be affected by the proposed development in accordance with the criteria set out in Design Manual for Roads and Bridges LA 115 Habitats regulations assessment<sup>11</sup>, and in consultation with Natural England. The Southern North Sea SAC was not identified.</p> <p>Table 6.16 of the HRA report [APP-487] records the agreement of Natural England with the scoping of relevant European sites and effect pathways, and the Applicant's Statement of Common Ground with Natural England version 2 [REP2-008] item 2.1.88 records the agreement of Natural England with the screening conclusions.</p> <p>Early consultation with Natural England on potential pathways to effects on European Sites included possible effects on the Southern North Sea SAC and during the development of the evidence plan, the effect pathway was discounted in agreement with Natural England. The Environmental Statement (ES) reports the potential pathway on the SAC for the purposes of the baseline desk study, and considers the sensitivity of the receptor, but as the assessment shows there is negligible change in noise and vibration, there would be no significant effects on marine mammals (which includes harbour porpoise, the qualifying features of the SAC), and therefore the ES did not need to specifically assess the effects on the SAC. The Applicant does not therefore consider an update to the HRA Report necessary.</p>
ExQ1_Q11.9.5	Natural England and Statutory Parties	<p><b>Pathways to Likely Significant Effects (LSE) on European Sites</b></p> <p>Please can IPs state whether they agree that the Applicant's HRA Report [APP-487] identifies all the potential pathways that could lead to an LSE on the European sites, and if not, identify any additional pathways they consider should be included in the assessment?</p> <p><b>Response:</b></p> <p>The Applicant considers that all pathways that could lead to LSE on European sites have been identified within the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment (HRA report) [APP-487]. The scoping of relevant European sites and effect pathways was recorded as agreed with Natural England within Table 6.16 of the HRA report.</p>

<sup>11</sup> Highways England (2020). Design Manual for Roads and Bridges LA 115 Habitats regulations assessment. <https://www.standardsforhighways.co.uk/search/e2fdab58-d293-4af7-b737-b55e08e045ae>

PINS ID	External Stakeholder (where applicable)	Question / Response
ExQ1_Q11.9.7	N/A	<p><b>Caveats on Mitigation: Adequacy of Security</b></p> <p>The ExA notes the comments of Natural England [REP1-262] and other IPs on the outline level of detail provided in the mitigation control documents and the use of caveats such as ‘where reasonably practicable’ in relation to the delivery of certain measures relied upon in the HRA. Please can the Applicant explain: - how the SoS can be confident that required mitigation would be implemented such that the identified effects would be controlled; and - in the event that it was not practicable to implement the mitigation, how it would be ensured that significant effects would not occur?</p> <p><b>Response:</b></p> <p>The securing mechanisms relied upon for the mitigation proposed within the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment [APP-487] are set out in Section 1.5, paragraph 1.5.1 and include the following commitments within the Register of Environmental Actions and Commitments, in the Code of Construction Practice [REP3-104]: HR001, HR002, HR003, HR004, HR005, HR006, HR007, HR008, HR009, HR010, HR011, HR012 and RDWE033; and Design Principles S9.02, S9.13 and S9.13 (Design Principles [REP3-110]). The Applicant notes that none of these securing mechanisms employ the use of the term ‘where reasonably practicable’ and so instances where it would not be practicable to implement mitigation would not occur.</p> <p>In relation to the phrase “where reasonably practicable” more widely within the application, this wording is used to provide a positive requirement to incorporate measures relating to “maximising biodiversity value” in relation to the detailed design of mitigation and habitat creation, or more widely where materials that are relied upon are ‘site won’ and cannot be exactly quantified until detailed design, or where commitments are to be delivered by the appointed Contractor or their supply chain (e.g. the use of low emission vehicles or ultra-low sulphur fuels). The phrase “reasonably practicable” is a well-used and defined phrase in legal contexts. In short, it means that measures will be achieved subject to constraints which may impose unreasonable or excessive practical difficulties. In a different context, though instructive, the Court of Appeal (in its judgment in <i>Edwards v. National Coal Board</i>, [1949] 1 All ER 743) held that ‘reasonably practicable’ is a narrower term than ‘physically possible’ and that “<i>a computation must be made by the owner in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk ... is placed in the other, and that, if it be shown that there is a gross</i></p>

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><i>disproportion between them – the risk being insignificant in relation to the sacrifice – the defendants discharge the onus on them</i>". This language is appropriate as it balances the aspiration to "maximise" so far as reasonable biodiversity value on the aforementioned mitigation and habitat creation, without contravening the constraints in the DCO or the Applicant's requirement to ensure that it must always implement measures with the safety of its staff in mind, as well as ensuring value for money for taxpayers.</p>
ExQ1_Q11.9.8	Natural England and Statutory Parties	<p><b>In-combination Assessment Methodology</b></p> <p>The HRA Report [APP-487] states that it considered the list of plans and projects within ES Chapter 16: Cumulative Effects for the purposes of the in-combination assessment but notes that this was "amended for the HRA to ensure compliance" with that process. Several IPs have raised concerns in relation to the methodology for the selection of projects for the in-combination assessment and the ExA notes that there is ongoing discussion with NE in relation to the data used for traffic modelling. - please can the Applicant provide a list of the other plans and projects that were considered in the HRA in-combination assessment; - please can NE and relevant IPs confirm if they are satisfied that the in-combination assessment correctly identifies other plans and projects that could potentially contribute to in-combination effects; and - please can NE and the Applicant provide an update on resolving the queries around the traffic modelling data used for the in-combination assessment?</p> <p><b>Response:</b></p> <p>The list of other plans and projects that were considered in the in-combination assessment in the HRA are a subset of the list of plans and projects in Environmental Statement Chapter 16: Cumulative Effects [APP-154]. The subset was defined by the spatial extent for the individual impact pathways as set out in paragraphs 4.3.8 to 4.3.12 of the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment (HRA report) [APP-487]. The in-combination assessment sections in the HRA for each impact pathway reports the list used for that impact pathway.</p> <p>For clarity, the other plans and projects that were considered in the in-combination assessment of nitrogen deposition as reported in the HRA report [APP-487] are as follows:</p> <ul style="list-style-type: none"> <li>• Other plans and projects included within the traffic model, as listed on Table A.1 and Table A.2 of Annex A Uncertainty Log (Combined Modelling and Appraisal Report - Appendix C – Transport Forecasting Package Annexes [APP-523]) and shown on Plate 4.1 of the Traffic Forecasts Non-Technical Summary [APP-528]. As described by the Applicant in Annex C.12 of the Statement of Common Ground (SoCG)</li> </ul>

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p>between the Applicant and Natural England <a href="#">[REP2-008]</a>, where developments are outside of the TAG criteria (i.e. listed in the Uncertainty Log) the local growth factors within the model are designed to pick up forecast growth and therefore take account of any traffic-generating proposals that would be likely to be associated with such growth.</p> <p>The other plans and projects that contribute in combination to nitrogen deposition, but not via vehicle emissions, (as listed in the HRA report <a href="#">[APP-487]</a>, paragraph 6.2.123 and paragraph 7.2.60) are listed below for completeness:</p> <ul style="list-style-type: none"> <li>• Tilbury2</li> <li>• Thurrock Flexible Generation Plant</li> <li>• Thurrock gas-fired electricity generation facility, Stanford (19/01534/FUL)</li> <li>• STOR “Peaking” Power Plant, Purfleet (20/00360/FUL)</li> <li>• North London Heat and Power Project</li> </ul> <p>The Applicant provided a response to Natural England with regard to the in-combination traffic assessment, which can be seen in Annex C.12 of the SoCG <a href="#">[REP2-008]</a> and continues to engage with NE on this matter. The Applicant awaits a response from Natural England to confirm they are satisfied with the list.</p>
ExQ1_Q11.10.1	N/A	<p><b>Conservation Status of the Thames Estuary and Marshes SPA and Ramsar Site</b></p> <p>Please can the Applicant provide the current conservation status of the Thames Estuary and Marshes SPA and Ramsar site.</p> <p><b>Response:</b></p> <p>The current conservation status of the Thames Estuary and Marshes SPA and Ramsar site as reported on the Natural England Designated Sites Viewer is shown in the tables below according to the condition status recorded in the underlying SSSI designations.</p>

**Table 3 The Conservation Status of the Thames Estuary and Marshes Special Protection Area**

SPA Qualifying Feature	Conservation status Mucking Flats and Marshes SSSI	Conservation status South Thames Estuary and Marshes SSSI
Avocet, <i>Recurvirostra avosetta</i>	Not listed	Favourable
Black-tailed godwit, <i>Limosa limosa islandica</i>	Favourable	Favourable
Dunlin, <i>Calidris alpina alpina</i>	Favourable	Not recorded
Grey plover, <i>Pluvialis squatarola</i>	Favourable	Not recorded
Hen harrier, <i>Circus cyaneus</i>	Not listed	Not recorded
Knot, <i>Calidris canutus</i>	Not listed	Not recorded
Redshank, <i>Tringa totanus</i>	Favourable	Unfavourable - Declining
Ringed plover, <i>Charadrius hiaticula</i>	Favourable	Favourable
Waterbird assemblage - Wintering	Not listed	Not listed

**Table 4 The Conservation Status of the Thames Estuary and Marshes Ramsar site**

Ramsar Qualifying Features	Conservation status Mucking Flats and Marshes SSSI	Conservation status South Thames Estuary and Marshes SSSI
Black-tailed godwit, <i>Limosa limosa islandica</i>	Favourable	Favourable
Dunlin, <i>Calidris alpina alpina</i>	Favourable	Not recorded
Grey plover, <i>Pluvialis squatarola</i>	Favourable	Not recorded
Knot, <i>Calidris canutus</i>	Not listed	Not recorded
Redshank, <i>Tringa totanus</i>	Favourable	Unfavourable - Declining
Ringed plover, <i>Charadrius hiaticula</i>	Favourable	Favourable
Waterbird assemblage - Wintering	Not listed	Not listed

PINS ID	External Stakeholder (where applicable)	Question / Response		
		Wetland invertebrate assemblage	Unfavourable – recovering	Not recorded
		Wetland plant assemblage	Not listed	Not recorded
ExQ1_Q11.10.3	N/A	<p><b>Dust Control</b></p> <p>Dust control measures considered integral to the project design are identified in HRA Report paragraphs 3.3.5 to 3.3.8 [APP-487]. Some of these measures are caveated with “where practicable” indicating that in some situations, there could be potential for dust emissions to occur. How would the Applicant ensure control at source such that there is no pathway for an impact to occur either alone or in combination with other plans or projects?</p> <p><b>Response:</b></p> <p>Paragraph 6.2.3 of the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment (HRA) [APP-487] sets out the efficacy of the good practice measures to control dust at source and this is relied upon to ensure that there is no pathway for an impact to occur alone or in combination with other plans and projects. Although some of the good practice measures (paragraphs 3.3.5-3.3.8 of the HRA report [APP-487]) relied upon are caveated with “where practicable” the control that ensures the impact is avoided at source is the Applicant’s requirement for the Contractor to monitor dust. Dust monitoring would be undertaken to ensure that the dust control measures outlined in the Register of Environmental Actions and Commitments, within the Code of Construction Practice [REP3-104] are effective in the control of dust emissions and impacts at receptors.</p> <p>The monitoring would include onsite and offsite inspections for dust (REAC commitment AQ005) as well as dust and particulate monitoring where this is required (REAC commitment AQ006). The exact details of the monitoring strategy will be developed in consultation with local authorities. Actions in case of air quality monitoring exceedances are detailed in the Code of Construction Practice [REP3-104] (REAC commitment AQ008). For example, where dust monitoring shows that site action levels are being exceeded, this would require the Contractor or delegated representative to investigate activities on the site to ascertain if dust is not being adequately controlled, and then record the actions taken to resolve the situation in a site logbook. In addition to monitoring, dust management measures to control dust emissions at source are detailed in the Code of Construction Practice [REP3-104] (REAC commitments AQ002-AQ005).</p>		



PINS ID	External Stakeholder (where applicable)	Question / Response
		<p>The Applicant's approach to managing dust emissions arising from the project provides a robust position that substantially reduces the likelihood of non-compliance. In the rare event of a non-compliance, the Applicant has made a commitment (AQ008) to implement a comprehensive remediation strategy.</p>
ExQ1_Q11.10.4	Natural England	<p><b>Groundwater Quality, Monitoring and 'No LSE' Conclusion</b></p> <p>The Applicant has screened out groundwater quality and quantity effects on the Thames Estuary and Marshes Ramsar site both alone and in combination as no features of the Ramsar site are considered to be groundwater dependent. However, a commitment has been included within the REAC [REP1- 157] for groundwater monitoring during construction for this site on the basis of potential for unexpected impacts. With reference to the potential for an impact pathway to the Ramsar site, can NE explain the reasons for requesting this measure, and whether this affects the conclusions of no potential for LSE for relevant qualifying features?</p> <p><b>Response:</b></p> <p>Natural England has confirmed they agree with the Applicant that there is no feasible pathway to effect and no LSE of the Thames Estuary and Marshes Ramsar site in item 2.1.57 of the Statement of Common Ground [REP2-008]. However, to show due regard to Natural England's advice, the Applicant has agreed to adopt REAC HR008. For the avoidance of doubt, REAC HR008 (Groundwater surveillance) [REP3-104] was not taken into account within the assessment of LSE (as reported in paragraphs 6.2.13 to 6.2.18 of the Habitats Regulations Assessment report [APP-487]). The Applicant considers that the results of such monitoring would not affect the Applicant's conclusion of no feasible pathway to effect and no LSE on the Thames Estuary and Marshes Ramsar site.</p> <p>Paragraph 6.2.18 summarises the conclusion on there being an absence of a feasible pathway as "<i>The evidence from the groundwater modelling indicates that the proposed tunnels would not result in any material change in groundwater levels and the water balance model shows that the Thames Estuary and Marshes Ramsar site is not dependent on groundwater, therefore it is considered that there is no feasible pathway to effect and no LSEs are predicted to occur as a result of the Project alone</i>".</p>

PINS ID	External Stakeholder (where applicable)	Question / Response
ExQ1_Q11.10.5	N/A	<p><b>Coalhouse Fort Mitigation</b></p> <p>Can the Applicant provide an update on progress with the indicative detailed design discussions with stakeholders and the availability of sufficient water to meet the habitat goals at this site? Please also submit a copy of the technical note on flood modelling being prepared for the Environment Agency for the end of August 2023 once this is available.</p> <p><b>Response:</b></p> <p>The implementation of a water inlet structure to allow conveyance of suitable water volumes and salinity from the River Thames is secured through the commitment HR010 in Environmental Statement Appendix 2.2: Code of Construction Practice <a href="#">[REP3-104]</a>.</p> <p>A technical note was submitted to Natural England on 30 June 2023 to provide further detail on the proposed mitigation, likely water demand, and clarity on potential water supply feasibility to meet the habitat goals. This technical note is included as Annex C.13 to the Statement of Common Ground between (1) National Highways and (2) Natural England <a href="#">[REP2-008]</a>. The technical note confirms that the implementation of a water inlet structure to allow conveyance of water from the River Thames represents a feasible solution to achieve the predicted water demand requirements for the proposed mitigation.</p> <p>The Applicant has also considered whether there are opportunities for ensuring a water supply without the need to construct a new inlet structure, including using the existing arrangement at the Coalhouse Fort moat drainage channels. However, any options other than the water inlet structure would be considered during detailed design and, if proposed for implementation, would need to demonstrate the same level of certainty in providing adequate water as has been demonstrated for the water inlet structure.</p> <p>The implementation of the water inlet structure and any potential other options to be considered during detailed design remain as matters under discussion with Natural England, Thurrock Council, and the Environment Agency. The Applicant is also able to confirm that discussions with the Environment Agency are ongoing regarding consenting requirements for the water supply. This is set out in the Consents and Agreements Position Statement <a href="#">[REP1-047]</a>. The Applicant expects these matters to be agreed within the timescales of the examination with Natural England and the Environment Agency.</p> <p>A copy of the flood modelling technical note will be made available to the ExA at a future deadline, following further engagement with the Environment Agency.</p>

PINS ID	External Stakeholder (where applicable)	Question / Response
ExQ1_Q11.10.6	N/A	<p><b>Coalhouse Fort Mitigation</b></p> <p>Can the Applicant confirm how long it is anticipated it would take to provide fully ecologically functional land at Coalhouse Fort to mitigate for the effects on Thames Estuary and Marshes SPA / Ramsar site prior to the start of relevant construction activities? - What effect would this have on the construction programme? - How would the Applicant demonstrate that the site is ecologically functional?</p> <p><b>Response:</b></p> <p>It is anticipated that the excavation of the scrapes and ditches and installation of the water inlet structure would take approximately four months. Commitment HR010 in Environmental Statement Appendix 2.2: Code of Construction Practice [<a href="#">REP3-104</a>] commits to the habitat creation works being carried out prior to the commencement of works at the northern tunnel entrance compound. The programming of works will be planned appropriately during the detailed design phase of the Project. The Applicant does not anticipate any effects on the construction programme in this regard and considers that there is sufficient programme flexibility to allow the Contractor to implement the habitat creation works in line with commitment HR010.</p> <p>Once the scrapes and ditches have been formed and filled with water from the River Thames, the habitats will be functional immediately. The purpose of the habitat creation is to enhance the site in terms of its functionality as functionally linked land to the Thames Estuary and Marshes SPA/Ramsar. Functionally linked land to the SPA/Ramsar is shown on Figure 2 of the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment [<a href="#">APP-487</a>] and defined therein as land that provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status.</p> <p>The various habitats across the functionally linked land area will function as a moulting, loafing, roosting and feeding resource for the qualifying bird features of the SPA/Ramsar. The newly created habitats will provide enhanced functionality immediately as the new scrapes and ditches will provide a greater resource for moulting, loafing, roosting and feeding than the existing arable farmland habitat provides, as the birds of the SPA/Ramsar prefer to utilise wetland habitats than active agricultural land. New roosting resource will be available in the new habitats including raised banks that will provide opportunities at high tides. Additional foraging resource would be provided through prey that is not available in arable habitats becoming available from the proposed disturbed ground and the creation of wetlands fed from the tidal River Thames.</p>

PINS ID	External Stakeholder (where applicable)	Question / Response
		The functionality of the habitat will have been demonstrated when the habitats have been provided in accordance with the management requirements and typologies described in the outline Landscape and Ecology Management Plan <a href="#">[REP3-106]</a> .
ExQ1_Q11.11.1	Natural England	<p><b>Air Quality and M25 Junctions 26 – 27 Speed Limit</b></p> <p>It is noted that the reduction in speed limit between M25 Junctions 26 and 27 is only suggested to take effect for a duration of four years from the year of opening of the Proposed Development. What confidence does the Applicant have that the speed limit would only be required for four years and has this measure been agreed with Natural England?</p> <p><b>Response:</b></p> <p>Before addressing this question, it is important for the avoidance of any doubt to emphasise the status of the speed limit reduction measure and why it has been included on a “without prejudice basis” in the application.</p> <ul style="list-style-type: none"> <li>• Within the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment <a href="#">[APP-487]</a> the Applicant concludes no adverse effect on the integrity on Epping Forest SAC, and that therefore the incorporation of the speed limit reduction measure as part of the Project is not necessary and it does not form part of the Applicant’s proposals.</li> <li>• However, to demonstrate that due regard has been had to the advice of Natural England – and to ensure that the relevant information is before the Examining Authority and Secretary of State in examining the application and in deciding whether or not to grant development consent – the speed limit reduction measure has been considered on a without prejudice basis as set out in Annex C.7 of the Statement of Common Ground <a href="#">[REP2-008]</a>.</li> </ul> <p>The following relates to the effect of the “without prejudice” speed limit measure over the period on which it would be based.</p> <p>The Applicant estimated the number of years that it would take for the emissions with the Project (when there is an increase in emissions and hence nitrogen (N) deposition) to reduce to the same level as the opening year without the Project (i.e. the 2030 Do-Minimum Scenario). This was undertaken by calculating the emissions for the opening year Do-Minimum and Do-Something scenarios and calculating the design year Do-Something scenario emissions. In the case of Epping Forest SAC, it was estimated how long it</p>

PINS ID	External Stakeholder (where applicable)	Question / Response																						
		<p>would take for road-related emissions from the M25 in the Do-Something scenario (between opening and design year), to return to the level of emissions estimated for the 2030 Do-Minimum scenario. It should be noted that the calculation takes no account of reductions in background N deposition in the future and assumes that background concentrations remain at 2017-2019 average levels and therefore is likely to be worst case.</p> <p>The calculation is based on total emissions expressed in tonnes of nitrogen oxides (NO<sub>x</sub>) affecting the site from the M25 links next to Epping Forest. This was calculated for three scenarios: the Opening Year Do-Minimum, the Opening Year Do-Something and the Design Year (2045) Do-Something. The emissions are then interpolated in a linear manner between the 2030 Do-Something and 2045 Do-Something scenario. This approach ensures that growth in traffic between the opening and design years is considered in the calculation. The point at which the total Do-Something (DS) emissions are equal to the 2030 Do-Minimum (DM) levels determines the calculated duration. An example of the calculation is presented below.</p> <table border="1" data-bbox="680 810 2072 957"> <thead> <tr> <th>Year</th> <th>2030</th> <th>2031</th> <th>2032</th> <th>2033</th> <th>2034</th> </tr> </thead> <tbody> <tr> <td>DM tonnes of NO<sub>x</sub></td> <td>8.0</td> <td colspan="4"></td> </tr> <tr> <td>DS tonnes of NO<sub>x</sub></td> <td>9.0</td> <td>8.7</td> <td>8.5</td> <td>8.2</td> <td>7.9</td> </tr> </tbody> </table> <table border="1" data-bbox="680 997 1400 1093"> <tbody> <tr> <td>Year emission back to Opening</td> <td>2034</td> </tr> <tr> <td>Number of years of delay</td> <td>4</td> </tr> </tbody> </table> <p>As the calculation of N deposition is directly related to the modelled NO<sub>x</sub> concentration, it is considered appropriate to provide an estimate of the duration of impact.</p> <p>The Applicant is therefore confident that a speed limit, if it were to be imposed upon the grant of development consent, would only be required for four years.</p> <p>Natural England has indicated (in Table 2.1, Item 2.1.94 RRE of the SoCG [REP2-008]) agreement that the measure would be adequate to mitigate the effects on Epping Forest SAC if the mitigation was implemented in an enforceable manner, as detailed below in response to ExQ1_Q11.11.2.</p>	Year	2030	2031	2032	2033	2034	DM tonnes of NO <sub>x</sub>	8.0					DS tonnes of NO <sub>x</sub>	9.0	8.7	8.5	8.2	7.9	Year emission back to Opening	2034	Number of years of delay	4
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ExQ1_Q11.11.2	N/A	<p><b>Air Quality and M25 Junctions 26 – 27</b></p> <p>Speed Limit As the reductions in the speed limit westbound between M25 Junctions 27 and 26 are not included in the Project Air Quality Action Plan and are currently identified on a ‘without prejudice’ basis, can the Applicant confirm how this reduction in speed limit would be implemented and which mechanism it would be secured through?</p> <p><b>Response:</b></p> <p>Within the Habitats Regulations Assessment Screening Report and Statement to Inform an Appropriate Assessment [<a href="#">APP-487</a>] the Applicant concludes no adverse effect on the integrity on Epping Forest SAC, and that therefore the incorporation of the speed limit reduction measure as part of the Project is not necessary. However, to demonstrate that due regard has been given to the advice of Natural England, the proposed speed limit reduction has been considered on a without prejudice basis as set out in Annex C.7 of the Statement of Common Ground [<a href="#">REP2-008</a>].</p> <p>As set out within Section 3 of Annex C.7 to the SoCG between the Applicant and Natural England [<a href="#">REP2-008</a>], a reduction in speed limit could be secured through a commitment in the Register of Environmental Actions and Commitments (“REAC”), within Environmental Statement Appendix 2.2: Code of Construction Practice [<a href="#">REP3-104</a>]. The commitment wording is set out in Table 3.2 of Annex C.7. The Applicant’s position is that the commitment is not required and, for the avoidance of any doubt, it does not form part of the Applicant’s proposal.</p> <p>A new REAC commitment is capable of being imposed by the Secretary of State upon the grant of development consent. This process is facilitated by article 62 of the draft DCO [<a href="#">REP3-077</a>], which provides for the certification of documents “secured” by the dDCO and set out in Schedule 16. In particular, article 62(1)-(2) provides that:</p> <p><i>“62.—(1) As soon as practicable after the making of this Order, the undertaker must submit copies of each of the plans and documents set out in Schedule 16 (documents to be certified) to the Secretary of State for certification that they are true copies of those plans and documents.</i></p> <p><i>(2) Where any plan or document set out in Schedule 16 requires to be amended to reflect the terms of the Secretary of State’s decision to make the Order, <b>that plan or document in the form amended to the</b></i></p>

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><b><i>Secretary of State’s satisfaction is the version of the plan or document required to be certified under paragraph (1).”</i></b></p> <p>If imposed by the Secretary of State upon the grant of development consent, a speed restriction would be implemented using the existing infrastructure associated with the variable mandatory speed limits on the M25 between junctions 23 and 27. M25 junctions 23 to 27 operate with variable mandatory speed limits (VMSL) permitted in accordance with the powers set out in Statutory Instrument (S.I) 2013 No.2396 ‘The M25 Motorway (Junctions 23 to 27) (Variable Speed Limits) Regulations 2013’. Variable speed limits that can be activated include 60mph, 50mph, 40mph, 30mph and 20mph. VMSL on the M25 between junctions 23 and 27 are enforced by speed cameras. The existing variable speed technology and infrastructure would ensure the maximum speed limit on the M25 westbound between junctions 27 and 26 is 60mph (other than in cases of emergency).</p>



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