Date: 11 December 2023
Our ref: 458247
Your ref: TR010032

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

Mr Rynd Smith
Lead Member of the Examining Authority
The Planning Inspectorate
National Infrastructure Planning
Temple Quay House
2 The Square
Bristol BS1 6PN

By email only, no hard copy to follow

Dear Mr Smith

Application by National Highways for an Order Granting Development Consent for the Lower Thames Crossing
Natural England's response to Deadline 9
Natural England User Code: 20034784

Natural England is pleased to provide our Deadline 9 response for the Lower Thames Crossing Examination within the annexes appended to this letter.

For ease, we have provided our comments in the following Annexes:

Annex 1: Comments on Applicant's submissions at Deadline 8
Annex 2: Natural England's delayed response on the Examining Authority's commentary on the draft Development Consent Order carried forward from Deadline 8

Natural England hopes our Deadline 9 comments are helpful and we will continue to work collaboratively with the Applicant to try and resolve the outstanding matters detailed below.

Yours sincerely

James Seymour
Deputy Director, Sussex and Kent Team

John Torlesse
Deputy Director, West Anglia Team

Email ltc@naturalengland.org.uk

1 Annex 1: Comments on any information requested by the ExA and received by Deadline 8

1.1 Design Principles v6.0

1.1.1 Natural England has reviewed the Applicant's updated Design Principles v6.0 (Examination Document REP8-083) and has the following comments to make.

1.1.2 Natural England notes the consideration of the lighting impacts for the Green Bridges within Clause LST.04 but are concerned by the significant degree of ambiguity within the wording which does not provide confidence as to the lighting strategy for the Bridges. In addition, the wording within LST.04 appears to differ to that provided in the Applicant's response to ExQ3 Q11.1.6 (Examination Document REP8-115) in which they state that, for Brewers Road and Thong Lane south 'The lighting plan for the Project is following the existing lighting along the A2/M2'.

1.1.3 Given these concerns, Natural England recommends much clearer wording is provided within the Design Principle LST.04 and have suggested an amended wording below which we feel would address our concerns:

> 'Where ~~reasonably practicable~~ design standards permit, and subject to consultation with the Local Highway Authority, lighting on green bridges shall be minimised and ~~where possible~~ column heights shall be reduced with low level lighting (eg bollard lighting) utilised within the walker, cyclist, horesrider routes where lighting is required for safety. Furthermore, the detailed design shall carefully consider the space allocation on the bridge to maximise the separation of the highway and associated lighting from the green space. Where highway lighting is required, it shall be carefully designed to focus light onto the highway and to minimise obtrusive light spill.'

1.1.4 Natural England notes the addition of Clause S1.24 in relation to the finish to Highways Furniture which partly addresses Natural England's concerns detailed within our Written Representation (Examination Document REP1-262). To provide a high degree of certainty that the furniture will be finished in accordance with the Kent Downs AONB Guidance on the selection and use of colour in development will be delivered. Given these concerns, we recommend the wording is strengthened and have suggested some wording below which we feel would overcome our concerns:

> 'Where technically feasible ~~and~~ ~~reasonably practicable~~ and following agreement with the relevant Highway Authority, roadside furniture within the AONB including (but not limited to):
>
> - Gantries
> - Lighting columns
> - Signage
> - Technology
>
> Shall be finished to accord with the Kent Downs AONB Guidance on the selection and use of colour in development.'

1.2 Outline Landscape and Ecology Management Plan v6.0

1.2.1 Having reviewed the Applicant's updated outline Landscape and Ecology Management Plan v6.0 (Examination Document REP8-081), Natural England has no further comments to make from our previous Deadline submissions.

1.3 Code of Construction Practice including Register of Environmental Actions and Commitments, First iteration of Environmental Management Plan v8.0

1.3.1 Having reviewed the Applicant's updated Appendix 2.2 Code of Construction Practice including Register of Environmental Actions and Commitments (v8.0) First iteration of Environmental Management Plan (Examination Document REP8-045), Natural England has the following comments to make.

1.3.2 Natural England welcomes the additional text requiring the Contractors to consult with relevant stakeholders, including Natural England, as they prepare their Environmental Management Plans as detailed in Section 2.3.6.

1.3.3 Natural England notes and welcomes the additional timing constraints for the installation of the water inlet structure and wetland habitat creation, described within updated REAC commitment HR011.

1.3.4 Natural England notes and welcomes the additional REAC commitment TB031 for the consideration of additional third-party data to inform detailed design, for which the heat map (Annex E) illustrates areas known to be of high value for invertebrates. Nevertheless, it remains our view, as set out within our Statement of Common Ground, that the Applicant should have a) collected their own baseline data in such a way so as to inform avoidance at an earlier stage and b) committed to avoidance of key areas using third party data to inform the submitted scheme (i.e. not wholly deferred until the detailed design stage). We will be happy to work with the Applicant post-consent to safeguard high value areas as far as reasonably practicable.

1.4 Applicant's Response to the Examining Authority's third round of written questions (ExQ3)

1.4.1 Having reviewed the Applicant's response to the third round of Examiner's Questions (Examination Document REP8-115), Natural England has the following comments to make.

PINS ID	Question to	Question / Response
ExQ3_Q11.1.2	Applicant Local Authorities Environmental Authorities / Agencies	**Compensatory Planting** Where it is proposed to affect areas that constitute compensatory habitat for previous projects, should such areas be provided with any special provision in relation to consideration of the earlier project requirements?
		Applicant's Response: It is the Applicant's view that no special provisions need to be provided for impacts from the Project to areas developed as a result of earlier project requirements. Where mitigation measures have been established following earlier projects, these have been assessed as part of the existing situation/Project baseline. The Applicant believes that this is an appropriate approach given that the mitigation from a previous project has become integral to the landscape and habitat against which the Applicant has undertaken its assessment. Where relevant, appropriate and proportionate measure have been proposed by the Project to mitigate or compensate for any adverse effects on these areas. For example, screen planting and earthwork south of the A2 corridor which formed part of the mitigation design for the High Speed 1 (HS1) development would be lost as a result of the Applicant's Project. To offset this loss, the Applicant has looked to reinstate screening planting in this area. This is reported in the Environmental Masterplan Sections 1 and 2 [**REP4-124** and **REP7-116**]. The Applicant has also sought to identify and secure measures to avoid impacting existing mitigation provided by previous projects. Within the Code of Construction Practice [**REP7-122**], REAC commitment TB023 secures measures to avoid watercourses established by the Port of Tilbury London Ltd as mitigation for water vole impacts that occurred during their Tilbury2 development. The measure secures the avoidance of these ditches: *'The footings of the Tilbury 2 aggregates conveyor will be carefully sited during installation to avoid existing wetland habitat within this area. Footings will be a minimum of 5m from bank tops.* *Any temporary crossings of ditches required during the conveyor's installation and decommissioning will be managed using a Bailey bridge (or similar), which will be removed from site once installation is complete. The exact location of the footings and the bridge will be agreed with the Environmental Clerk of Works prior to installation.'*

		Natural England response As detailed in Natural England's response to ExQ3 Q11.1.2 (Examination Document REP8-155), we advise that greater consideration of how the Project will re-mitigate the landscape and visual impacts from the Channel Tunnel Rail Link/High Speed 1 scheme and the Lower Thames Crossing itself given that the area of land in which the previous mitigation was implemented will be significantly reduced by this project. Having reviewed the documents referred to in the Applicant's response to this question, we remain concerned that they are not re-mitigating the previous impacts.

PINS ID	Question to	Question / Response
ExQ3_Q11.1.4	Applicant Other IPs	**Wildlife pond provision** Document 7.5 Design Principles Volume 7 [**REP6-046**], LSP.31 states that " *… The design of all ponds shall follow the guidance given in the Great Crested Newt Conservation Handbook …*". Why are other species not considered as being the species on which ponds are designed? Are there other species that should be considered in the design of the proposed Wildlife Ponds?
		Applicant's Response: The pond design detailed within the Great Crested Newt Conservation Handbook[8], provides for a good practice design that, although specifically relates to great crested newts, would result in the development of habitat which would be beneficial to a range of other species including aquatic and terrestrial invertebrates, other amphibian species, reptiles, bats, birds and mammals. The outline Landscape and Ecology Management Plan**REP7-132**] details the outline requirements for ecological ponds (Section 8.27) as integrating into the surrounding landscape to facilitate the movement of animals between ponds and terrestrial habitats, planting with appropriate marginal and emergent vegetation of native species, and managing the ponds to develop into the priority habitat description for ponds[9].
		Natural England response Natural England notes the commitment from the Applicant that the design of the ponds will provide habitat for a number of species/species groups. As detailed in Natural England's response to ExQ3 Q11.1.4 (Examination Document REP8-155), the design of the ponds will need to provide a variety of environmental conditions and we would recommend the Applicant commits to a diversity of physical, chemical and biological design elements within the ponds to be created to maximise their ecological and landscape value.

PINS ID	Question to	Question / Response
ExQ3_Q11.1.5	Applicant Environmental IPs	**Green Bridges and habitat connectivity** It is acknowledged that, in its Responses to the Examining Authority's ExQ2 Appendix G – 11 Biodiversity (Part 1 of 2) [**REP6-114**], the Applicant is considering the introduction of mammal culverts at Brewers Road Green Bridge and Thong Lane Green Bridge south. • Can preliminary details be provided to indicate how these are intended to operate and how these are to be secured? • Are there other locations where site-specific habitat connectivity is proposed for mammals and other animals, etc in addition to 'Green Bridges' and 'mammal ledges' in culverts? If so, how these are intended to operate and how these are to be secured?
		• S2.15. Thong Lane green bridge south: habitat connectivity: '*A mammal culvert shall be provided south-west of the bridge, under the southern connector road. The culvert shall be designed to allow mammal passage and adequate space for maintenance and inspection. The culvert structure shall be designed to integrate into the surrounding landscape.*' *As a broader, Project-wide commitment, the Code of Construction Practice [**REP7-122**] includes the following Register of Environmental Actions and Commitments (REAC) commitment:* • RDWE044: '*Culverts would incorporate ledges or underpasses to ensure continued passage of mammals. The location and design of mammal ledges and underpasses would be as detailed in Part 10 of ES Appendix 14.6, Flood Risk Assessment (Application Document 6.3).*' *Are there other locations where site-specific habitat connectivity is proposed for mammals and other animals, etc in addition to 'Green Bridges' and 'mammal ledges' in culverts? If so, how these are intended to operate and how these are to be secured?* *In addition to the green bridges and mammal ledges in culverts, the following are also provided to ensure connectivity across the Project:* • Viaducts are proposed at the Golden Bridge Sewer and the Mardyke and Orsett Fen. All three of these viaducts will allow animals to cross underneath the Project with no fragmentation effects. The Mardyke and Orsett Fen Viaducts and the Golden Bridge Sewer Viaduct have been designed to reduce shading and cause the least amount of long-term habitat degradation (Clause nos. PRO.04, PLA.05, STR.01, STR.04, STR.06, S12.03, S12.04, S12.05, LSP.05 of the Design Principles [**REP7-140**]). The piers and foundations have been sited so that they would not be located within the watercourses. Where the vegetated banks would be affected, these areas

		would be restored following construction (see Clause nos. PRO.04, PLA.05, STR.01, STR.04, STR.06, S12.03, S12.04, S12.06, S12.05, LSP.05 of the Design Principles [**REP7-140**]). These design measures will ensure the viaducts will be suitable for a number of animals, with the watercourses flowing under them primarily utilised by aquatic species, including water voles. • Another viaduct is proposed at the Tilbury loop line which has a focus to provide safe passage for commuting bats that follow the existing hedge line parallel to the railway line (see Section E3.4 of Environmental Statement (ES) Appendix 8.16: Draft EPS Mitigation Licence Application – Bats [**APP-408**]). • To ensure connectivity along the Project, a number of habitat creation areas along the Project have been designed to create 'stepping stones' to allow animals to move through and colonise new and existing habitats along the alignment of the Project (see Clause nos. LSP.02 and LSP.22 of the Design Principles [**REP7-140**]). The verges along the Project have been designed to provide species-rich habitats that offer shelter and foraging opportunities for a range of species, in particular invertebrates which will use the verge as a green corridor to colonise new areas further inland from the River Thames area which has a notable invertebrate assemblage (see Clause nos. LSP.02 and LSP.22 of the Design Principles [**REP7-140**]). • To increase connectivity in the wider environment, the mitigation strategy has been designed to connect into existing and retained habitat and to ensure wildlife connectivity on a landscape scale (see Clause LSP.02 of the Design Principles [**REP7-140**]). • To ensure connectivity of commuting bats across the Project, where there is no green bridge or viaduct provision, the Applicant has utilised other crossing locations to allow bats to cross the Project. An example of this is at footpath 79, where the Project has strengthened planting to funnel bats to the footpath crossing, the parapet walls on the footbridge will be 2m high solid parapets to ensure a linear feature continues over the bridge, and the footbridge will be unlit to ensure a dark environment for bats to cross. For full details of the mitigation for each bat crossing, see Section E3.4 of ES Appendix 8.16: Draft EPS Mitigation Licence Application – Bats [**APP-408**].
		Natural England response As detailed in Natural England's response to ExQ3 Q11.1.5 in Examination Document REP8-155, we welcome the Applicant's commitment to try and address the lack of habitat connectivity over local roads for the Brewers Road and Thong Lane south Green Bridges. Whilst the Applicant has now provided indicative locations for their proposed mammal culverts, no evidence has been provided as to how they will be effective for the target

		species, nor how habitat connectivity for dormice to the south of Brewers Road Green Bridge into the wider Ashenbank Wood will be established (this is detailed in item 2.1.35 of our Statement of Common Ground, Examination Document REP8-013). Given this, Natural England's advice remains that the effectiveness of providing landscape scale connectivity for species via the Green Bridges remains unclear. We would expect the Applicant to provide detailed evidence on the effectiveness of their Green Bridge designs and should commit to much more closely aligning their design with all elements of the good practice guidelines (as detailed in our Deadline 8 response, Examination Document REP8-154).

PINS ID	Question to	Question / Response
ExQ3_Q11.1.6	Applicant Environmental IPs	**Green Bridges and habitat connectivity** With reference to the Design Principles [**REP6-046**], where STR.08 suggests that the principle is to *"…. [p]rovide an enhanced user experience for those using the crossing and living in the immediate area …"* and also to the Applicant's response to ExQ2 11.2.5 [**REP6-114**] where the comment *"… no data is available yet on the success or otherwise of the green bridges…"* is made, it is suggested that the provision is of a similar nature to that made for other projects: • What data is to be collected on the success or otherwise of the Green Bridges in this project, and those Bridges listed in the response to ExQ2 11.2.5 across all types of users, including 'non-human' users/ mobile species? • What are the indicators for success that will used in monitoring the success of the 'green bridges' and where are these secured in the Design Principles and OLEMP documents? • What process is proposed to be utilised to determine best practice and how are the lessons that may be being learnt at the other sites being made available to the LTC Design Team? • Referencing S11.03 in the Design Principles [**REP6-046**], is there lighting proposed for the Green Bridges and if so, to what extent might it act as a barrier for use by mobile species that the bridges seek to encourage? Similarly, are the surrounding and connecting highways and junctions intended to be lit, and if so to what extend will lighting act as a barrier for the species that the bridges are looking to encourage?

		Applicant's Response: '*What data is to be collected on the success or otherwise of the Green Bridges in this project, and those Bridges listed in the response to ExQ2 11.2.5 across all types of users, including 'non-human' users/ mobile species?* *What are the indicators for success that will used in monitoring the success of the 'green bridges' and where are these secured in the Design Principles and OLEMP documents?*' The outline Landscape and Ecology Management Plan (oLEMP) [**REP7-132**] includes the Project's green bridges as specific management areas. Each of these list management requirements detailing what the structures are designed to deliver, as well as listing the habitat typologies proposed for each bridge. Each habitat typology details outline measures of success which will be monitored during the specified establishment monitoring period for each duration. This information would be discussed with the advisory group and would inform future management strategies to ensure progress towards successful habitat establishment. Specific commitments to monitor green bridge use by protected species are reported in relevant draft protected species mitigation licence applications, detailed below: • The monitoring of dormouse using the green bridges will use data gathered by: '…*monitoring the use of nest boxes / tubes deployed on the green bridges concurrently with the nest boxes in the receptor sites, as described in the work schedule. Monitoring using camera traps at each of the green bridge location will also be employed… Locations planted to link existing habitat including the green bridges will also be monitored for five years after planting. Dormouse nest tubes will be placed within the hedgerows leading to the green bridges, and the hedgerows present on the green bridges themselves.*' (see Section E4.2 of Environmental Statement (ES) Appendix 8.18: Draft EPS Mitigation Licence Application – Dormouse [**APP-414**]). • Monitoring of bats and their use of green bridges will use data that is gathered in the following ways: '*Activity surveys will be undertaken at the green bridges in the first full year post-construction, and at alternate years following this: 2028, 2030, 2032, 2034, and 2036. Monitoring will employ the most effective methodology available at this time. The current approach would be using filming surveys (infra-red or Thermal Imaging) with paired detectors situated on either side of the bridge collecting data simultaneously*.' (see Section E4.2b of ES Appendix 8.16: Draft EPS Mitigation Licence Application – Bats [**APP-408**]). In addition, in line with the Applicant's response to ExQ3_Q11.1.10, the Applicant has amended the oLEMP at Deadline 7 [**REP7-132**] at paragraph 4.2.1 to state '*In addition to the habitat establishment, the in-perpetuity management and monitoring is important to the success of the mitigation planting areas. The outline measures of success will be refined during detailed design with consideration of key species groups, where necessary, to target ecosystems functionality*'. This secures a process whereby the outline measures of success within the

		oLEMP will be developed and monitored, including key species groups. This would include all appropriate management areas reported in the oLEMP, including green bridges and their effectiveness. *'What process is proposed to be utilised to determine best practice and how are the lessons that may be being learnt at the other sites being made available to the LTC Design Team?'* Throughout the detailed design process, the Applicant will apply the most up-to-date information available to inform the design. This will include evidence of green bridge usage across the strategic road network managed by the Applicant, and reference to published data on other similar structures both within the UK and in any other countries supporting relevant examples. Commitments in the Design Principles [**REP7-140**] ensure detailed design will include such considerations: • Clause PRO.01: '*The Project shall engage with the National Highways Design Review Panel (NHDRP) on the development of the detail design. The design proposals shall be developed with regard to comments raised by the NHDRP.*' • Clause STR.08: *'Planting on green bridges shall tie in with the broader landscape to ensure this connectivity. The design of these green bridges shall be further developed during detail design to also provide an enhanced user experience for those using the crossing and living in the immediate area of the Project (including WCH) and to retain the character of the local roads and routes.'* *'Subject always to the constraints set out in the DCO, the design of green bridges shall be developed to support the successful establishment of the planting typologies as shown on the Environmental Masterplan (Application Document 6.2, Figure 2.4) and as defined in the outline Landscape and Ecology Management Plan (oLEMP) (Application Document 6.7), and shall consider the guidance set out in the Summary of Findings within the Natural England (2015) report, Green Bridges: A Literature Review (NECR181).'* In addition a new Design Principle Clause PRO.06 was included in the Design Principles at Deadline 7 [**REP7-140**], which commits the Applicant to holding multi-disciplinary workshops with relevant stakeholders to inform the detailed design for the green bridges (among other structures).

Plate 1 Extract from Design Principles [REP7-140]

Clause no.	Design principle name	Design principle
PRO.07	Detailed design	Key elements of the detailed design shall be subject to structured stakeholder engagement on their spatial arrangement (within the parameters of the DCO), user experience, appearance ('look and feel'), integration with the surrounding context and, where relevant, signage and interpretation. These elements are: • The consistent design approach as outlined in Design Principle STR.07 • Project Enhanced Structures as outlined in Design Principles STR.02 to STR.06 inclusive and STR.15: – Thong Lane green bridge north (Work No. 3B) – South Portal (Work No. 3C) – North Portal (Work No. 5A) – North Portal operational access bridge (Work No. 5E) – Orsett Fen Viaduct (Work No. 8B) – Mardyke Viaduct (Work No. 8B) – Thames Chase WCH bridge (Work No. 9O) • Chalk Park (Work No. OSC4) • Tilbury Fields (Work No. OSC5) • Green bridges (): – Brewers Road green bridge (Work No. 1D) – Thong Lane green bridge south (Work No. 1H) – Thong Lane green bridge north (Work No. 3B) – Muckingford Road green bridge (Work No. 6B) – Hoford Road green bridge (Work No. 6C) – Green Lane green bridge (Work No. 7M) – North Road green bridge (Work No. 8D) There shall be multi-disciplinary workshops with relevant stakeholders before and after the National Highways Design Review Panel (NHDRP) (Design Principle PRO.01). Comments made on the designs/ design approach by the attendees shall be duly considered and responded to in the detailed design in writing and in accordance with the terms of reference in Appendix D

'*Referencing S11.03 in the Design Principles [REP6-046], is there lighting proposed for the Green Bridges and if so, to what extent might it act as a barrier for use by mobile species that the bridges seek to encourage?*'

No lighting is proposed on Thong Lane north, Muckingford Road, Hoford Road or Green Lane green bridges. Both Brewers Road and Thong Lane south green bridges have lighting due to their proximity to junctions. These existing bridge locations are currently well lit, both on the bridge themselves, but also from the A2/M2 lighting

		columns which rise above each crossing from below. North Road is also a currently well-lit road, and the green bridge will be lit to ensure safe use of the road. For all of these green bridges, the wildlife crossing area will be separated by a hedgerow which is located behind the lighting columns, to provide a dark corridor for commuting animals (see Clause nos. LST.02 and LST.03 of the Design Principles [**REP7-140**]). For Brewers Road and Thong Lane south the aim is to provide a closed canopy crossing over the green bridge (see paragraph 5.6.6 of the oLEMP [**REP7-132**]), which will facilitate these dark corridors. *'Similarly, are the surrounding and connecting highways and junctions intended to be lit, and if so to what extend will lighting act as a barrier for the species that the bridges are looking to encourage?'* The lighting plans for the surroundings of each of the green bridges are detailed below: • The surroundings and the local roads in the vicinity of Muckingford Road, Hoford Road and Green Lane are not lit. • At North Road green bridge there is lighting on the green bridge itself, and along North Road. The A122 Lower Thames Crossing route alignment will not be lit in the vicinity of the green bridge. North Road is currently a lit road, and the lighting plan will follow the existing lighting plan. • At Thong Lane green bridge north, the only lighting in the vicinity of the bridge is along the route of the proposed A122 Lower Thames Crossing route alignment below the green bridge. • Brewers Road green bridge and Thong Lane south green bridge have lighting due to their proximity to junctions. These existing bridge locations are currently well lit due to the proximity to the A2/M2. The lighting plan for the Project is following the existing lighting along the A2/M2. All lighting plans have been designed to minimise the light spill from the Project, with lux modelling showing that operational lighting will fall to 0.5lux within 30m of the Project (see paragraph 8.6.453 of ES Chapter 8: Terrestrial Biodiversity [**APP-146**]), with the lighting plan minimising light spill in line with good practice guidance. Design Principles Clauses LST.02 and LST.03 [**REP7-140**] minimise lighting both along the main alignment of the Project and along off-line sections. The landscape planting has been designed to lead animals to the green bridges and will provide dark corridors across the Project. A new Design Principle is proposed for Deadline 8 [**Document Reference 7.5 (6)**] as follows: • LST.04 – Lighting on green bridges: *'Where reasonably practicable, and subject to consultation with the Local Highway Authority, lighting on green bridges shall be minimised and where possible column heights shall be reduced. Furthermore, the detailed design shall carefully consider the space allocation on the bridge to*

		maximise the separation of the Highway and associated lighting from the green space. Where lighting is required, it shall be carefully designed to focus light onto the Highway and to minimise obtrusive light spill.' Where lighting is required, it is focused onto to the highway and will minimise obtrusive light spill. The landscape planting will further help to maintain dark corridors for wildlife.
		Natural England response *What data is to be collected on the success or otherwise of the Green Bridges in this project, and those Bridges listed in the response to ExQ2 11.2.5 across all types of users, including 'non-human' users/ mobile species?* Natural England notes that the Applicant's response focusses on monitoring measures for protected species use of the bridges (bats and dormice primarily). As detailed during our evidence at Issue Specific Hearing 6 and 9, Natural England consider that a more rigorous suite of species should be monitored. As detailed in our Deadline 8 Response (REP8-154), Natural England, does not consider that Paragraph 4.2.1 of the updated outline Landscape and Ecology Management Plan (Examination Document REP7-132) nor the updated Advisory Group Terms of Reference (Examination Document REP7-133) provide sufficient certainty that the Green Bridge monitoring will be effective for all target species. Our advice remains that the Terms of Reference should be modified in line with the suggested wording within Section 3.7 of our Deadline 8 response. *What process is proposed to be utilised to determine best practice and how are the lessons that may be being learnt at the other sites being made available to the LTC Design Team?* Natural England is disappointed that the Applicant has not referred to good practice guidance in their response to this question; they state that 'Throughout the detailed design process, the Applicant will apply the most up-to-date information available to inform the design'. However, the Design Principles (Examination Document REP8-083) do not commit the Applicant to apply good practice to the Green Bridge Design. For example, matter STR.08 states that (our emphasis) '… and shall **consider** the guidance set out in the Summary of Findings within the Natural England (2015) report, Green Bridges: A Literature Review (NECR181)'. Natural England's advice is that the need to 'consider' does not give confidence that the design of the Green Bridges will follow best practice; to overcome this Natural England would request that the wording of the Design Principles is amended in accordance with the suggested wording within Natural England's response to ExQ3 Q16.1.3 (Examination Document REP8-155).

		Referencing S11.03 in the Design Principles [REP6-046], is there lighting proposed for the Green Bridges and if so, to what extent might it act as a barrier for use by mobile species that the bridges seek to encourage? Natural England notes that Applicant's response to this question. Natural England has provided our detailed advice in relation to LST.04 submitted at Deadline 8 in Section 1.1 of this letter; we do not consider that as drafted it provides sufficient confidence that lighting will be minimised on the Green Bridges and have suggested the following amended wording to overcome these concerns: 'Where ~~reasonably practicable~~ design standards permit, and subject to consultation with the Local Highway Authority, lighting on green bridges shall be minimised and ~~where possible~~ column heights shall be reduced with low level lighting (eg bollard lighting) utilised within the walker, cyclist, horesrider routes where lighting is required for safety. Furthermore, the detailed design shall carefully consider the space allocation on the bridge to maximise the separation of the highway and associated lighting from the green space. Where highway lighting is required, it shall be carefully designed to focus light onto the highway and to minimise obtrusive light spill.'

PINS ID	Question to	Question / Response
ExQ3_Q11.1.7	Applicant Natural England Environmental IPs	**Green Bridges** Why should the ExA consider that Thong Lane and Brewers Road bridges are effective 'green bridges' in biodiversity terms, having regard to concerns about the potential lack of effective connectivity for those species that these are intended to deliver? In a similar manner, the ExA would like to receive evidenced representations on each of the bridges identified in the Proposed Development as 'green bridges' on the question of whether they should be considered as such in biodiversity terms? Respondents with broader interests in 'green bridge' design than biodiversity are referred to ExQ3 16.1.4 which seeks a balance of views on 'green bridges' performance against a range of objectives and outcomes. **Applicant's Response:** *'Why should the ExA consider that Thong Lane and Brewers Road bridges are effective 'green bridges' in biodiversity terms, having regard to concerns about the potential lack of effective connectivity for those species that these are intended to deliver?'* The Applicant considers that the green bridges proposed at Thong Lane green bridge south and Brewers Road green bridge will be effective in terms of providing habitat connectivity for a range of species between existing semi-natural habitats north and south of the A2. Both bridges have been designed in line with the relevant Design Principles [**REP7-140**] set out below: • STR.08: '*Green bridges are required mitigation for the severance and fragmentation of habitat due to the Project. Planting on green bridges shall tie in with the broader landscape to ensure this connectivity. The design of these green bridges shall be further developed during detail design to also provide an enhanced user experience for those using the crossing and living in the immediate area of the Project (including WCH) and to retain the character of the local roads and routes… Subject always to the constraints set out in the DCO, the design of green bridges shall be developed to support the successful establishment of the planting typologies as shown on the Environmental Masterplan (Application Document 6.2, Figure 2.4) and as defined in the outline Landscape and Ecology Management Plan (oLEMP) (Application Document 6.7), and shall consider the guidance set out in the Summary of Findings within the Natural England (2015) report, Green Bridges: A Literature Review (NECR181). Green bridge planting shall be designed to be set back from the bridge parapet edge to reduce the chance of landscape planting falling onto the operational highway below. Any utility requirements shall be integrated within the structural outline (e.g., not hung and exposed).'* • S1.04 (relating to Thong Lane south and Brewers Road green bridges): '*The bridges shall be*

designed to meet the following criteria:

- *To provide connectivity of habitats for species including dormice, badgers, reptiles, bats and great crested newts between Shorne Woods and Ashenbank Woods, Jeskyns and Cobham Park, and to strengthen the woodland character, new green bridges shall be provided for the replacement of Thong Lane and Brewers Road crossings. Landscape shall be designed to provide continuity of habitat between the bridges along the main highway's corridor as far as reasonably practicable.*
- *To act as local landmarks and to signal entry into the Kent Downs AONB for drivers, the vegetation on the bridges shall be visible on the horizon on their approach to the area from the east for Brewers Road green bridge, and from the west for Thong Lane green bridge south.*
- *To provide a bridge with soil depth suitable to establish appropriate shrubs and intermittent tree species, reflective of the surrounding character and species makeup of the Kent Downs AONB. Variations in soil depth on the bridge can provide diversity in planting species and heights.*
- *To provide a high-quality experience for users crossing the bridge through vegetation and woodland planting. The green bridge shall improve recreation access across the A2/M2/Lower Thames Crossing corridor.*
- *To provide planting on the green bridge that links into woodland planting to the edge of Gravesend in the west and the gateway to Shorne Woods Country Park in the east as part of a wider 'wooded circle' connecting Shorne Woods and Claylane Wood.'*

With reference to the Applicant's response to ExQ3_11.1.5, the Applicant is now committed to providing culverts at both Thong Lane south and Brewers Road green bridges to facilitate safe passage of animals under the Darnley Lodge Lane two-way local connecter road and Brewers Road respectively. These are reported in the Design Principles at Clauses S1.23 and S2.15 [**REP7-140**].

The two green bridges are designed in line with guidance issued by the Landscape Institute's Technical Note for Green Bridges[10] for mixed use green bridges, whereby there is a wildlife area screened from the road area of the bridge. These green bridges are tied into the habitat on either side of the green bridge (see Environmental Statement (ES) Figure 2.4: Environmental Masterplan Sections 1 and 1A, Sheet 3 [**REP4-124**] and Section 2, Sheet 1 [**REP7-116**]).

Given the existing situation is that the bridges at Thong Lane and Brewers Road, over the A2, are not green bridges, the Applicant's proposal to provide bespoke green bridges and associated culverts as replacement for these existing structures would significantly improve the habitat connectivity for species across the A2 to existing semi-natural habitats north and south of the A2.

'In a similar manner, the ExA would like to receive evidenced representations on each of the bridges identified

		in the Proposed Development as 'green bridges' on the question of whether they should be considered as such in biodiversity terms?' As noted above, the Applicant's green bridge design has been designed with reference to the Landscape Institute's Technical Note for Green Bridges in accordance with the mixed-use green bridge design. Green bridges have been located at key crossing points for wildlife where the Project would otherwise result in severance of key commuting/foraging routes or territories for mobile species such as bats, badgers and dormice as well as providing habitat links between new areas of compensatory woodland and retained woodlands or reducing the impacts of historic severance (e.g. across the A2 corridor), as detailed in the response to ExQ2_Q11.2.6 [**REP6-113**]. This is further supported by the Landscape Institute's Technical Note for Green Bridges which states for mixed-use green bridges *'To determine the width, the minimum width of the natural zone should be calculated, based on the project aims in terms of target species.'* The Landscape Institute guidance refers to *'The target species for use may be critical in determining the width, design and vegetation. For examples amphibians may require a "wet zone" across the bridge. For larger animals, the width and location can be more important than the vegetation, but for smaller animals such as bats the vegetation is more important.'* Therefore, the design of the green bridges has been designed appropriately for the target species required in terms of width and vegetation proposed. The full description of the habitat typologies present, and the green features on each bridge, are described in the outline Landscape and Ecology Management Plan [**REP7-132**]. For full details of how these green bridges will be designed for each commuting species see Section E3.4 of ES Appendix 8.16: Draft EPS Mitigation Licence Application – Bats [**APP-408**], Section 5.4 of ES Appendix 8.19: Draft Badger Development Licence Application (CONFIDENTIAL) [**APP-415**] and Section E1 of ES Appendix 8.18: Draft EPS Mitigation Licence Application – Dormouse [**APP-414**]. As described in the response to ExQ2_Q11.2.5 [**REP6-113**], there are examples of green bridges with similar width green verges, particularly the HS1 Thong Lane green bridge, and the A556 Knutsford to Bowden Scheme green bridge. The design of the green bridges is in line with the guidance from the Wildlife Crossing Structure Handbook Design and Evaluation in North America[11], as detailed in the Natural England Commissioned Report NECR181 – Green Bridges – a literature review[12].

		Natural England response Natural England has provided detailed advice expressing our concerns in relation to the design and effectiveness of the Green Bridges in providing landscape scale connectivity for biodiversity and landscape impacts. Their design still falls significantly short of the good practice guidelines referenced by the Applicant (supplied by Natural England in Examination Documents REP4-329, REP4-330 and REP7-221), in terms of the minimum width of the habitat and the minimum width to length ratio of the bridges. Both the Natural England Commissioned Report (REP4-329) and the Landscape Institute Technical Note (REP4-330) details that 'green elements' of less than 20 metres wide are unlikely to be effective from an ecological perspective. All three documents recommend a width to length ratio more than 0.6-0.8. As most recently detailed in our Deadline 8 response (Examination Document REP8-154) and our response to ExQ3 Q16.1.3 (Examination Document REP8-155), Natural England considers that the Design Principles should be amended to ensure the design of the Bridges fully reflects all of the requirements within Examination Documents REP4-329, REP4-330 and REP7-221) in relation to ecological and landscape connectivity. We have provided suggested wording in our response to ExQ3 Q16.1.3 (Examination Document REP8-155) which would overcome our concerns and give confidence that the Green Bridge design at the detailed design stage would be effective in meeting the Project objectives. Having considered the Applicant's response to Ex3 Q11.1.7, we consider the advice provided in our Deadline 8 response still remains appropriate.

PINS ID	Question to	Question / Response
ExQ3_Q11.1.8	Applicant	**Loss of Ancient Woodland and Effects on SSSIs and Local Wildlife Sites** In determining the route of the highway works and those utility diversions, there is still ambiguity as to the need to remove component elements of ancient woodland and other protected sites. • The Applicant's response to ISH9 Agenda Item 3b is noted within the transcript for that hearing [**EV-074**], alongside the relevant post event submission [**REP6-090**]; however, although it is acknowledged that utility diversion routes (G1a, G1b, G2 and G3, OH1, and MU7) result in the loss of Ancient Woodland, even noting that land take was reduced in locations and the Design Principles document intention is to reduce it further, why could a route not be determined that allowed the Ancient Woodland to remain untouched? Please respond to this question in general terms but also make specific reference to the latest position on 'The Wilderness'. • In a similar manner the proposed route affects SSSIs, Local Wildlife Sites and Sites of Importance for Nature Conservation (SINCs). For those areas where damage is proposed, such as Low Street Pit and Goshems Farm, whether by the proposed highway alignment or utility works etc, please provide an explanation of why alternative routes, or minor adjustments to the proposed alignment (in effect micro-siting) that leave these areas untouched could not be provided? Please respond to this question in general terms but also make specific reference to the latest position on Shorne Woods SSSI. Refer to ExQ3 3.1.1. The response to this question will be considered by the ExA in relation to the consideration of alternatives as well as in relation to biodiversity effects.

		Applicant's Response: The Project has been though an iterative route and design evolution in which the effects on the environment, including Ancient Woodland, were considered, including at the preferred route assessment stage where it was sought to minimise environmental impact (as identified in Section 5 of the Planning Statement [**APP-495**]). With regards to all sites of environmental or ecological importance, the Applicant can reaffirm that these impacts have been considered as part of the design evolution as communicated within the Environmental Statement (ES) Chapter 2: Project Description, notably Plate 2.11 [**APP-140**]. Where impacts to designated sites cannot be avoided with certainty, owing to the current stage of the design, and where the ability to wholly mitigate that impact is reliant on other factors such as: • ground investigations • the detailed design • the phasing of the works • design standards and restrictive covenants of those aspects of the Project (other than the highway, such as the utility networks) which will be determined by others suitable Register of Environmental Actions and Commitments (REAC) commitments [**REP7-122**] and Design Principles [**REP7-140**] have been proposed by the Applicant to work towards further reduction/avoidance during detailed design. A description of the highway and utility works is provided in ES Chapter 2: Project Description [**APP-140**]. The alternatives considered and discounted for the highway, and the significant utility works are narrated within ES Chapter 3: Reasonable Alternatives [**APP-141**] and Chapter 5 of the Planning Statement [**APP-495**]. Where the risk of impact to designated sites is low but cannot be conclusively discounted at this stage, the precautionary principle has been applied and the works have been assessed within the Environmental Assessment. This is to ensure that the assessment of a reasonable worst case has been undertaken. However, at detailed design there remains scope to achieve a proposal that reduces the associated impacts. **Ancient Woodland Sites** *Shorne Woods and Claylane Wood* With regards to Shorne Woods (part of Shorne and Ashenbank Woods Site of Special Scientific Interest (SSSI)) and the impacts resulting from the Project alignment, the Applicant refers to Post-event submissions, including written submission of oral comments, for Issue Specific Hearing 3 (ISH3) [**REP4-179**] where the design promoted was explained. In summary, a highway alignment or design that could potentially reduce the impact to the ancient woodland and SSSI would be at the expense of the functionality and safety standards of the A2/Lower Thames Crossing junction design, which would mean the Project was not able to deliver the Project's benefits and

		achieve its transport objectives of providing free-flowing north–south capacity and improving safety, whilst also maintaining local connectivity. In response to impacts regarding Shorne Woods at Thong Lane, the Applicant highlights the Design Principle Clause S2.16 [**REP7-140**] which commits the design of Thong Lane to the north of the A2 to avoid impacting the Shorne and Ashenbank Woods SSSI to the east With regards to Work No G1a and its impacts on the Shorne and Ashenbank SSSI and ancient woodland contained therein, and Work No G1b within Claylane Wood, impacts have been assessed in relation to the potential alignment and the associated construction area required to install the pipeline. The pipeline is an 800mm medium pressure gas pipeline that forms a strategic role in providing gas to south-east London and a safety function with regards to the operations within the Isle of Grain gas facility. As such, the owner of the pipeline (as submitted in Post-event submissions, including written submission of oral comments, for ISH9 [**REP6-090**]) is '*resistant to installation of the gas pipeline under roads forming part of the strategic road network. SGN* [Southern Gas Networks] *will require access to their asset for maintenance therefore they could not be placed under the highly trafficked strategic roads in this area due to the significant disruption and loss of capacity any maintenance works would cause*.' Work No G1a is promoted north of the A2 from Thong Lane to Brewers Road as the points of connection to the existing pipeline are located north of the A2 at its eastern and western extents (as seen on Sheets 3 and 4 of the Works Plans [**REP7-038**]), and furthermore, at the western extent of Work No G1b (as seen on Sheet 6 of the Works Plans [**REP7-038**]). Existing customers of this pipeline are also located north of the A2 and their supply would need to remain live at all times, so far as reasonably practical. Locating the pipeline to the south of the A2 was considered and discounted as it would not have mitigated the associated impacts to designated woodland within the A2 corridor. Instead it would have introduced them to areas such as Ashenbank Wood (as represented by the Development Boundary contained within the 2020 Supplementary Consultation [**APP-085**] (page 122)) and would potentially give rise to increased impacts to Shorne Woods and Brewers Woods due to the associated construction areas required to pass beneath the A2 to divert the pipeline to the south of the A2. For the avoidance of doubt, the pipeline could not have been situated within any of the new structures crossing the A2 as they themselves interface with the existing gas pipeline and therefore cannot be constructed until the existing pipeline is diverted by Work Nos G1a and G1b. Alternative routes for Work Nos G1a and G1b have been discussed in technical workshops with parties such as the Kent Downs Area of Outstanding Natural Beauty (AONB) Unit (see item 2.1.41 of the Statement of Common Ground (SoCG) between (1) National Highways and (2) Kent Downs AONB Unit [**REP6-018**]). It has been explained how alternative pipeline alignments would have (1) been unacceptable to the utility asset owner on multiple grounds, (2) not mitigated those impacts of concern, and (3) increased the potential of impacts in other locations owing to the need for additional temporary construction areas and Utility Logistics Hubs associated with any alternative diversion options

		The impacts associated with utility works within Claylane Wood, specifically Work Nos OH1, OHT1, G2 and G3, are notably due to the location of the existing networks (see Plate 2 below) which require diverting (see Plate 3 below), and the Applicant's intention is to limit the extent of the works to those networks and the potential impacts associated with them. The alignment of other utility works, Work Nos G1b and MU17, are constrained by their relationship with the proposed highways junction design and the relevant design guidance, standards and legislation, which determine their alignment within and through Claylane Wood. The Applicant would refer the Examining Authority to item 2.1.2 of the Forestry Commission's SoCG [**REP4-106**] where the Forestry Commission agrees with the Applicant's assessment that it has considered alternative options for the works and has communicated with them at multiple stages of consultation. The Applicant acknowledges that further work is required at the detailed design stage to ensure the commitments made within the Design Principles [**REP7-140**] are applied rigorously to reduce the assessed impact of the utility diversions so far as reasonably practicable. The rigour of that process is assured by the terms of the draft DCO. **Rainbow Shaw Local Wildlife Site** As communicated in ISH9 [**REP6-090**] at Statutory Consultation (2018) the highway alignment resulted in the loss of 0.6 hectares of Rainbow Shaw Local Wildlife Site (LWS), which is designated ancient woodland. However, this highway alignment required substantial and multiple sections of overhead lines to be diverted. To lessen the extent of the overhead powerlines that would need to be diverted, a revised alignment was promoted which realigned the highway north-east further into Rainbow Shaw Wood. Coupled with Work No MU37, which is the diversion of an existing water pipeline located within Hoford Road, the impact to the Rainbow Shaw LWS increased to 1.2 hectares. The Applicant has acknowledged that the only viable way to avoid the impact to the woods would be to move the highway south-west by approximately 150m to ensure the A122, its associated earthworks and the Hoford Road structure and approaches are outside of the woods. Whilst this would avoid the woods, it would reintroduce the diversion of the overhead powerlines (as described at Annex A.9 of Post-event submissions, including written submission of oral comments, for ISH9 [**REP6-090**] and noted above) and promote a highway alignment nearer to the residents of Chadwell St Mary, which the Applicant considers as an inferior proposal to that contained within the Application and that would give rise to materially new or materially different impacts to local receptors than that assessed within the Environmental Statement. **M25 junction 29** As submitted at Post-event submissions, including written submission of oral comments, for ISH9 [**REP6-090**], the works impacting the ancient woodland and Codham Hall Woods LWS results in 0.4ha of impacted woodland. This impact occurs due to the widening works associated with improvements of the existing slip roads and the widening of the M25 through junction 29. No alternative alignment exists that would achieve the

		required design standards in this location. **Local Wildlife Sites** *Goshems Farm* Impact to the Goshems Farm LWS is associated with the highway alignment, the North Portal and the northern tunnel entrance compound that is required to construct them. Alternatives considered for these works are communicated within ES Chapter 3: Reasonable Alternatives [**APP-141**] and Chapter 5 of the Planning Statement [**APP-495**]. The Applicant understands that the current landfill permit by Ingrebourne Valley Limited (IVL) has resulted in the clearance of the majority of the habitats associated with the Goshems Farm LWS and that the area which has been retained as IVL's mitigation area is not impacted by the Project. As part of the Applicant's mitigation proposals for the Project, the area of Goshems Farm LWS that lies within the Project's permanent land-take has been developed to provide a betterment on the mitigation secured by IVL following the conclusion of their land filling activities. The Applicant's approach to mitigating impacts to the Goshems Farm LWS has been agreed with Natural England at item 2.1.52 in their SoCG [**REP7-106**]. **Low Street Pit** Impacts to the Low Street Pit LWS are associated with the highway alignment, namely the Tilbury Viaduct and approach roads. A modification to avoid the LWS, by moving the highway approximately 120m west, would have impacted, potentially extinguishing, the businesses along Station Road, north of the railway line. The moving of the highway west would have brought the highway and associated construction impacts closer to residential receptors at Station Road, Low Street Lane and Church Road in this location. The modified highway alignment would have had to continue further north and south which would then have promoted the A122 in a location that would have impeded on the existing powerlines in the region, extending those works, or located the highway closer to Chadwell St Mary's residents, as opposed to the design in the application that sought to align the highway equidistant from the residents of Chadwell St Mary, Tilbury, East Tilbury and Linford. Work No MU27 (works to the existing overhead line alignment to the east of the A122) is limited in alternative alignments owing to the points of connection along the existing overhead powerline network, one of which is within the Low Street Pit LWS. **Linford Pit** The Linford Pit LWS could not be avoided by the Applicant owing to the need to undertake works to the existing electricity networks in this site (Work No OH5). The existing infrastructure within this site can be seen at [**AS-103**]. The Applicant is, however, seeking temporary powers of access through the Tarmac business site to mitigate impacts during the construction of the Project, as submitted at Compulsory Acquisition Hearing 3 (CAH3) [**REP6-087**].

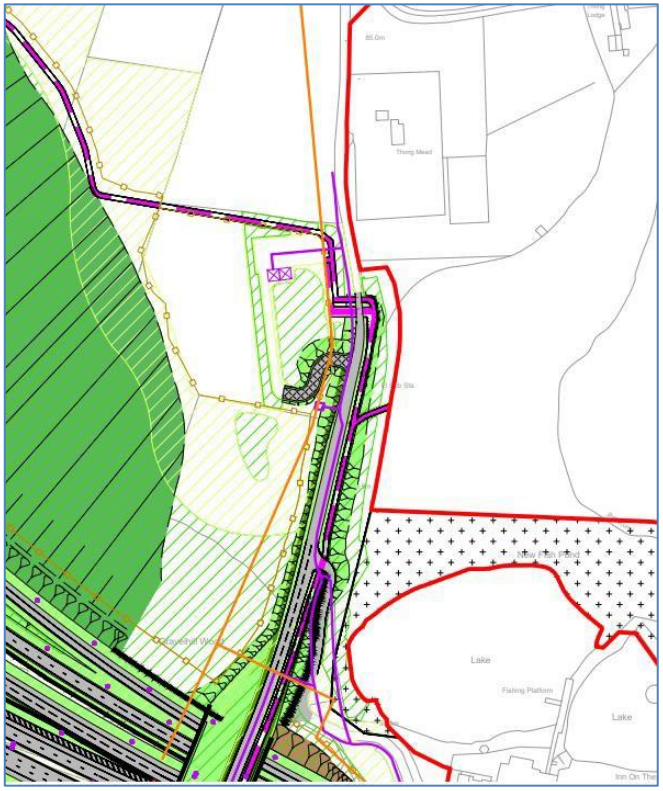
		Mucking Heath Mucking Heath LWS is impacted along its western edge (along the eastern verge of Brentwood Road) for Work Nos G5, MU39 and MU40. The works (Work Nos G5 and MU40) cannot be realigned to mitigate this impact owing to the location of the existing pipeline (eastern verge of Brentwood Road), the existing gas infrastructure located along High House Lane and the need to provide adequate separation between the live pipelines and the workforce during the construction of Work Nos G5 and MU40 on the grounds of safety. Brentwood Road was promoted at Statutory Consultation on the alignment of the existing Brentwood Road; however, this was amended to the promoted alignment within the Application owing to the potential for significant impacts on the users of Brentwood Road during construction. Work No MU39 is the diversion of existing utility networks currently located within Brentwood Road and its proposed alignment is determined by that of the realigned Brentwood Road. **Blackshots Nature Area** Blackshots Nature Area is impacted by the A13/A1089/A122 Lower Thames Crossing junction. The need for the junction connectivity and design standards for the highway alignment have determined the impact to the site. Alternative alignments for the highway and alternative junction layouts were considered within ES Chapter 3: Reasonable Alternatives [**APP-141**] and Chapter 5 of the Planning Statement [**APP-495**]. The Applicant would refer to Post-event submissions, including written submission of oral comments, for ISH3 [**REP4-179**] where the need for the design promoted was submitted. Works to the overhead powerlines, Work Nos OH6, OH7 and OHT6, are required owing to the junction design. Alternatives considered for the overhead powerlines are presented in ES Chapter 3: Assessment of Reasonable Alternatives [**APP-141**] and Chapter 5 of the Planning Statement [**APP-495**]. Work Nos MU56 and MU57 are sited through the nature area due to the junction design. Reasonable alternatives are not available owing to the promoted junction design and how those assets interface with it during the construction and operation of it, the points of connection required along the affected utility networks to ensure customer continuity, and the lack of certainty with regards to the phasing of construction to ensure that connectivity via an alternative alignment could be delivered to the satisfaction of the utility network owners and operators. Work No MUT20 is the temporary diversion of telecommunication networks that exist within the western boundary of the A1089. These will be relocated back into Work No MU54, the A1089 western verge as part of the Project. Work No MUT20 cannot be realigned owing to the defined points of connection at each end of the works, and the location of the proposed A13/A1089/A122 Lower Thames Crossing junction. **Site of Importance for Nature Conservation (SINC)** *North Ockendon Pit*

		The works within the SINC are limited to Work Nos 8D and 8N, which is the construction of a new walking, cycling and horse riding (WCH) route connecting Church Lane and the B186 North Road. The Applicant would refer the Examining Authority to its response to 'Paragraph 6.9.21 to 6.9.24 Page 45' of London Borough of Havering's Local Impact Report [**REP2-060**] (pages 37 and 38) regarding its assessed impacts to the site and justification of these proposals. The Applicant proposes to upgrade the existing right of way alignment to a bridleway so there is very limited additional land-take associated with surfacing the existing alignment of the right of way. The Applicant has proposed sufficient land within the neighbouring field (outside of the SINC) in which the temporary access from B186 to the M25 compound and the utility provisions to the compound, Work No MUT29, can be constructed. **Ockendon Railsides SINC** Ockendon Railsides SINC interfaces with Work Nos MU72 and MU73. These works, where they pass through this area, will be installed beneath the railway via trenchless installation methods. The removal of vegetation within this area is proposed on a precautionary basis, to avoid the risk of any existing vegetation falling onto the railway line. Alternative alignments of these works would not have avoided this risk owing to the defined connection points of Work Nos MU72 and MU73 to the existing utility networks, and the extensive length of the SINC along the railway north and south of these locations. **Thames Chase Forest Centre SINC** The Thames Chase Forest Centre SINC is impacted by the highway alignment and supporting infrastructure associated with the M25 and A122 junction. The junction is required to deliver the benefits of the Project. Alternative alignments of the highway are presented in ES Chapter 3: Assessment of Reasonable Alternatives [**APP-141**] and Chapter 5 of the Planning Statement [**APP-495**]. Work No OH8, the diversion of the existing 132kV overhead powerline network situated within the SINC is required to facilitate the construction and operation of the A122. Alternative alignments for this diversion would be comparatively excessive to achieve the Project's needs. An alternative alignment would give rise to potential impacts on other landowners that are currently outside of the Order Limits without avoiding impacts to the SINC due to the need to undertake works to remove the existing assets from within the SINC. Alternative alignments may have introduced new impacts to the Fairplay Farm SINC or Puddle Dock Angling Centre SINC (located east of Clay Tye Road). Work No MU72 could reasonably have passed beneath the M25 further south and then been located along the eastern side of the M25 for a longer alignment; however, this would have introduced additional engineering

		complexities owing to the depth beneath the A122 that would have had to have been achieved, the crossing point would have been longer and was discounted as being no more advantageous in terms of construction, operation and environmental impact. **Franks Wood and Cranham Brickfields SINC** Franks Wood and Cranham Brickfields SINC is impacted by Work No 9Y. The provisions of this WCH bridge, determined in its alignment by Moor Lane and Folkes Lane requires the diversion of existing utility networks, for which Work No MU91 is a provision. The Applicant believes an alternative location of the bridge would have been less advantageous than that which has been promoted as communicated within Appendix A of Post-event submissions, including written submission of oral comments, for ISH10 [**REP6-091**]. **Folkes Lane Woodland SINC** Folkes Lane Woodland SINC is impacted by the widening works required along the M25. There is no alternative alignment available for these works owing to the alignment of the existing M25. Work Nos G10 and MU92 have no reasonable alternative alignments as they have fixed points of connection to the existing networks and any other alternative would have been comparably longer and given rise to the need for additional land to be considered within the Order Limits without omitting the impact to the SINC. Work No ULH02, the Folkes Lane Utility Logistics Hub, is situated in proximity to Work No G10, which it is to deliver. It has been sited within the SINC at the site of the existing car park, within a clearing, to minimise its impact to the existing vegetation within the SINC, whilst ensuring sufficient heavy goods vehicle access for the delivery and removal of materials and plant required for the works. The Applicant believes any alternative location would not be as advantageous as that promoted. **The Wilderness** The Applicant set out its position regarding the impact on The Wilderness in response to ISH1 matters (Page 64 [**REP1-183**]). The Applicant would refer to Post-event submissions, including written submission of oral comments, for ISH3 [**REP4-179**] where the need for the design promoted was submitted. During the Examination period the Applicant has further refined its proposals within this area, as communicated within Post-event submissions, including written submission of oral comments, for ISH9 [**REP6-090**]. Work No MUT27 cannot be reasonably realigned owing to the points of connection in the B186 North Road (at the western end of the works) to Medebridge compound (Work No CA13) and the constraints associated with the A122 alignment, the presence of The Wilderness and the Ockendon landfill site. However, it is possible to install the required utility provisions without giving rise to a detrimental impact on the trees. As such the Applicant has committed via the REAC [**REP7-122**] at LV034 to ensure: *'No woodland within The Wilderness will be removed in connection with the installation of Work No MUT27.'* The Applicant believes that it has proposed the most advantageous alignment in this location and that any

		further micro-siting benefits are a matter for detailed design.
		Natural England response Natural England's advice remains as detailed within our Written Representation (REP1-262) and is summarised within Item 2.1.8 of our Statement of Common Ground (Examination Document REP8-013). This details that 'Natural England does not endorse the loss of and damage to ancient woodlands and SSSIs, which are afforded significant protection in planning policy (sections 5.28, 5.29, and 5.32 of the NPSNN). Following the preferred route announcement by the Secretary of State, the scheme amendments have increased the area of SSSI and ancient woodland that is to be impacted. Natural England recognises that the impacts to SSSIs and ancient woodland have reduced as a result of its discussions with the Applicant, although significant impacts remain'. Should the Secretary of State consider that the benefits of the project outweigh the impacts to irreplaceable ancient woodland, Natural England would expect the Applicant to take all steps possible to reduce the direct and indirect impacts to ancient woodland at the detailed design stage.

PINS ID	Question to	Shorne Woods SSSI and Car Park
ExQ3_Q11.1.9	Applicant Natural England Kent County Council Gravesham Borough Council Shorne Parish Council	Clarification is requested in relation to the proposed car park retention question at Shorne Woods SSSI. The matter was raised at ISH9 and the decision appears to be, as referenced in the transcript [**EV-074**], and submission [**REP6-090**], that no carpark is to be retained. • Are those bodies listed content that this is the position? The Applicant should also confirm how the land is proposed to be restored after removal of the construction compound and where the restoration proposals are secured.
		Applicant's Response: In short, the restoration of the land which was previously proposed as a car park following the end of the construction period is secured under article 35, and Requirement 5, of the draft Development Consent Order [**REP7-090**]. In response to concerns expressed by stakeholders in relation to the potential effects on the provision of additional visitor facilities (as expressed at Issue Specific Hearing 9 (ISH9) and through stakeholder engagement) the Applicant has removed the car park proposals (i.e. Work No. 1P) from the Application. This amendment was notified to the Examining Authority on 8 November (Amendment EA08) and reflected in the Applicant's Deadline 7 submission Deadline 7 Hearing Actions [**REP7-185**]. Removing the car park would enable an area of mitigation planting to be relocated further east (to provide screening of substations SS2 and SS3 and the associated Thong Lane access road) resulting in a circa 5,600sqm area of land changed from requiring permanent acquisition powers to temporary possession of land only, as shown on Plate 4 below. The Applicant does not consider this to be a change to the application; it is an amendment contained to land within the Order Limits with no impact on the assessment of the environmental effects of the Project. Revised General Arrangement Plan Volume B Sheet 4 [**REP7-026**] shows the amended layout, retaining the proposed substations and access and restoring the remaining construction compound area in accordance with the outline Landscape and Ecology Management Plan [**REP7-132**] and article 35 of the draft DCO [**REP7-090**].

		Plate 4 Extract from the General Arrangement Plans Sheet 4 [REP7-026]  As a result of the amendment, Design Principle S2.11 [REP7-140] has been revised to state: '*The substations shall be appropriately sited and designed (materials and colour) to integrate with the surrounding landscape. Planting shall be provided along Thong Lane between the substations within the constraints of proposed utilities and highway visibility splays to the substation access track entrance. Planting shall be designed to the east of the substations to screen views of the substations from Thong Lane and Shorne Woods. Planting shall be designed to the north of the substations to screen the views from the village of Thong. Boundary planting shall be provided to integrate the substations into the surrounding landscape. The*

		substations access track shall be coordinated with the landscape design and reutilise the former construction compound access, where technically practicable.' The restoration of land used in connection with the compound is regulated by article 35 of the draft Development Consent Order [**REP7-090**], which provides for reinstatement, and also giving up temporary possession on the completion of the works, in article 35(4) and (5). Moreover, Section 2 of the Environmental Masterplan [**REP7-116**] (secured under Requirement 5) has been amended to show the restoration of this land. The Applicant refers to its response on the restoration of compounds in Post-event submissions, including written submissions of oral comments, for ISH8 [**REP6-089**].
		Natural England response Natural England has no further comments to make in relation to ExQ3 Q11.1.9 to those made within our response at Deadline 8 (Examination Document REP8-155) which we consider are still valid.

PINS ID	Question to	Question / Response
ExQ3_Q11.1.10	Applicant Natural England	**Species monitoring** Within Natural England's Deadline 6 Submission - Annex 4 Response to ExA's Second Written Questions [**REP6-155**] - it is suggested that further discussions are required over the monitoring of various species, particularly those where a protected species licence is not required, such as breeding birds, nationally important invertebrate assemblages, widespread reptiles and amphibians. • Has a strategy for the approach been agreed? • Can such a monitoring strategy be utilised to monitor the effectiveness of the Green Bridges for all the target species highlighted within the Design Principles document?
		Applicant's Response: '*Has a strategy for the approach been agreed?*' In response to the comments from Natural England regarding monitoring of species other than protected species, and through further discussion with Natural England, the Applicant has amended the outline Landscape and Ecology Management Plan (oLEMP) at Deadline 7 [**REP7-132**] at paragraph 4.2.3 to state '*In addition to the habitat establishment, the in-perpetuity management and monitoring is important to the success of the mitigation planting areas. The outline measures of success will be refined during detailed design with consideration of key species groups, where necessary, to target ecosystems functionality*'. This secures a process whereby the outline measures of success within the oLEMP will be developed and monitored, including key species groups. This would include all appropriate management areas reported in the oLEMP including green bridges and their effectiveness. The Applicant anticipates the matter under discussion in the Statement of Common Ground [**REP7-106**] to move to matter agreed following the amendment.

		Natural England response Natural England notes the Applicant's response to ExQ3 A11.1.10. As detailed in our response to this question at Deadline 8 (Examination Document REP8-155), Natural England remains concerned that the Advisory Group Terms of Reference (Examination Document REP7-135 and also included within the oLEMP, Examination Document REP7-132) does not provide reference to how the species groups to form part of the post consent indicators of success monitoring will be agreed nor the details of the monitoring to be implemented. These Terms of Reference refer only to agreeing the 'habitat typology'. In our Deadline 8 response (Examination Document REP8154), Natural England requested an additional inclusion within Section 4.1.4 of the Terms or Reference (replicated below), which we feel would address our concerns and remains appropriate: 'Agree the species and species group monitoring requirements, for non-licensable species impacts, as part of a holistic indicators of success approach to ensure that the compensatory habitats are effective at the ecosystem level and support the populations of species impacted by the proposal.' We also seek an amendment to Section 4.1.14 of the Outline Landscape and Ecology Management Plan (Examination Document REP7-133) as follows: 'Agree the species and species group monitoring requirements, for non-licensable species impacts, as part of a holistic indicators of success'

PINS ID	Question to	Question / Response
ExQ3_Q12.2.1	Applicant	**Compensatory woodland planting and wider effects on the Kent Downs AONB landscape** Can the Applicant please direct the ExA to where it can find the assessment of the effect on the landscape character of the proposed woodland planting site between Brewers Road and Great Crabbles Wood to the north of Park Pale? The ExA notes that the area in question retains a former historic parkland character and not a woodland character. It would like to understand where the assessment of the impacts of compensatory woodland planting on the existing landscape character in this location has been reported. Several IP's have raised concerns that the landscape scale strategy for compensatory woodland appears to relate to solely to ecological factors and does not consider the effects of compensatory woodland sites on the landscape character, visual amenity or cultural heritage of the AONB. The ExA asks the Applicant to direct the ExA to where it can specifically find the reporting of the wider assessment or to explain why such an assessment has not been undertaken. The Applicant should note that simply referring the ExA to other ES chapter references will not be adequate; the ExA would like specific reference points to the relevant assessments if these have been undertaken.
		Applicant's Response: **Landscape and visual introduction** The landscape and visual effects of all areas of proposed woodland compensation planting within the Kent Downs Area of Outstanding Natural Beauty (AONB) have been considered within Environmental Statement (ES) Appendix 7.9: Schedule of Landscape Effects [**APP-384**] and ES Appendix 7.10: Schedule of Visual Effects [**APP-385**]. The effects of all relevant Project elements, including compensation planting plots, have been considered together as a whole on Local Landscape Character Areas (LLCAs) and views rather than as separate Project elements. As stated in paragraph 7.3.3 of ES Chapter 7 [**APP-145**], '*the effects on the constituent landscape features and elements, such as trees, woodland, hedgerows and landform, have been considered in combination as part of the effects on landscape character*'. This is in accordance with paragraph 3.17 of Design Manual for Roads and Bridges LA107 Landscape and Visual Effects[14]. Changes in landscape character and views as a result of proposed planting have been considered at opening year (winter) in terms of the permanent change in land use and the presence of protective guards to establish planting, and at design year (summer) to take into account 15 years of plant growth. The Applicant's approach to the assessment of landscape and visual effects in relation to compensation planting within the Kent Downs AONB can be demonstrated for the ancient woodland compensation planting north of Park Pale (land east of Brewers Wood), and areas of nitrogen deposition compensation planting at Blue Bell Hill and south of Shorne village (Fenn Wood site). This is addressed further in the detailed commentary below. **Cultural heritage introduction**

		ES Appendix 6.1: Cultural Heritage Desk-based Assessment [**APP-351**] includes historic landscape character, which is presented in Section 5.4. Paragraphs 5.4.6 to 5.4.68 summarise the area to the south of the River Thames. Section 5.4 includes plates showing the 1641 map of the Cobham Estate (Plate 5.17), the 1758 map of Cobham Hall and Park (Plate 5.18), the 1768–69 map of Cobham and Shorne (Plate 5.19) and the 1801 Mudge Map (Plate 5.23). Blue Bell Hill did not form part of the original Historic Landscape Characterisation, as it was not part of the Project at that point. However, the historic landscape of Blue Bell Hill is described in paragraph 6.6.301 of ES Chapter 6: Cultural Heritage [**REP4-116**]. While Historic Landscape Characterisation provides an assessment of the overall historic landscape, the impact of ancient woodland, woodland and nitrogen deposition compensation planting on individual heritage assets, in accordance with the National Policy Statement for National Networks, has also been assessed and is presented in ES Appendix 6.10: Assessment Tables [**AS-052**] and ES Chapter 6: Cultural Heritage [**REP4-116**]. Details of the individual assets with paragraph and page numbers are provided in the detailed commentary below. **Compensation planting within the Kent Downs AONB north of Park Pale (land east of Brewers Wood)** *Design approach* Paragraph 4.5.2 of the Project Design Report Part D: General Design South of the River [**APP-509**] notes that at the proposed ancient woodland compensation site between Shorne Woods/Brewers Wood and Great Crabbles Wood '*The proposed planting includes individual and small areas of mature trees.*' This sentence relates to the existing trees north of Park Pale that contribute to the historic parkland character. The existing trees would be set within an open ride/glade type character, with a mosaic of open grassland and graduated woodland edge around the proposed ancient woodland compensation planting, as shown on Sheets 2 and 4 of the Environmental Masterplan for Sections 1 and 1A [**REP4-124**]. This is in line with the management objectives set out for this area within the outline Landscape and Ecology Management Plan [**REP7-132**], which state (paragraph 5.3.4): '*f. to establish open rides and glades along utility diversion routes and along the proposed footpath routes for public access* *g. to provide a structurally diverse and graduated woodland edge to the rides*' As mentioned in the Applicant's responses to Interested Parties' post-event submissions at Deadline 6 [**REP7-188**], the rationale for the area north of Park Pale to be developed as a linkage between woodland at Great Crabbles and Brewers Woods was identified by Natural England in the Defra Family advice provided to the Project at Statutory Consultation, as presented in Annex C.1 of the Draft Agreed Statement of Common Ground between (1) National Highways and (2) Natural England [**REP7-106**]. **Landscape character** The effects of the proposed ancient woodland compensation planting north of Park Pale on the landscape character of the West Kent Downs (sub area Shorne) LLCA have been considered in Table 3.3 of ES Appendix

		7.9: Schedule of Landscape Effects [**APP-384**] (pages 103 to 111). Two of the key characteristics of the West Kent Downs (sub area Shorne) LLCA are the extensive areas of woodland and the strong sense of enclosure created by this woodland. These key characteristics have been summarized Area on page 19 of the Kent Downs AONB Landscape Character Assessment Update 2020[15]. The proposed planting in this area is therefore not considered to be out of character for the West Kent Downs (sub area Shorne) LLCA. The assessment commentary in Table 3.3 of ES Appendix 7.9 (page 104) states that there would be a '*permanent conversion of pasture fields to woodland and grassland habitat*' at opening year (winter) as a result of the ancient woodland compensation planting. Effects of the Project as a whole on the West Kent Downs (sub area Shorne) LLCA have been assessed as large adverse in opening year (winter); however, this is largely attributed to the continued absence of vegetation along the M2/A2 corridor and the resulting increased perception of the road corridor and highway infrastructure (refer to Summary: opening year (winter) on page 107). At the design year (summer), ES Appendix 7.9 (page 110) states that planting in the ancient woodland compensation site would '*help reduce the perception of the M2/A2 corridor and reinforce the wooded landscape character within this part of the LLCA*'. This conclusion was reached following a review of the design intent for the land east of Brewers Wood within Section 5.3 of the outline Landscape and Ecology Management Plan [**REP7-132**], Sheets 2 and 4 of the Environmental Masterplan for Sections 1 and 1A [**REP4-124**], Clauses S1.06, S1.07 and S1.08 of the Design Principles [**REP7-140**] and paragraphs 4.5.2 and 4.5.3 of the Project Design Report Part D: General Design South of the River [**APP-509**]. Overall effects on the West Kent Downs (sub area Shorne) LLCA have been assessed as moderate adverse in design year (summer); however, this is due to the permanent loss of vegetation along the M2/A2 corridor and the associated increased perception of the road corridor and highway infrastructure (refer to Summary: design year (summer) on page 110). Although the area north of Park Pale is largely open in character, it is also influenced by the existing M2/A2 corridor and buildings at Harlex Haulage. It was therefore considered that softening the appearance of the M2/A2 corridor and buildings at Harlex Haulage would be of benefit to local landscape character. The greater enclosure created in the landscape by the ancient woodland compensation planting was also considered to align with the key characteristics of the West Kent Downs (sub area Shorne) LLCA stated in ES Appendix 7.9 (in column 1 on page 103), particularly as the design would include open rides and glades with a graduated woodland edge and would maintain vistas through the planting to features such as Darnley Mausoleum, as stated in Section 5.3 of the outline Landscape and Ecology Management Plan [**REP7-132**]. **Visual amenity** The ancient woodland compensation site north of Park Pale has been considered at Representative Viewpoint S-03 in Table 3.1 of ES Appendix 7.10: Schedule of Visual Effects [**APP-385**] (page 76). As stated on page 15 of the Applicant's comments on Interested Parties' submissions at Deadline 6 [**REP7-187**], a large adverse effect has

		been assessed at opening year (winter), which is an increase in the effect reported in ES Appendix 7.10 (page 76). The large adverse effect is predominantly attributed to the modified A2 corridor being noticeably more visible in the view. A moderate beneficial effect has been assessed at design year (summer) in Table 3.1 of ES Appendix 7.10 (page 76), on account of the beneficial screening provided of existing buildings at Harlex Haulage and infrastructure along the A2 and HS1 corridors. **Cultural heritage north of Park Pale and east of Brewers Wood** The examination of the historic mapping, in particular the 1768–69 map of Cobham and Shorne (Plate 5.19) and the 1801 Mudge Map (Plate 5.23), carried out as part of the historic landscape characterisation reported in ES Appendix 6.1 Cultural Heritage Desk-based Assessment [**APP-351**], shows that the area proposed for ancient woodland compensation planting has changed in nature since the eighteenth century. The 1768–69 map shows the site to be predominantly wooded, but by 1801 the informal parkland of pasture and stands of trees visible today had been established. The ancient woodland compensation planting design responds to the historic landscape character by incorporating existing scattered trees within glades, by retaining areas without planting and by incorporating significant breaks in planting that allow longer views, for example, to the Darnley Mausoleum and views to the wider Kent Downs AONB, as required by Clause S1.08 of the Design Principles [**REP7-140**]. Refer to the photomontage at Representative Viewpoint S-03 submitted at Deadline 6 [**REP6-036**], which illustrates views remaining to a group of existing trees within an open ride and long-range views remaining towards Darnley Mausoleum. The cultural heritage assessment in ES Chapter 6: Cultural Heritage [**REP4-116**] examined the impact on heritage assets and potential archaeological remains. Five heritage assets have been identified within the Kent Downs AONB north of Park Pale in ES Appendix 6.10: Assessment Tables [**AS-052**]. These comprise a former water channel (Asset 1865 on page 157) identified during the Applicant's heritage walkover survey, a Post Medieval well (Asset 4167 on page 371) identified during the Applicant's study of historic mapping and three heritage assets: a Post Medieval copper alloy token (Asset 1991 on page 158), the site of the former Cobham Golf Course club house (Asset 1997 on page 158) and a Medieval silver coin (Asset 4064 on page 172) identified from the Kent Historic Environment Record. Impacts have only been identified for Assets 1865 and 1997, which are reported in paragraph 6.6.90 of ES Chapter 6: Cultural Heritage [**REP4-116**]. The desk-based work does not suggest a great potential for unknown archaeological remains across the area, but there is Mesolithic material known from within Shorne Woods and the presence of two dry valleys suggest there is potential for archaeological remains. Therefore, the Applicant is presenting a programme of further archaeological work in ES Appendix 6.9: Draft Archaeological Mitigation Strategy and Outline Written Scheme of Investigation [**REP7-128**]. **Blue Bell Hill nitrogen deposition compensation site within the Kent Downs AONB** *Design approach*

		Section 5.16 of the outline Landscape and Ecology Management Plan [**REP7-132**] sets out the management requirements for the Blue Bell Hill site, including: '*d. Integrate biodiversity objectives with other objectives wherever feasible and not undermining the biodiversity objective* *i. Existing interests such as AONB / Landscape, Conservation areas and Heritage assets…* *iii. Habitat creation shall be designed to conserve and enhance the existing landscape character of the Kent Downs AONB* *e. reflect the historic landscape characteristics of the Blue Bell Hill site where appropriate, such as historic field boundaries, recreation of shaws*' Clauses LSP.25 and LSP.26 of the Design Principles [**REP7-140**] have been included to ensure the detailed design of the nitrogen deposition compensation site maintains a sense of openness along recreational routes, avoids the obstruction of views and seeks to screen existing visual detractors wherever practicable. **Landscape character** The nitrogen deposition compensation site at Blue Bell Hill has been considered within the Mid Kent Downs (sub area Bredhurst) LLCA in Table 3.3 of ES Appendix 7.9: Schedule of Landscape Effects [**APP-384**] (pages 123 to 125). A neutral effect on landscape character has been assessed at opening year (winter) due to the limited change resulting from proposed planting, with ES Appendix 7.9 stating on page 123 '*The establishing habitats would not appear out of character within the existing wooded, arable landscape*'. A moderate beneficial effect on landscape character has been assessed at design year (summer), as the planting would noticeably '*enhance the wooded character of the LLCA*', as stated on page 125 of ES Appendix 7.9. **Visual amenity** The nitrogen deposition compensation site at Blue Bell Hill has been considered at Representative Viewpoints N-Dep-RV-07 to N-Dep-RV-09 in Table 3.1 of ES Appendix 7.10: Schedule of Visual Effects [**APP-385**] (pages 113 to 115). A neutral effect on views has been assessed at opening year (winter) due to the limited change resulting from proposed planting, with ES Appendix 7.10 stating on pages 113 to 115 '*Establishing small trees and shrubs would not appear out of character in the wooded, arable landscape. The potential use of protective guards to establish woodland planting would result in a barely noticeable adverse change in views*.' A moderate or slight beneficial effect on views has been assessed at design year (summer), as the planting would '*effectively extend the existing woodland within Malling Wood, Westfield Wood and Frith Wood*' and soften the appearance of existing communications masts and/or pylons, as explained on pages 113 to 115 of ES Appendix 7.10. **Cultural heritage** There are two high-value scheduled monuments in the vicinity of the Blue Bell Hill nitrogen deposition

		compensation site. Kit's Coty House Long Barrow (SM27) and The White Horse Stone, Aylesford (SM26) are located c. 635m south-west and c. 830m south of the Order Limits respectively. These assets are part of a larger group known as the 'Medway Megaliths'. This is a group of Neolithic funerary monuments situated around the valley of the River Medway (ES Chapter 6: Cultural Heritage [**REP4-116**] paragraph 6.4.21, page 38). Other heritage assets comprise the findspot of an Iron Age gold coin (Asset 4483) and a group of sarsen stones (Asset 4513) at the northern edge of Westfield Wood (ES Chapter 6: Cultural Heritage [**REP4-116**] paragraph 6.4.105, pages 57–58). The broad route of a Prehistoric trackway (Asset 4553) within the area is paralleled by (and sometimes merges with) the medieval route known as Pilgrim's Way (associated with the veneration of Thomas Beckett) and a Medieval 74olloway (Asset 4555) survives within the woodland on the southern slope of Blue Bell Hill (ES Chapter 6: Cultural Heritage [**REP4-116**] paragraph 6.4.106, page 58). The potential for further unknown archaeological remains exists and the Applicant has carried out a geophysical survey of the nitrogen deposition compensation site, and the results of this work will inform any further archaeological work. The only asset impacted by the planting proposals is the prehistoric trackway (Asset 4553) (ES Appendix 6.10: Assessment Tables, page 315 [**AS-052**]) and it is anticipated that further work will allow this, and any other archaeological remains discovered, to be incorporated into the planting proposals at the detailed design stage, for example, through ensuring no planting were to take place along the route of the trackway. Therefore, the Applicant is presenting a programme of further archaeological work in ES Appendix 6.9: Draft Archaeological Mitigation Strategy and Outline Written Scheme of Investigation [**REP7-128**]. **Nitrogen deposition compensation site south of Shorne village (Fenn Wood site), partially within the Kent Downs AONB** *Design approach* Section 5.14 of the outline Landscape and Ecology Management Plan [**REP7-132**] sets out the management requirements for the Fenn Wood site south of Shorne village, including: '*h. Integrate biodiversity objectives with other objectives wherever feasible and not undermining the biodiversity objective* *i. Existing interests such as AONB / Landscape, Conservation areas and Heritage assets…* *k. Habitat creation shall be designed to:* *i. conserve and enhance the existing landscape character of the Kent Downs AONB* *e. reflect the historic landscape characteristics…*' Clauses LSP.25 and LSP.26 of the Design Principles [**REP7-140**] have been included to ensure the detailed design of the nitrogen deposition compensation site maintains a sense of openness along recreational routes, avoids the obstruction of views and seeks to screen existing visual detractors wherever practicable.

		Landscape character The nitrogen deposition compensation site south of Shorne village has been considered within the Shorne Wooded Slopes and West Kent Downs (sub area Shorne) LLCAs. A neutral effect on the landscape character of the Shorne Wooded Slopes LLCA has been assessed at opening year (winter) in Table 3.3 of ES Appendix 7.9: Schedule of Landscape Effects [**APP-384**] (pages 134 to 136) due to the limited change resulting from proposed planting, with ES Appendix 7.9 stating on page 134 '*The establishing planting would not appear out of character within the wooded, arable/pasture landscape*'. A moderate beneficial effect on landscape character has been assessed at design year (summer), as the planting would noticeably '*enhance the wooded character of the LLCA*' as stated on page 136 of ES Appendix 7.9, in combination with other areas of compensation planting within the LLCA. The assessment commentary in ES Appendix 7.9 states for the West Kent Downs (sub area Shorne) LLCA on page 104 that there would be a '*permanent conversion of pasture fields to woodland and grassland habita*t' at opening year (winter) as a result of the nitrogen deposition compensation site. Effects on the West Kent Downs (sub area Shorne) LLCA have been assessed as large adverse in opening year (winter), although this is largely attributed to the continued absence of vegetation along the M2/A2 corridor and the associated increased perception of the road corridor and highway infrastructure (refer to Summary: opening year (winter) on page 107). At design year (summer), the nitrogen deposition compensation site has not been specifically mentioned in the assessment commentary. However, it is considered that the planting would help to reinforce the wooded character of the LLCA, as explained for the Shorne Wooded Slopes LLCA on page 136 of ES Appendix 7.9. **Visual amenity** The nitrogen deposition compensation site south of Shorne village has been considered at Representative Viewpoint N-Dep-RV-02 in Table 3.1 of ES Appendix 7.10: Schedule of Visual Effects [**APP-385**] (page 110). A neutral effect on views has been assessed at opening year (winter) due to the limited change resulting from proposed planting, with ES Appendix 7.10 stating on page 110 '*Establishing small trees and shrubs would not appear out of character in the wooded landscape…The potential use of protective guards to establish woodland planting would result in a barely noticeable adverse change in views*'. A moderate beneficial effect on views has been assessed at design year (summer), as the planting would '*effectively extend the existing woodland within Shorne Woods Country Park at the edge of Shorne Ridgeway village*', with '*open glades and occasional vistas…incorporated…to maintain variety and interest*', as stated on page 110 of ES Appendix 7.10. **Cultural heritage** There is one heritage asset within the nitrogen deposition compensation site south of Shorne village, a ring ditch and barrow, probably dating to the Bronze Age (Asset 1474) (ES Chapter 6: Cultural Heritage [**REP4-116**] paragraph 6.4.27, page 40 and paragraph 6.6.67, page 174).The potential for further unknown archaeological remains exists and the Applicant has programmed a geophysical survey of the nitrogen deposition compensation

		site, and the results of this work will inform any further archaeological work. It is assumed that the geophysical survey will provide sufficient detail to determine the extent of the ring ditch and barrow (Asset 1474) and allow for its preservation *in situ* within the detailed design. The geophysical survey may also identify additional archaeological remains, which will require further investigation. Therefore, the Applicant is presenting a programme of further archaeological work in ES Appendix 6.9: Draft Archaeological Mitigation Strategy and Outline Written Scheme of Investigation [**REP7-128**].
		Natural England response Natural England notes that the Applicant does not appear to have specifically assessed the implications, at the plot level, of the proposed woodland compensation planting north of Park Pale for the landscape character nor visual receptors within the Kent Downs AONB. They state 'The effects of all relevant Project elements, including compensation planting plots, have been considered together as a whole on Local Landscape Character Areas (LLCAs) and views rather than as separate Project elements' and detail that such an approach is in accordance with Paragraph 3.17 of the Design Manual for Roads and Bridges (DMRB) LA107 (Landscape and visual effects)[1]. Paragraph 3.17 of LA107 states that: 'Landscape character assessment, the key tool to understanding the landscape, shall describe the variation in the landscape's character against the baseline, explaining a project's likely effect on a combination of landscape components, which include: 1) natural/physical (i.e. geology/soils, land form, river/drainage systems, land cover/vegetation, buildings); 2) aesthetic/perceptual (i.e. appearance, architectural styles, scales, tranquillity), and 3) cultural/social (i.e. human interaction, land use, heritage, open spaces, street patterns) that together inform the character of the area' Reference is also made to 'Figure 3.17N Steps in assessing landscape effects' within LA107. This suggests that the Project should 'identify and describe likely landscape effects and for each effect' undertake an assessment of susceptibility and value, (which are combined to judge sensitivity of the receptor) and an assessment of the scale, duration and reversibility of the effect (which are combined to judge the magnitude of effect)/ The sensitivity and magnitude of effect are then combined to assess the significance of the landscape effect. The DMRB guidance does not therefore appear to preclude an assessment of individual Project elements. Given the significant, long standing concerns expressed by Natural England (within Examination Documents REP1-262, REP6-152 and REP9-154), the Kent Downs AONB Unit and Gravesham Borough Council regarding the impacts to both landscape character and visual receptors within the AONB with the proposed woodland planting to

[1] https://www.standardsforhighways.co.uk/search/bc8a371f-2443-4761-af5d-f37d632c5734

		the north of Park Pale, it is disappointing that no specific consideration of the landscape and visual impacts has been undertaken for this planting plot, instead combining the assessment to the West Kent Downs (sub area Shorne) Local Landscape Character Area (LLCA) within Table 3.3 of Examination Document APP-384. Whilst Natural England concurs with the Applicant that two of the key characteristics of the West Kent Downs (sub area Shorne), as detailed within the Kent Downs Landscape Character Assessment Update LLCA (included in Annex A to this submission)[2] are the extensive areas of woodland and the strong sense of enclosure created by this woodland. Section 2.4 of Kent Downs AONB Landscape Character Assessment Update details the 'Landscape Management Recommendations' for the West Kent Downs LLCA. Under the 'Protect' criteria, it is detailed that the aim is to 'Protect the extent of woodland and shaws, and the small-scale pastures and enclosures…'. As such, the conversion of the pasture to the north of Park Pale would appear contrary to the AONB Landscape Character Assessment; our advice therefore remains that the proposed woodland compensatory planting in this area is likely to result in significant landscape impacts. In terms of impacts to visual receptors, Natural England has provided detailed advice in our Written Representation, (Examination Document REP1-262), Section 7 of our Deadline 6 response (Examination Document REP6-152) and within Paragraphs 3.37-3.42 of our Deadline 8 Response (Examination Document REP8-154). Our advice remains that the proposed woodland compensation planting in this area will result in significant visual impacts to recreational users of the public right of way in the Kent Downs AONB through the removal of the open, panoramic view to the wooded landscape of the Kent Downs AONB to the south of the existing, well contained, A2 and High Speed 1 transport corridor. Natural England therefore continues to advise that the scale and nature of the landscape and visual impacts resulting from the proposed woodland planting to the north of Park Pale have not been fully assessed and we consider that the planting itself it likely to result in additional significant adverse landscape and visual impacts for the Kent Downs AONB. In relation to the Nitrogen Deposition compensation land proposals Natural England would expect the Applicant to fully engage with all relevant bodies at the detailed design stage to ensure that the design of the compensatory planting, including the mosaic of habitats (grassland, scrub and woodland) and layout works with the landscape and landform to maximise the beneficial landscape as well as ecological benefits.

[2] https://kentdowns.org.uk/wp-content/uploads/2023/01/2.0-LCA-1A_West-Kent-Downs_FINAL.pdf

PINS ID	Question to	Question / Response
ExQ3_Q16.1.3	Applicant Gravesham Borough Council, Thurrock Council, Kent County Council, Essex County Council, Kent Downs AONB Unit, Natural England, Other IPs interested in the design, function and operation of Green Bridges	**Green Bridges: serving multiple objectives** ExQ3 11.1.5 and 11.1.6 refer to the functions of the proposed Green Bridges in relation to biodiversity and habitat connectivity. However, evaluation of the proposed Green Bridges requires consideration of their performance in terms of multiple objectives and outcomes, including but not limited to: • Biodiversity • Habitat connectivity • The provision of non-motorised user (NMU) routes for people • Landscape and landscape mitigation, in general terms and (with reference to the Kent Downs) to AONB landscapes. With reference to these objectives but also to such other functions and outcomes as are considered relevant, please provide your summary assessment of the effectiveness of each Green Bridge proposed within your area of interest. If objectives and outcomes appear to be in competition or to pull in different directions, please indicate the particular objectives considered to be the most important and why.
		Applicant's Response: The Applicant has previously provided details of the ecological requirements for the green bridges in Post-event submissions, including written submission of oral comments, for ISH9 [**REP6-090**] and ISH6 [**REP4-182**]. In summary, the green bridges have been proposed to maintain commuting routes and/or to reduce the fragmentation of territories and habitats that are used by animals for foraging and movement between places of shelter, specifically for bats, badgers and dormice as identified in Section 8.6 of ES Chapter 8: Terrestrial Biodiversity [**APP-146**], ES Figure 8.29: Badger Survey Results [**APP-290**] and Section E3.4 of ES Appendix 8.16:

Draft EPS Mitigation Licence Application – Bats [**APP-408**]. As noted previously, the structures would potentially benefit other terrestrial species (e.g. reptiles, small mammals, amphibians, invertebrates, etc.), but they have not been identified from surveys as the key driver for provision of green bridges at the chosen locations identified below. In addition, the green bridges provide habitat connectivity between areas of new compensation planting and retained woodland and other important landscape features such a sunken lanes and double hedgerows, supporting the integration of the Project into the wider landscape. Further detail is provided below for the other objectives associated with the Project's green bridge provision.

Summary

Whilst each green bridge has been designed holistically, the table below illustrates the primary objective and secondary benefit of each.

Table 1 Green bridge objectives and benefits

Green bridge	Primary objective	Secondary benefits
Brewers Road	Part of a regional strategy for a wooded loop around the A2 junction. Gateway feature signalling entry/exit into AONB.	Enhanced habitat connectivity across the A2 corridor for habitats. Improves WCH connectivity over A2 corridor for those travelling between Shorne Woods Country Park and Ashenbank Wood.
Thong Lane south	Part of a regional strategy for a wooded loop around the A2 junction. Gateway feature signalling entry/exit into AONB.	Enhanced habitat connectivity across the A2 corridor for habitat. Improves WCH connectivity over A2 corridor for users on the Darnley Trail and those travelling between Shorne Woods Country Park and Jeskyns Community Woodland.
Thong Lane north	Woodland (landscape and habitat) connectivity – connecting Claylane Woods with Shorne Woods. Ancient Woodland compensation and resilience.	Point of intersection for the WCH recreational loops and facilitates PRoW diversions.
Muckingford Road	Habitat connectivity.	Wider WCH benefits connecting residential areas of Linford and East Tilbury and areas of employment. Landscape design responding to context.

Hoford Road	Habitat connectivity.	Retaining existing historic WCH access with sunken lane character. Landscape design responding to context.
Green Lane	Habitat connectivity.	Retaining existing WCH access to extended bridleway network. Landscape design responding to context.
North Road	Habitat connectivity.	Part of wider WCH strategy improving north/south connectivity for commuters and access to fenland landscape from the west. Landscape design responding to context.

Brewers Road green bridge

The planting strips along Brewers Road green bridge would aid the integration of the structure into the landscape and help reduce the perception of landscape severance north and south of the modified A2 corridor within the Kent Downs Area of Outstanding Natural Beauty (AONB). The planting strips would also help to screen views of traffic on the bridge from within the surrounding landscape, as well as screening views for users of the bridge towards the modified A2 corridor.

Further to this, Clause S1.04 of the Design Principles [**REP7-140**] states:

'*To act as local landmarks and to signal entry into the Kent Downs AONB for drivers, the vegetation on the bridges shall be visible on the horizon on their approach to the area from the east for Brewers Road green bridge, and from the west for Thong Lane green bridge south.*'

It also forms part of the regional landscape strategy as part of the wider 'wooded loop' shown on page 12 of the Project Design Report Part D: General Design South of the River [**APP-509**] and further to Clause S1.04 of the Design Principles [**REP7-140**] which states:

'*To provide planting on the green bridge that links into woodland planting to the edge of Gravesend in the west and the gateway to Shorne Woods Country Park in the east as part of a wider 'wooded circle' connecting Shorne Woods and Claylane Wood.*'

Brewers Road green bridge is an important crossing point of the A2 and links publicly accessible wooded areas of Shorne Woods Country Park in the north and Ashenbank Wood in the south. Improved walking, cycling and horse

		riding (WCH) connectivity over the A2 has been a longstanding user group request. The experience of crossing between these two recreational areas should be positive, pleasant and in keeping with the environment to north and south. Further to this, Clause S1.04 of the Design Principles [**REP7-140**] states Brewers Road green bridge shall be designed: *'To provide a high-quality experience for users crossing the bridge through vegetation and woodland planting. The green bridge shall improve recreation access across the A2/M2/Lower Thames Crossing corridor.'* **Thong Lane green bridge south** The planting strips along Thong Lane green bridge south would aid the integration of the structure into the landscape and help reduce the perception of landscape severance north and south of the modified A2 corridor within the Kent Downs AONB. The planting strips would also help to screen views of traffic on the bridge from within the surrounding landscape, as well as screening views for users of the bridge towards the modified A2 corridor. Further to this, Clause S1.04 of the Design Principles [**REP7-140**] states: '*To act as local landmarks and to signal entry into the Kent Downs AONB for drivers, the vegetation on the bridges shall be visible on the horizon on their approach to the area from the east for Brewers Road green bridge, and from the west for Thong Lane green bridge south*' It also forms part of the regional landscape strategy as part of the wider 'wooded loop' shown on page 12 of the Project Design Report Part D: General Design South of the River [**APP-509**] and further to Clause S1.04 of the Design Principles [**REP7-140**] which states: '*To provide planting on the green bridge that links into woodland planting to the edge of Gravesend in the west and the gateway to Shorne Woods Country Park in the east as part of a wider 'wooded circle' connecting Shorne Woods and Claylane Wood.*' Thong Lane green bridge south is an important crossing point of the A2 and links publicly accessible wooded areas of Shorne Woods Country Park in the north and Jeskyns Community Woodland in the south. The Darnley Trail links these two areas as well as other woodland spaces; it crosses the existing bridge over the A2/M2 at Thong Lane. Improved WCH connectivity over the A2 has been a longstanding user group request; this is a strategically important location for improved connectivity. The experience of crossing between these two recreational areas should be positive, pleasant and in keeping with the environment to north and south. Enough space should be given for the different user groups.

		Further to this, Clause S2.12 of the Design Principles [**REP7-140**] states that the design of Thong Lane green bridge south shall include: *'WCH provision, comprising a 3m shared pedestrian/cycle route and a 3.5m horse riding route'* **Thong Lane green bridge north** Planting along Thong Lane green bridge north would aid the integration of the structure into the landscape and help to screen views of traffic on the bridge from within the surrounding landscape, as well as screening views for users of the bridge towards the Project route. Further to this, Clause S2.04 of the Design Principles [**REP7-140**] states: *'The landscape across the bridge shall be designed to extend the character of the well-vegetated Thong Lane and connect woodland to the east and west to provide a habitat corridor for mammals.'* Page 49 of the Project Design Report Part D: General Design South of the River [**APP-509**] describes the landscape design rationale for Thong Lane green bridge north and states: *'Woodland planting along the eastern edge of Gravesend has been designed to form part of a circular wooded habitat corridor linking Claylane Wood and Brummelhill Wood. The green bridge has been designed to form a vital part of this wooded connection. The general arrangement creates a woodland corridor across the bridge that also creates a sense of separation between the Project and local road and WCH routes, whilst still ensuring a limited sense of enclosure around the footway/cycleway created by young woodland...'* *'The design draws inspiration from remnant hedgerows in the local vicinity, giving the landscape a level of maturity, whilst retaining a sense of openness through eye level inter-visibility.'* Page 21 of the Project Design Report Part E [**APP-512**] sets out the rationale for the WCH routes across this bridge; it states: *'Thong Lane green bridge north has been designed to become a focal point of WCH provision in the southern part of the Project. In addition to an environmental and ecological connection, this bridge forms the point of intersection between two proposed looping routes, one around the tunnel portal to the north and one around the junction to the south. As a consequence this bridge become the centre of a figure of eight recreational loop, part of the new north-south link between the A2 and A226 and part of the realigned east-west route between East Gravesend and Shorne Woods Country Park.'* The specific Public Rights of Way (PRoWs) to be diverted over this bridge are listed in Clause S2.02 of the Design Principles [**REP7-140**], which states:

		'In order to restore PRoWs severed by the Project and to create an enhanced user experience, PRoWs NS167 and NS169 shall be integrated into the new looping WCH route connecting around the M2/A2/A122 Lower Thames Crossing junction. Between Claylane Wood and Shorne Woods Country Park, this shall be via the Thong Lane green bridge north (Work No: 3B). NS167 shall not cross the junction.' The width of this bridge allows for WCH routes crossing this bridge both north and south of Thong Lane. In order to improve the WCH user experience these routes are separated from Thong Lane while not located close enough to the bridge parapet for the road below to become dominant. The quality of user experience is captured in Clause S2.04 of the Design Principles [**REP7-140**] which states: *'Woodland shall be designed to retain a sense of openness and intervisibility at eye level to make people feel safe when crossing the bridge, and not fully enclosed.* *The bridge shall provide a high-quality experience for users crossing the bridge using vegetation and woodland planting.'* **Muckingford Road green bridge** Hedgerows along Muckingford Road green bridge would help to screen views of traffic on the bridge from within the surrounding landscape, as well as screening views for users of the bridge towards the Project route. Muckingford Road green bridge forms part of the wider regional landscape strategy for the area, as described on page 11 of the Project Design Report Part D: General Design North of the River – Tilbury to the A13 Junction [**APP-511**] which states: '*Green bridges within the region provide habitat links for wildlife. In addition to the ecological function, the design of the green bridges reduce people's perception of crossing a bridge by giving the impression of a continuation of the roadside landscape drawing from the character of the roads of which they have become part of.*' *Page 48 of the Project Design Report Part D: General Design North of the River – Tilbury to the A13 Junction [APP-511] describes the multi-functional design rationale for Muckingford Road green bridge, and states:* *'Muckingford Road green bridge has been designed to provide a habitat link for bats, badgers and other wildlife. The design of the bridge draws inspiration from the character of the wider Muckingford Road and incorporates hedgerow planting adjacent to paved areas and a more open grassland character behind the hedge relating to the open character of adjacent fields.* *In order to counter the isolation of Linford, East Tilbury, and even further north to Stanford-le-Hope, east-west inter-urban connectivity for access to employment and services to Tilbury and Grays shall be improved in this location with Muckingford Road green bridge playing an important role. To help achieve this access improvement,*

		WCH connections will be enhanced across the bridge and also beyond, including a new shared track parallel to Muckingford Road between residential areas and areas of employment.' **Hoford Road green bridge** Hoford Road green bridge would help to maintain the character of Hoford Road Protected Lane across the Project route. Hedgerows along the bridge would help to screen views for users of the bridge towards the Project route. Hoford Road green bridge forms part of the wider regional landscape strategy for the area, as described on page 11 of the Project Design Report Part D: General Design North of the River – Tilbury to the A13 Junction [**APP-511**] which states: '*Green bridges within the region provide habitat links for wildlife. In addition to the ecological function, the design of the green bridges reduce people's perception of crossing a bridge by giving the impression of a continuation of the roadside landscape drawing from the character of the roads of which they have become part of.*' Page 52 of the Project Design Report Part D: General Design North of the River – Tilbury to the A13 Junction [**APP-511**] describes the design rationale for Hoford Road green bridge, and states: *'The character of Hoford Road varies widely along its length. There are places where the existing road appears to have been raised above the surrounding valley floor and other areas where the road's surface lies well below the surface of the adjacent land. The existing enclosure created by the sunken character is further intensified by the dense vegetation lining the route in these locations. To limit the Project's impact on users of Hoford Road, the sunken lane character is adopted along the proposed replacement parts of the route and over the proposed Hoford Road green bridge. The enclosed character created by the route lying below surrounding ground along with roadside hedgerow planting has been designed to limit views toward the Project route. Where the route is diverted to allow the road to remain below surrounding levels, the existing roadside vegetation has been retained where reasonably practicable, and reinforced to further limit views to and the perception of noise from the Project.'* **Green Lane green bridge** Green Lane is both a farm track and a bridleway (BR161). Hedgerows along Green Lane green bridge would help to screen views for users of the bridge towards the Project route and soften the appearance of the bridge structure slightly. Page 28 of the Project Design Report Part D: General Design North of the River – North of the A13 Junction to the M25 [**APP-510**] describes the landscape design rationale for Green Lane green bridge and states: '*The existing vegetation along Green Lane creates a varied experience for users of the route. At times, the existing vegetation encompasses the lane on both sides creating an enclosed and shaded space. Elsewhere, the vegetation is much more open on one side providing views into the surrounding open farmland. At other times, the*

		lane is open on both sides providing expansive views toward distant higher land. The variance in the level of the enclosure is an asset, providing a varied experience for users who are moving relatively slowly through the landscape. The enclosed areas create a level of contrast that helps to accentuate open views. The landscape design for the green bridge over the proposed Project route draws inspiration from the more enclosed parts of Green Lane to reduce the impact the proposal has on the lane. More open views have been designed to form part of the character of the lane at points more removed from the Project route and associated earthworks, the openness accentuated by the enclosure created by the proposed works.' **North Road green bridge** Hedgerows along North Road green bridge would help to screen views for users of the bridge towards the Project route and soften the appearance of the bridge structure slightly. North Road green bridge forms part of the wider regional landscape strategy for this area, as described on page 10 of the Project Design Report Part D: General Design North of the River – North of the A13 Junction to the M25 [**APP-510**] which states: '*The landscape proposals will ensure that green connections are maintained and enhanced wherever possible. These include the creation of green bridges and the linking of woodland for both visual and habitat connectivity over the Project route and the existing M25.*' Page 32 of the Project Design Report Part D: General Design North of the River – North of the A13 Junction to the M25 [**APP-510**] describes the landscape design rationale for North Road green bridge and states: '*The existing North Road is a key connection route between North Ockendon and South Ockendon. It currently doesn't include any provision for WCH users and is enclosed by dense hedgerow planting creating an undesirable environment for WCH users wishing to use the route. The proposed design includes a designated off-road WCH route on the green bridge and extending north and south of the bridge. The proposed hedgerow planting reflects the existing character of North Road. The bridge forms part of improved connections across the Project route and into an improved PRoW network.*'
		Natural England response Natural England has provided extensive advice on the likely effectiveness of the Green Bridges from a habitat and species connectivity perspective, including within our Deadline 4 advice (Examination Document REP4-324), our Deadline 7 response (Examination Document REP7-215) response to ExQ3 11.1.5, 11.1.6 and 11.1.7 at Deadline 8 (Examination Document REP8-155). We have also provided further advice on these questions above in response to the Applicants comments on the same ExQ3 questions. We have not repeated this advice in response to ExQ 16.1.3. Instead, we have focused our response to the Applicant's comments on the effectiveness of the Green Bridges in providing recreational routes for non-motorised users and delivering

		landscape mitigation in the Kent Downs AONB. As detailed in Natural England's evidence at Issue Specific Hearing 11 (summarised in our Deadline 8 response, Examination Document REP8-154), Natural England does not consider in their current form, the Brewers Road and Thong Lane south Green Bridges will be effective in achieving landscape scale connectivity for the AONB nor provide a high-quality user experience for recreational receptors (as stated by the Applicant within the Design Principles, Examination Document REP8-083). Our advice remains that the bridges are unlikely to be effective from a landscape mitigation and recreational users perspective for the reasons raised in our previous submissions and summarised below: • The limited design of the bridges which do not align with good practice guidance; • The narrow width of the planting and how this will be distributed (on the east or west side, or both); • The lack of clarity on how a high-quality recreational user experience will be achieved (we would advocate integration of the walkers, cyclists and horsderider routes within the habitat to provide a high-quality experience) • Lack of high quality, semi-natural habitat to the south of the bridges parallelly to the A2 for users to benefit from (until they reach the crossing to take them over the Darnley Lodge Lane); • Lack of noise attenuation measures being incorporated into the bridge design and joining routes; and • Concerns regarding the lighting impacts. Provision of high quality Green Bridges at Brewers Road and Thong Lane south are the only real mitigation measure that can be provided within the Kent Downs AONB in the immediate locality of the Project to further reduce the significant adverse impacts assessed by the Applicant, a fact acknowledged by the Applicant in their Design Principles (Examination Document REP8-083) in which they states for both of these Bridges that 'The bridge shall provide a high-quality experience for users crossing the bridge through vegetation and woodland planting'. Given their current design and scale, we do not have confidence that a high-quality experience will be achieved for the Bridges. Natural England suggested amendments to the Design Principles within our response to ExQ3 Q16.1.3 (Examination Document REP8-155) and have also suggested amendments to the new clause LST.04 (lighting) in Section 1.1 of this letter. We also recommended in our Deadline 7 response (Examination Document REP7-215) that the Applicant further considers the design of their bridge over the A21 at Scotney Castle which they confirmed was 'designed primarily for landscape and heritage benefits' within the High Weald AONB given they accept this is a good practice example for landscape. Our advice remains that the Applicant should commit to

		delivery of Green Bridges within the AONB that meet current good practice guidelines and examples across the transport network, such as the A21 Lamberhurst bypass. These measures combined would help to reduce the residual adverse impacts and also ensure the scheme accord with Section 5.1.53 of the National Policy Statement for National Networks, which states that (our emphasis): 'Where consent is given in these areas, the Secretary of State should be satisfied that the applicant **has ensured that the project will be carried out to high environmental standards** and where possible **includes measures to enhance other aspects of the environment**. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered.'

PINS ID	Question to	Question / Response
ExQ3_Q17.1.1	All IPs	**Habitats Regulations Assessment and the Report on the Implications for European Sites** The ExA directs all IPs but specifically NE, MMO, PLA, EA and Local Authorities to the questions posed within the Report on the Implications for European Sites (RIES) as issued by the ExA on 14 November 2023. The questions relate to clarifying matters or seeking information required to inform the Habitats Regulations Assessment (HRA) and the recommendation to the Secretary of State. Comments on the RIES and responses to questions are timetabled for Deadline 8 (5 December 2023). At this time, should disagreements about any aspect of the HRA remain, the Applicant and any relevant IP are requested to submit a statement setting out what is required, in their view, to enable agreement. There will be circumstances where to be of practical use, this will need to be in the form of a 'without prejudice' statement, where one party may acknowledge that they do not agree with an in-principle position taken by another, but they also set out in practical terms the actions that would be necessary to address the issue, without conceding their basic point that such actions are not necessary.
		Applicant's Response: For the Applicant's detailed response to these matters, please refer to the following documents submitted at Deadline 8: • Applicant's comments on the Report on Implications for European Sites (RIES) [**Document Reference 9.197**] • Applicant's detailed response to comments made by Natural England on HRA matters [**Document Reference 9.198**] • Assessment of the air quality effects on European sites following Natural England advice [**Document Reference 9.199**]
		Natural England response Natural England has provided our advice in relation to this question in our response to the Applicant's documents listed above.

1.5 Applicant's comments to Interested Parties submitted at Deadline 7

1.5.1 Having reviewed the Applicant's response to comments made by Interested Parties at Deadline 7 (Examination Document REP8-119) Natural England has the following comments to make.

Tilbury Link Road

1.5.2 With respect to the Applicant's response to Natural England's submission regarding the Tilbury Link Road (and the passive provision to be provided under Article 17 of the draft DCO), we welcome the Applicant's comment that 'This passive provision is not intended to prejudice or constrain the future alignment options for the TLR'. We further note that 'certain physical features would act as design constraints to any future connection point, such as the Tilbury Loop railway line and the North Tunnel Portal location.' These high-level physical constraints are noted and understood, and whilst we do not wish to make further comment for the purposes of Examination (other than our proposed initial drafting of the draft DCO), we have requested from the Applicant a briefing as to the practical requirements of passive provision, so as to better understand the implications arising.

The Wilderness

1.5.3 We note the Applicant's proposals in Section 5 of Examination Document REP8-119 that they will update Chapter 8: Terrestrial Biodiversity (Examination Document APP-146) for submission at Deadline 9 to include the assessment of the impact of the scheme on 0.44ha of the overall Wilderness woodland habitat which is now designated ancient semi natural woodland. We note their conclusion that the compensation already provided for ancient woodland losses from the scheme is considered to be appropriate and proportionate to the likely significant effects on ancient woodland that now include the area of designated ancient woodland within The Wilderness. We maintain our position as at Deadline 7 that the Applicant should continue to seek reductions in ancient woodland losses and maximise opportunities for ancient woodland compensation through detailed design.

1.5.4 Natural England notes the Examining Authorities Procedural Decision request in relation to The Wilderness and Natural England's advice in Procedural Decision 051 and will endeavour to respond to this at Deadline 9a, as requested.

Mammal Culverts

1.5.5 Natural England notes that the Applicant has provided locations details of the proposed Mammal Culverts in Plates 1 and 2. No evidence, both in terms of their design and location, has been provided by the Applicant to provide certainty on the effectiveness of the mammal culverts for target species for the Thong Lane south and Brewers Road Green Bridges (including dormice, badgers, reptiles, bats and great crested newts as detailed in Examination Document REP7-141).

1.5.6 As detailed in item 2.1.35 of our Statement of Common Ground (Examination Document REP8-013), Natural England remains concerned by the lack of habitat connectivity from the Brewers Road Green Bridge to habitats south of the A2. Habitat connectivity into Ashenbank Woods is a key component of connecting the landscape that we have sought from the Applicant during pre-application discussions. We recommend the Applicant should bolster the existing arboreal connectivity over Halfpence Lane from the thick hedgerow around the Cobham Hall Estate to Ashenbank Woods. The mammal culvert to the north of the Brewers Road Green Bridge will not provide habitat connectivity between the woodland blocks north and south of the A2 corridor.

1.5.7 Natural England therefore maintains our advice that the Applicant should commit to achieving habitat connectivity for species south of the Brewers Road Green Bridge (as detailed in item 2.1.35 of our Statement of Common Ground) to ensure the Green Bridge is effective from a species and habitat connectivity perspective.

Viewpoint S-11

1.5.8 Natural England notes that Applicant's narrative and updated consideration of visual impacts following the submission of the additional visualisations for Viewpoint S-11 at Deadline 6. Having reviewed the Applicant's commentary, we remain concerned with the nature and scale of the impacts resulting from the Project and note the Applicant's statement that 'that there is an opportunity to further refine the landscape design at the detailed design stage, to provide further screening to the HS1 tunnel entrance and increased tree cover on the Brewers Road embankment in keeping with the existing parkland backdrop in this location'. We would seek clarity on how this will be secured and delivered given our concerns regarding the ambiguity of wording within the securing mechanisms and control documents. We would recommend that Applicant commits to, and provides a clear, unambiguous commitment within the REAC or Design Principles.

1.6 Environmental Statement Addendum (Volume 9)

1.6.1 Having reviewed the Environmental Statement Addendum Volume 9 (Examination Document REP8-093), Natural England has the following comments to make.

1.6.2 Natural England has provided further advice in relation to The Wilderness in Section 1.5.3 of this letter.

1.7 Applicant's comments on the Report on the Implications for European Sites (RIES)

1.7.1 Unfortunately. due to colleague availability, Natural England has not been able to review the Applicant's comments on the RIES (Examination Document REP8-121), and will endeavour to provide these at Deadline 9a. W e apologise for any inconvenience that this may cause.

1.8 Applicant's detailed response to comments made by Natural England in HRA matters

1.8.1 Unfortunately. due to colleague availability, Natural England has not been able to review the Applicant's comments on the RIES (Examination Document REP8-121) and will endeavour to provide our comments at Deadline 9a. We apologise for any inconvenience that this may cause.

1.9 Assessment of air quality effects on European sites following Natural England advice

1.9.1 Unfortunately, due to colleague availability, Natural England has not been able to review the Applicant's Examination Document REP8-122 and will endeavour to provide our comments at Deadline 9a. We apologise for any inconvenience this may cause.

1.10 Draft bat European protected species mitigation licence application

1.10.1 Having reviewed the Applicant's draft bat protected species mitigation licence application (Examination Documents REP8-050 to 057), Natural England has no comments to make further to those within our Letter of No Impediment.

1.11 Draft dormouse European protected species mitigation licence application

1.11.1 Having reviewed the Applicant's draft dormouse protected species mitigation licence application (Examination Documents REP8-058 to 073), Natural England has no comments to make and confirm that our advice within our Letter of No Impediment remains valid.

1.12 Draft great crested newt European protected species mitigation licence application

1.12.1 Having reviewed the Applicant's draft great crested newt protected species mitigation licence application (Examination Documents REP8-074 to 075), apart from the raw survey data appearing to be missing from the submission, Natural England remain satisfied that the advice provided in our letter of no impediment remains appropriate.

1.13 Draft badger development licence

1.13.1 Natural England has not been able to reviewed the Applicant's submitted draft development licence application (Examination Documents REP8-076 to 077), as it is not possible to view the document due to its confidential nature.

1.14 Draft water vole conservation licence

1.14.1 Having reviewed the Applicant's draft bat protected species mitigation licence application (Examination Document REP8-078), Natural England has no comments to make and confirm that the advice within our Letter of No Impediment remains appropriate for water voles.

2 Natural England's delayed comments on the Examining Authority's commentary on the draft Development Consent Order carried forward from Deadline 8

2.1 Natural England apologises for not being able to provide our response to Examining Authority's commentary on the draft Development Consent Order from Deadline 8 and our comments below remain helpful.

Question	Natural England Response
3.3. Certified and Control documents	
QD3: Are there any documents that have been submitted to the Examination that should be certified but are not recorded in the dDCO	We welcome the Applicant's proposal (9.194 Applicant's response to the Examining Authority's commentary on the dDCO, submitted Deadline 8) to (1) include the Mitigation Route Map [REP4-203]; and (2) amend the title of the Code of Construction Practice to improve the visibility of the REAC.
QD5: Should Schedule 16 be restructured to set out the proposed certified documents in functional groupings?	We agree that restructuring would aid clarity in the DCO. We welcome the Applicant's amendments to Schedule 16 set out in the dDCO submitted at deadline 8 (TRO10032/APP/3.1)
QD6: Should the REAC be individually identified in Schedule 16 (certified documents)?	We agree with Examiner's position on this point and welcome the Applicant's amendments to the dDCO at Deadline 8 to improve the visibility of the Register of Environmental Actions and Commitments (REAC) in Schedule 16 of the dDCO.
QD7: Should the Mitigation Road Map be included as part of the REAC, as a separate CD or certified document or not at all?	We agree that the Mitigation Road Map be secured and we support the Applicant's proposal (in 9.194 Applicant's response to the Examining Authority's commentary on the dDCO, submitted Deadline 8) to include it in Schedule 16 of the dDCO .
A53 and A55 Disapplication of legislative provisions, etc	
QD32: Does any IP have any concern that the draft provisions unreasonably or inappropriately seek to disapply or modify other applicable legislative provisions? If so, what changes are sought to this provision or the dDCO more generally and why?	Natural England's position regarding the disapplication of section E and H of the Wildlife and Countryside Act 1981 remains unchanged and is a matter not agreed in our Statement of Common Ground with the Applicant (SOCG item number 2.1.3).

	Our position is set out in our submissions at Natural England Written Representations (REP 1-262, paragraphs 2.1-2.10) and Annex B: Response to Applicant's proposed Disapplication of the Wildlife & Countryside Act (REP5-109). The latter includes our letter of the 14th February 2022 regarding the same matter in relation to the A417. This letter responds in full to the Burgess Salmon advice note which the Applicant has shared for the LTC (SOCG REP2-008 annex C.6). Our view remains that disapplication should not be included in the DCO and should not be allowed where there is a specific known prospect of a further SSSI (as is the case with the Lower Thames Crossing in relation to the North Thames Estuary and Marshes and was the case with the A417), as the impact on the further SSSI cannot be fully assessed at the time of the DCO being considered. The delivery of the Lower Thames Crossing, should it be consented, would not be delayed should the disapplication be deleted from the DCO in line with our advice.
Requirements generally Security for the REAC	
QD43: Local Planning and Highway Authorities, Port Authorities and Operators, Natural England, the Environment Agency and the Marine Management Organisation as asked whether the REAC commitments are sufficiently secured. If not, what specific additional references to the REAC are required in any of the existing draft Requirements, or are any additional Requirements sought (and if so reasons for their inclusion and drafts should be provided)?	In our submission to Deadline 8 Natural England is seeking amendments to the REAC itself: • D8 Annex 4 NE comments on the RIES, ref QR20 in the table, where we request an additional REAC commitment that will seek to limit the timing of works (particularly the installation of the regulated tidal exchange structure) to the least disturbing season, being guided by the seasonality advice set out within the Thames Estuary and Marshes SPA Conservation Objectives Supplementary Advice Package Advice on Seasonality2.' • D8 Annex 13 Other matters which Natural England would like to raise, section 13.20, where we request a specific REAC commitment wording to secure a more appropriate construction window for bridleway installation works. To avoid disturbing effects to the specific sensitive breeding bird species in this area, a construction window of September – December (inclusive) is recommended. To expedite this request we have suggested further drafting for REAC Commitment TB029 'Bowater sluice scrub clearance'.

	With regard to its commitments being adequately secured, we agree with the Examiner that the REAC is an essential and important document that has a life beyond the COCP. We do not request any additional requirements but we do welcome the Applicant's proposed amendments to Schedule 16 of the dDCO to ensure the REAC is given greater clarity and prominence in the dDCO.
Requirements generally Security for other CDs	
QD44: Local Planning and Highway Authorities, Port Authorities and Operators, Natural England, the Environment Agency and the Marine Management Organisation as asked whether the other CDs are sufficiently secured? If not, what specific additional references to specific CDs are required in any of the existing draft Requirements, or are any additional Requirements sought (and if so reasons for their inclusion and drafts should be provided)?	Natural England is content that the other control documents are sufficiently secured in the dDCO, subject to the amendments for clarity suggested by the Examining Authority at QD5 above.
R3 Detailed Design	
QD49: Are the design principles guiding the Proposed Development adequately secured and do any of the principles need to be amended? If amendments are sought, why are they required?	Natural England confirms that the Design Principles are adequately secured in the dDCO, however we are still seeking amendments to the content of the Design Principles as per our Written Representations (Examination Document REP1-262), our Deadline 8 (Examination Document REP8-154) and this Deadline 9 response. Our Deadline 8 requests are summarised below: • sections 3.21-3.31: maintaining the Design Principles and Green Bridges should much more closely align with the Green Bridges good practice guidance (Examination Documents REP4-329 and REP4-330) in terms of the minimum width of the green elements and their length to width ratio to ensure they meet the Project's objectives for ecological and landscape mitigation and connectivity. • section 3.24 requests a further amendment to ensure that the finish for the substations accords with the colour palette of the

	AONB and is consistent with the finishes for the street furniture along the A2 corridor within the AONB. • section 3.28 requests confirmation as to which side of the Bridges (east or west) the planting is to take place and where the walker, cyclist and horserider routes are to be placed. • D8 sections 3.29-3.31 requests amendments to the Terms of Reference for the Detailed Design Multi-Disciplinary Workshop (MDW) to secure more collaborative working.
R6, R7, R8 and R9 Contaminated land and groundwater, Protected species, Surface and foul water drainage. and Historic environment	
QD54: Do the Environment Agency, Natural England and Historic England consider that the approval process is sufficiently clear? Does it provide adequate security for initial stage commitments and for the REAC? If amendments are sought, why are they required?	Natural England is content that the approval process is sufficiently clear.
Understanding and using the Control Document set	
QD85: Do any IPs have any final submissions to make on the CDs and their content? • Is there superfluous content that could be removed? • Is there additional content that should be added? • Are there any other documents that should be certified and should form part of the CDs? Any responses to this question should be accompanied by an explanation of the changes sought and the reasons for them	Annex E to Natural England's Written Representation (Examination Document REP1-261) provides details on our concerns regarding the securing mechanisms with further comments made in our Deadline 8 response (Examination Document REP8-154) and further suggested amendments within this Deadline 9 response. These submissions provide the details regarding our requests for further amendments to the content of the oLEMP, REAC, and Design Principles. The relevant sections of our response are as follows: Written Representations • Annex E provides a detailed narrative of areas of concern and suggested amendments across the draft DCO, the Code of Construction Practice and the Design Principles. oLEMP • Deadline 8 sections 3.5-3.7, 3.20: suggested amendments to the Advisory Group ToR

	Design Principles • Deadline 8 sections 3.21-3.31: maintaining the Design Principles and Green Bridges should much more closely align with the Green Bridges good practice guidance (Examination Documents REP4-329 and REP4-330) in terms of the minimum width of the green elements and their length to width ratio to ensure they meet the Project's objectives for ecological and landscape mitigation and connectivity. • Deadline 8 section 3.24 requests a further amendment to ensure that the finish for the substations accords with the colour palette of the AONB and is consistent with the finishes for the street furniture along the A2 corridor within the AONB. • Deadline 8 section 3.28 requests confirmation as to which side of the Bridges (east or west) the planting is to take place and where the walker, cyclist and horserider routes are to be placed. • Deadline 8 sections 3.29-3.31 requests amendments to the Terms of Reference for the Detailed Design Multi-Disciplinary Workshop (MDW) to secure more collaborative working. REAC • Deadline 8 Annex 4 NE comments on the RIES, ref QR20 in the table, where we request an additional REAC commitment that will seek to limit the timing of works (particularly the installation of the regulated tidal exchange structure) to the least disturbing season, being guided by the seasonality advice set out within the Thames Estuary and Marshes SPA Conservation Objectives Supplementary Advice Package Advice on Seasonality2.' • Deadline 8 Annex 13 Other matters which Natural England would like to raise, section 13.20, where we request a specific REAC commitment wording to secure a more appropriate construction window for bridleway installation works. To avoid disturbing effects to the specific sensitive breeding bird species in this area, a construction window of September – December (inclusive) is recommended. To expedite this request we have suggested

	further drafting for REAC Commitment TB029 ‘Bowater sluice scrub clearance’.

This page is intentionally left blank