A303 Amesbury to Berwick Down

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8.10.7 Biodiversity, ecology and biodiversity (Ec.1)

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A303 Amesbury to Berwick Down

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Biodiversity, ecology and biodiversity (Ec.1)

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7 Biodiversity, ecology and biodiversity (Ec.1)

Question Ec.1.1

Cumulative and in-combination assessments

The ExA notes the separate legislative requirements for EIA cumulative assessment and HRA in-combination assessment.

i. Can the Applicant explain why the list of plans and projects presented in sections 2.4 of the Likely Significant Effects report [APP-265] and 3.4 of the Statement to Inform Appropriate Assessment [APP-266] makes no references to the consideration of 'other developments' with the potential for cumulative impacts as presented in section 15.2.20 of ES Chapter 15 [APP-053].

ii. Can the Applicant confirm that there are no pathways for in-combination effects between these projects identified in [APP-053] and the Proposed Development?

Response

i. Can the Applicant explain why the list of plans and projects presented in sections 2.4 of the Likely Significant Effects report [APP-265] and 3.4 of the Statement to Inform Appropriate Assessment [APP-266] makes no references to the consideration of 'other developments' with the potential for cumulative impacts as presented in section 15.2.20 of ES Chapter 15 [APP-053].

1. With regard to (i) the approach used in ES Chapter 15 [APP-053] is set out in paragraphs 15.2.7-15.20 and Table 15.2 [APP-053]). Table 15.2 explains the rationale for the Zone of Influence (ZoI) extent for potential cumulative impacts with other development used by each environmental topic. These individual ZoIs were subsequently combined to define an overall ZoI representing the search area within which other development has been identified. Much of this overall ZoI is remote from the European sites (Salisbury Plain Special Areas for Conservation (SAC), Salisbury Plain Special Protection Area (SPA), River Avon SAC), as described in the ES Chapter 8 Biodiversity [APP-046].
2. In contrast, the Likely Significant Effects (LSE) Report [APP-265] and Statement to Inform Appropriate Assessment (SIAA) [APP-266] select those projects or plans that could result in a significant effect on the European sites based on the existence of potential impact pathways and knowledge of the sensitivities of that site. This particularly relates to delivery of net new housing across Wiltshire and the resulting recreational pressure effect, which has been captured in the LSE report and SIAA through considering the relevant Local Plans, rather than attempting to list every individual planning application or site allocation for residential development as was the approach taken in ES Chapter 15 [APP-053].

3. The approaches used for the identification and consideration of other plans and projects for EIA cumulative assessment and HRA in-combination assessment are robust and appropriate for the respective assessments.

ii. Can the Applicant confirm that there are no pathways for in-combination effects between these projects identified in [APP-053] and the Proposed Development?

4. With regard to point (ii) the Applicant confirms that all relevant projects listed in Chapter 15 of the Environmental Statement [APP-053] have been taken into account in the LSE [APP-265] and SIAA [APP-266] through consideration of the relevant Local Plans, or equivalents, and the resulting net delivery of new housing. All pathways for 'in combination' effects expected between the Scheme and those relevant projects have been taken into account in the LSE and SIAA. Natural England was consulted on an early draft of the LSE report [APP-265] including its 'in combination' assessment and did not raise any concerns regarding the 'in combination' assessment in the final LSE report or SIAA [APP-266].

Question Ec.1.2

Green Bridges

Para 8.8.5 of the ES refers to the use of Green Bridges to provide sheltered crossing features to reduce mortality and improve connectivity to existing habitat features to aid crossing by bats and other species. These are supplemented by having the Scheme in cutting for much of its length and by the provision of false cuttings, typically two metres or more in height, to encourage birds and bats to fly over the height of most vehicles.

i. Is the width and design of the proposed Green Bridges sufficient to have a material effect in achieving this objective?

ii. Are there additional design features that could be incorporated to increase the effectiveness of the Green Bridges in this regard?

iii. How does the proposed scheme compare with the status quo in terms of fragmentation of habitats and potential for species mortality?

Response

i. ***Is the width and design of the proposed Green Bridges sufficient to have a material effect in achieving this objective?***

1. In response to (i), yes, the proposed widths and design of the green bridges are considered sufficient to achieve the objectives of the green bridges; to provide sheltered crossing features, to reduce mortality and improve connectivity to existing habitat features to aid crossing by bats and other species. It should be noted that when referring to overbridges, the width of the bridge is the distance between the bridge parapets (generally an east-west axis for the green bridges in the Scheme). The length of the bridge refers to the length of the span of the bridge (the length that crosses the A303). This is in line with Natural England's1 definitions.

2. The green bridges delivered as part of the Scheme are proposed to be in line with Natural England's1 recommendations (paragraph 4.1) regarding green bridges, with a view to ensuring they meet the relevant objectives.

3. In particular, the delivery of the overall width of Green Bridge Four (approximately 150 m) is secured in item D-CH4 of the Outline Environmental Management Plan (OEMP) [APP-187], compliance with which is secured in the requirement contained in paragraph 4 of Schedule 2 to the draft Development Consent Order (dDCO) [APP-020]. It should be noted in addition, that all Green Bridges are shown on the Engineering Section Drawings (Plan and Profiles) [APP-010], and the final Scheme design must be compatible with these drawings (unless

[1] Natural England (2015), Commissioned Report NECR181, Green Bridges, Literature Review

otherwise agreed by the Secretary of State) under the requirement in paragraph 3 of Schedule 2 to the dDCO

4. All of the green bridges will contribute to connectivity for wildlife. The structure of these bridges is likely to facilitate access for species to cross the bridges and to access the adjacent cuttings of the scheme, which has the potential to aid dispersal of invertebrates and plant seeds.

5. Under the requirement contained in paragraph 8 of the Schedule 2 to the dDCO, a landscaping scheme must be prepared and submitted to the Secretary of State for approval, with the approved scheme being implemented. As per this requirement, the scheme must be based on the mitigation measures contained in the Environmental Statement which would therefore cover measures to deliver the connectivity of the green bridges. In particular, mitigation measures related to biodiversity objectives for green bridges, which would be included in the landscaping scheme, would include:

    - Bunds to provide shelter for species crossing the Green Bridges;
    - Chalk grassland on green bridges and adjacent to it to provide habitat and cover for species crossing the bridges and provide connectivity to habitats along the A303;
    - Connectivity to bunds or false cuttings and other adjacent areas to help raise flight heights (MS-L5), with associated planting where appropriate;
    - No lighting on Green Bridges (or anywhere else except beneath Green Bridge Four and at Countess Roundabout) to provide suitable conditions for bats to cross (item D-CH11 of the OEMP).

ii. ***Are there additional design features that could be incorporated to increase the effectiveness of the Green Bridges in this regard?***

6. In response to (ii), suitable measures to ensure the effectiveness of the green bridges (e.g. the provision of habitat heterogeneity across the bridges that will provide a range of micro-climates to facilitate dispersal of fauna and flora) would be considered and reflected in both a scheme-wide Landscape and Ecology Management Plan (must be prepared as required in the OEMP [APP-187], MW-LAN1), as well as the detailed landscaping scheme required by the dDCO landscaping requirement highlighted above. Compliance with the OEMP is secured by paragraph 4 of Schedule 2 of the draft DCO [APP-202]. The precise details of planting and other habitat creation will be prepared at that stage.

iii. ***How does the proposed scheme compare with the status quo in terms of fragmentation of habitats and potential for species mortality?***

7. In response to (iii) the current A303 directly bisects the Salisbury Plain landscape, running 8km east to west between Amesbury and Winterbourne Stoke, which fragments the current habitats present in the landscape, a barrier with minimal habitat along the verges. The current A303 presents a barrier to movement of individual species, and there are operational impacts associated with the existing road, including direct mortality of particularly vulnerable species such as barn owl (as shown in the Environmental Statement, Figure 8.10 Barn Owl Habitat Suitability and Road Casualties) [APP-158], otter (ES Chapter 8 Biodiversity paragraph 8.9.232) [APP-046], and badger (ES Chapter 8 Biodiversity paragraph 8.9.234) [APP-046].

8. The habitat creation associated with the proposed Scheme is likely to assist with the realisation of linking Salisbury Plain with Porton Down[2] (both large areas of species rich calcareous grassland) and in the establishment of a coherent ecological network (as required by the National Planning Policy Framework paragraph 170 and National Networks National Policy Statement paragraphs 5.23 to 5.26) within the landscape. The contribution of the Scheme to the ecological network has been agreed in the Statement of Common Ground between Highways England and Natural England, issue 3.6, submitted into the Examination at Deadline 2.

9. The existing impacts associated with species mortality are likely to be reduced following construction of the proposed Scheme due to the inclusion of safe passage across the A303 in the form of moving a section of the A303 into a tunnel, and the delivery of the proposed green bridges, the River Till viaduct, B3080 underbridge and mammal tunnels, along with the suitable landscaping design. Furthermore the false cuttings, embankments, fencing and landscape planting are likely to deter individual species from crossing the A303 at unsafe places, and to funnel them towards the safe crossing areas (ES Chapter 8 Biodiversity, paragraphs 8.9.2178.9.227-228, 8.9.232, 8.9.234) [APP-046]. This will be secured within MW-BIO2 within the OEMP [APP-187], compliance of which is secured through the requirement contained in paragraph 4 of Schedule 2 to the dDCO, as well as the landscaping requirement in the dDCO

[2] Natural England (2019), Porton to Plain Wildlife Connections, *Creating wildlife connections from Porton Down to Salisbury Plain.*

Question Ec.1.3

Mammal underpasses

With regard to para 8.8.8 [APP-046] what evidence is there of features such as mammal underpasses being used by relevant species to maintain connectivity with foraging areas?

Response

1. Scientific literature supports the use of mammal underpasses (or tunnels) by species including badger (*Meles meles*). A study by Eldridge and Wynn (2011)[3] on the use of mammal underpasses on Highways Agency (now Highways England) road schemes investigated 38 tunnels, including both concrete and corrugated iron tunnels with diameters ranging from 300 -1000mm, of which 600 mm was the most frequent (the 'standard' width for mammal underpasses in the Design Manual for Roads and Bridges [4]). The study found that mammal underpasses are an effective means of mitigating the severance effect of all types of new road schemes, with 92% of the monitored mammal underpasses being used by animals, with 89% being used by badger. The study illustrated other mammal species also used underpasses, this included European Protected Species such as otter (*Lutra lutra*) and Species of Principal Importance such as hedgehog (*Erinaceus europaeus*).
2. A study by Knowles and Latham (2007)[5] on the use of dry culverts in Northumberland proved regular use by badgers in both directions as well as hedgehogs. A study by Mata (2003)[6], found that badgers predominantly used adapted culverts to pass under motorways. Hedgehogs, stoats and weasels and small mammals were also seen to use underpasses. A study in Portugal[7] found badgers regularly used crossing structures without obvious preference. Furthermore, the conclusion of a study undertaken by Natural England[8] stated "*from studies undertaken it has been shown that badgers will regularly use such structures* (culverts and mammal tunnels).

[3] Eldridge B. & Wynn J. (2011) Use of badger tunnels by mammals on Highways Agency schemes in England. *Conservation Evidence,* 8, 53-57

[4] Highways Agency (1997) Design Manual for Roads and Bridges, Volume 10, section 4, Part 2, HA59/92 http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol10/section4/ha5992.pdf.

[5] Baker A., Knowles M. & Latham D. (2007) Using clay drain seals to assess the use of dry culverts installed to allow mammals to pass under the A1 trunk road, Northumberland, England. *Conservation Evidence*, 4, 77-80

[6] Mata C. *et al.* (2003) Effectiveness of wildlife crossing structures and adapted culverts in a highway in North West Spain. ICOET 2003 Proceedings

[7] Grilo, Bissonette, Adair (2008) Respond of carnivores to existing highway culverts and underpasses: Implications for road planning and mitigation. *Biodiversity Conservation*, 17, 1685-1699.

[8] Natural England (2013) Literature review and analysis of the effectiveness of mitigation measures to address environmental impacts of linear transport infrastructure on protected species and habitats. Natural England Commissioned Report NECR132.

3. These studies give confidence in the likely effectiveness of mammal underpasses for the mitigation of severance of routes for mammals. In addition, in relation to the scheme, as well as the delivery of the mammal underpasses, the Shrewton Road underbridge will also provide north-south connectivity beneath the A303. The green bridges, River Till viaduct and routing the A303 into a tunnel will enhance connectivity for the mammal species in the area, because they will allow free movement of all mammal species to the north and south of the proposed Scheme.

Question Ec.1.4

Bat hibernation features

How would the bat hibernation features (para 8.8.9 [APP-046] effectively compensate for the loss of the underpass near the eastern portal?

Response

1. Paragraph 8.8.9 of the Environmental Statement Chapter 8 Biodiversity [APP-046] says: 'Two bat hibernation features have been incorporated into the design of the Scheme, to compensate for the loss of potential bat roosting features associated with the vegetation clearance and to compensate for the loss of an underpass near the eastern portal, which is an important commuting route for bats (Figure 2.5).' Paragraph 8.9.154 of ES Chapter 8 [APP-046] explains: *It was not possible to include into the design a crossing feature near to the underpass adjacent to Vespasian's Camp due to the topography of the surrounding ground and the Scheme*.' The reason the underpass could not be retained was because its northern end would be severed by the deep cutting to the east of the Eastern Portal of the A303 tunnel. For reasons of safety (public safety and for bats crossing) it would not be possible to leave the severed end of the underpass opening into the cutting. Two options were considered: 1. removing the remaining part of the underpass and backfilling it, or 2. Retaining the remaining length of underpass and modifying it for re-use as a roosting and hibernation structure for bats, as part of the Scheme-wide mitigation and enhancement for bats.

2. The conversion of the existing underpass from a route used as a crossing under the A303 to a roosting and hibernation structure is not intended as like-for-like compensation for loss of the existing crossing route at that location, but rather is part of a holistic or landscape-scale package of mitigation and enhancement measures for bats within the Scheme as a whole.

3. As part of the holistic approach, a combination of mitigation measures (Environmental Statement Chapter 8 Biodiversity paragraph 8.8.4 – 8.8.9, and 8.9.149 [APP-046]) are proposed to be included in order to:

    a. minimise the potential loss of roosting resource (trees that are suitable to support bat roosts); and

    b. minimise severance of commuting routes across the Scheme (in general).

4. The Scheme will provide new habitat with potential for future foraging and with features such as green bridges and the 3km tunnel to aid safe crossing of the A303. It will also include features for roosting (to compensate for losses of potential roosting resource) and for hibernation (as enhancement). Delivery of these measures are secured by commitments contained in, for example, the Outline Environmental Management Plan (OEMP) [APP-187], compliance with which is secured by the requirement contained in paragraph 4 of Schedule 2 to

the draft Development Consent Order (dDCO) [APP-020]. In addition, the principle of some of the measures is outlined in the Outline Landscape and Ecology Management Plan ('OLEMP') [APP-267]. Under the requirement contained in paragraph 8 of Schedule 2 of the dDCO, Highways England will be required to submit a detailed landscaping scheme for approval, which is required to be on the basis of the mitigation measures set out in the ES, which includes the OLEMP.

5. The underpass adjacent to Vespasian's Camp was considered to have negligible suitability for roosting bats [APP-261] and [APP-161]. The underpass was, however, considered to be used by bats to commute either north or south of the current A303 [APP-160], the removal of which may result in a fragmentation effect, if not mitigated. As stated within the Environmental Statement Chapter 8 Biodiversity (paragraph 8.9.154) [APP-046] and above, it was not possible to include a crossing feature in the design at the exact location of the underpass (adjacent to Vespasian's Camp), due to the topography of the surrounding ground and the Scheme. Instead a combination of mitigation measures relevant to bats are proposed to be incorporated in the vicinity of the Vespasian's Camp underpass, to ensure no adverse effects on the local populations of bats. As well as the diversion of the A303 into 3km of tunnel west of the underpass, thereby improving the north-south connectivity, as indicatively illustrated within Figure 8.14 [APP-160], mitigation measures would likely include:

    - Retention of most of the embankment where the underpass is located and the existing vegetation along the south side of the A303 embankment would minimise the impacts of loss of the underpass as a crossing, by guiding bats towards suitable foraging areas; and
    - Inclusion of hibernation features within the retained part of the underpass beneath the retained vegetated embankment.

6. As set out above, under the requirement contained in paragraph 8 of Schedule 2 of the dDCO, Highways England will be required to submit a detailed landscaping scheme for approval, which is required to be on the basis of the mitigation measures set out in the ES – the final details of certain mitigation measures will therefore be included in this submitted landscaping scheme. The obligation to act in compliance with this scheme is reflected in item MW-LAN2 of the OEMP.

7. The proposed inclusion of the suitable hibernation features within areas where higher levels of bat activity and species abundance has been recorded (Appendix 8.20 [APP-261] and Figure 8.15B [APP-161]), would increase the likelihood of occupation.

8. The proposed positioning a bat structure within the severed and sealed underpass (the other is next to the Till valley) would represent efficient and beneficial re-use of a redundant structure. It is at a location, which (due to its existing use as a crossing) is likely to be readily found and utilised by bats. As such, the proposed mitigation embedded within the design is considered to be

proportionate to the likely impacts associated with the loss of trees suitable for roosting bats and Vespasian's Camp underpass.

Question Ec.1.5

Connectivity

Given the importance of buildings in the Countess Farm complex as known bat roosts, have any measures been included to mitigate potential impacts on bats flying between the roosts and potential foraging areas south of the proposed flyover?

Response

1. The crossing point surveys only recorded a total of six bats crossing the A303 in a north or south direction during the six hours of surveys undertaken, none of which were confirmed to have emerged / re-entered from the Countess complex [APP-160]. Designs of the Countess flyover and Countess roundabout would be able to incorporate suitable and proportionate measures to reduce the potential impacts on the likely limited number of individual bats that may commute south from the roosts at Countess Farm Complex.
2. Under the requirement contained in paragraph 8 of Schedule 2 of the draft Development Consent Order (dDCO) [APP-020], Highways England will be required to submit a detailed landscaping scheme for approval, which is required to be based on the mitigation measures set out in the Environmental Statement (ES). The obligation to act in compliance with this scheme is reflected in item MW-LAN2 and MW-BIO2 of the OEMP. The mitigation measures in the ES which would likely be secured within the submitted scheme would include avoiding, where possible, loss of any woodland at Amesbury Park, which is of value as habitat for bats; and minimising the loss of trees along the roadside of the A303. Other measures would separately be secured by the OEMP [APP-187] through items such as MW-BIO1 onwards. Compliance with the OEMP is secured through the requirement contained in paragraph 4 of Schedule 2 to the dDCO.

Question Ec.1.6

Water environment

The strategy for managing surface water run-off referred to in paragraph 8.8.13 appears to be of some importance to maintenance of the health of watercourses and groundwater, particularly the Rivers Till and Avon catchments.

i. How will these proposals be secured through the DCO?

ii. What proposals have been included for the monitoring of water quality during the construction and operation of the scheme?

iii. How would the proposed scheme perform in terms of water quality in comparison with the status quo?

iv. Will the works at the eastern end of the scheme which affect the River Avon catchment be accompanied by measures to improve the quality of existing run-off through the provisions of the drainage strategy [APP-281] and if so, where is that set out?

Response

i. **How will these proposals be secured through the DCO?**

1. In response to (i), the proposals for maintaining the quality of water run-off would be secured through the OEMP [APP-187] (see MW-WAT1-15) (compliance with which is secured by paragraph 4 of Schedule 2 to the dDCO) and pursuant to the requirement contained in paragraph 10 of Schedule 2 to the draft Development Consent Order (dDCO), which requires details of the drainage system to be constructed as part of the Scheme to be approved by the Secretary of State, with the drainage system then constructed in accordance with the approved details. The details submitted must be 'based on the mitigation measures included in the environmental statement and including means of pollution control'.

ii. **What proposals have been included for the monitoring of water quality during the construction and operation of the scheme?**

2. Regarding (ii), for the construction stage it is identified within the Outline Environmental Management Plan [APP-187] that the contractor must undertake monitoring of water resources (Reference MWWAT15 in Section 3.3). This requires that the main works contractor shall carry out regular monitoring to identify: a) pollution risks that are unacceptably high; b) spillages and leakages; c) non-compliance with the Construction Environmental Management Plan (CEMP); and d) suspected pollution incidences. As described in 1. above, compliance with the OEMP is secured through the dDCO. In respect of operation, Highways England undertook in partnership with the Environment Agency a considerable programme of monitoring to build the Highways England Water Risk Assessment Tool (HEWRAT), to negate the need for water quality monitoring during operation on a project specific basis.

iii. **How would the proposed scheme perform in terms of water quality in comparison with the status quo?**

3. Regarding (iii), the performance of the Scheme in comparison to the status quo has been assessed using HEWRAT. The outputs of this assessment are provided in ES Appendix 11.1 Water Quality Risk Assessment [APP-279] which show a change from a 'fail' condition in the status quo to a 'pass' condition for the Scheme in relation to the discharge of surface water runoff into the River Avon, leading to a significant beneficial effect being assessed. It has been agreed between Highways England and the Environment Agency (EA) that through the indicative measures set out in the drainage strategy, ES Appendix 11.3 Road Drainage Strategy [APP-281] (the principles of which would be reflected in the drainage system details to be submitted further to the dDCO requirement mentioned above) the Scheme once constructed has the potential to provide significant betterment in terms of water quality and spillage control when compared to the existing road drainage situation. The extent of agreement with the Environment Agency is set out in the draft Statement of Common Ground (SoCG) between Highways England and the Environment Agency submitted into the examination at Deadline 2.

iv. ***Will the works at the eastern end of the scheme which affect the River Avon catchment be accompanied by measures to improve the quality of existing run-off through the provisions of the drainage strategy [APP-281] and if so, where is that set out?***

4. In response to (iv), yes the works at the eastern end of the Scheme which affect the River Avon catchment will be accompanied by measures to improve the quality of existing run-off. Paragraph 10 of Schedule 2 of the DCO [APP-020] sets out that written details of surface water drainage proposals for each part of the Scheme must be based on the mitigation measures included in the ES, and must be approved by the Secretary of State. Indicative measures to be incorporated within the detailed design to improve the quality of existing run-off in the River Avon are given in chapter 4 and 5 of ES Appendix 11.3 Road Drainage Strategy [APP-281]. These include an impounding sump as part of the tunnel drainage to intercept contaminated water, drainage treatment areas in the form of linear ponds to provide treatment and penstocks upstream of the ponds to provide additional containment in the event of accidental spillage.

Question Ec.1.7

Habitat creation

What long term management measures are incorporated in the DCO to ensure that the suggested enhancements and new habitat creation along the length of the scheme are managed to maximise gains in biodiversity and prevent scrub encroachment which could eventually degrade areas of new chalk grassland (para 8.8.18)?

Response

1. The Outline Environmental Management Plan (OEMP) [APP-187] is the basis from which detailed, works-specific, Construction Environmental Management Plans (CEMPs) will be prepared by the relevant contractors, as is required by the OEMP itself and therefore secured through paragraph 4 of Schedule 2 of the draft Development Consent Order [APP-020].

2. The OEMP sets out the requirement for the main works contactor to prepare a Landscape and Ecology Management Plan (LEMP) (MW-LAN1), in accordance with industry good practice. The principles for the LEMP are set out in the Outline Landscape and Ecology Management Plan ('OLEMP') [APP-267]. Under requirement 8 of Schedule 2 of the DCO, Highways England will be required to submit a detailed landscaping scheme, which is required to be on the basis of the mitigation measures set out in the ES, which includes the OLEMP. The main works contractor will prepare a final version of the CEMP for the operational and maintenance phase of the Scheme in the form of a Handover Environmental Management Plan (HEMP) (required by the OEMP to be based on the CEMP and the LEMP in effect at the time). Each CEMP, (including the LEMP, HEMP and any other accompanying method statements), will be developed in consultation with Highways England and the relevant stakeholders as set out in the OEMP.

3. As set out in the Outline Environmental Management Plan (OEMP) [APP-187], MW-BIO2, the main works contractor must establish the new habitats identified within the Environmental Masterplan (ES Figure 2.5) [APP-059] within the Order limits and manage them accordingly to ensure their establishment and development to achieve their target purpose(s), through to any handover of the Scheme.

4. As described in the OEMP [APP-187] MW-BIO13 botanical monitoring must be carried out to inform appropriate management of the chalk grassland and other habitats within the Scheme. This will inform the management action of ‘grazing, mowing, control of scrub, and specific habitat management to create or maintain conditions of characteristic species of chalk grassland and other habitats’.

5. Example management measures which will be confirmed within the Landscaping Scheme (as detailed within 2.) would include where practicable, managing chalk

grassland by appropriate grazing to maximise gains in biodiversity, providing, in the areas where chalk grassland is to be managed by grazing, appropriate access for stock, fencing and stock watering facilities, as described in ES Chapter 8, Biodiversity [APP-046], paragraph 8.9.71. In addition, where areas of chalk grassland are not managed by grazing, mowing will be used to manage the grassland to achieve biodiversity and other objectives, with periodic control of scrub as necessary (paragraph 7.2.2 of the OLEMP [APP-267]).

6. As described in the OEMP [APP-187], MW-G11 the main works contractor will prepare a HEMP in consultation with Highways England. The OEMP is secured by paragraph 4 of Schedule 2 of the draft DCO. The HEMP will be based on the detailed landscape scheme including those measures based on OEMP [APP-187] MW-BIO2 and MW-BIO13. It will provide the relevant information on existing and future environmental commitments and objectives that would need to be honoured and will define on-going actions and risks that need to be managed. The HEMP will be approved by Highways England and will be used by the body responsible for long term management and maintenance to prepare environmental management plans for the maintenance of the Scheme for the operational phase. The HEMP will include provisions for monitoring (as required by the OEMP) the condition of chalk grassland and triggers for management actions.

Question Ec.1.8

Habitat creation

Do you agree that the proposed habitat creation east of Parsonage Down would be an effective means of complementing and enhancing the existing National Nature Reserve and improving connectivity of new and existing habitats along the length of the scheme?

Response

1. As detailed within the Statement of Common Ground between Highways England and Natural England, to be submitted to the Examination for deadline 2, in sections 3.5 and 3.6, Natural England have confirmed the following;

    a. *"Natural England is broadly supportive of the application with regards to its impacts on biodiversity. It seems reasonable to conclude that the scheme will deliver net gain for biodiversity"*

    b. *"Natural England states that the area for chalk spoil deposition to the East of Parsonage Down, if appropriately established and managed, has the potential to become a high value site for wildlife. Natural England details that chalk grassland included within the Scheme and along the embankments and cuttings has potential to become a mosaic of priority habitats that would realise the ambition of linking Salisbury Plain and Porton Down as part of a coherent ecological network (as detailed within Porton to Plain project, Appendix B), and is in line with National Planning Policy Framework (Paragraph 170)".*

Question Ec.1.10

Compensatory provision

Paragraph 8.9.4 identifies the loss of a small area of Chalk Grassland at the Countess Cutting CWS.

Do you consider that the proposed replacement area would amount to satisfactory compensation for the loss of this feature?

Response

1. The Environmental Statement Chapter 8 Biodiversity [APP-046] summarises the loss in paragraph 8.9.61 as 0.74 ha and Table 8.14 shows the chalk grassland to be created as approximately 163 ha, which represents a sizeable increase in chalk grassland. Please also see the draft Statement of Common Ground between Highways England and Natural England, to be submitted to the Examination for deadline 2, at Issue reference 3.5.

Question Ec.1.11

Construction impacts

i. What measures will be put in place to ensure that any potential impact on the special features of the SAC of the proposed haul route through the River Till is managed to ensure no likely significant effects?

ii. Please quantify the estimated number of vehicle trips likely to be using the haul route.

iii. Has the potential impact of these journeys been assessed in terms of potential environmental and biodiversity impacts?

iv. Please point to where this information can be specifically found in the ES.

Response

i. What measures will be put in place to ensure that any potential impact on the special features of the SAC of the proposed haul route through the River Till is managed to ensure no likely significant effects?

1. Measures to ensure no likely significant adverse effects on the Special Area for Conservation (SAC) would arise from the proposed haul road are set out below, comprising design measures (which are embedded) and construction phase management measures. The design measures related to the temporary bridge for the haul road that would cross the River Till are listed below:

    - The abutments of the temporary bridge would be at least 8m from the banks (outside the boundary of the SAC), as secured through the Outline Environmental Management Plan (OEMP) [APP-187], compliance with which is secured by paragraph 4 of Schedule 2 to the draft Development Consent Order (dDCO) [APP-020]
    - The temporary bridge would be raised above the valley floor so that it would avoid causing a flood risk, (MW-BIO3 of the OEMP [APP-187]),
    - The width of the temporary bridge would be minimised to approximately 6m to reduce any possible impacts associated with shading to negligible (MW-BIO3 of the OEMP [APP-187]).

2. The construction phase management measures listed below are a combination of measures that would be implemented across the whole Scheme and those that would be implemented where the Scheme crosses the River Till (or other ecologically sensitive areas). The measures are (or will be) required by the OEMP [APP-187]:

    - As detailed in the response to Ns.1.33, a commitment to non-impact piling, which can be a potentially significant source of vibration and impact type noise, will be added to the next revision of the OEMP.

- Sensitive lighting would be used where necessary, measures would be incorporated to avoid or minimise light spill onto sensitive ecological receptors, this would include the River Till impacts (MW-BIO4 of the OEMP) [APP-187].
- A noise and vibration management plan (MW-NO13 of the OEMP) [APP-187] will be produced by the main works contractor that will include management and monitoring processes, which include, but are not limited to, the following:
    - integration of noise control measures into the preparation of all method statements for the works;
    - details and locations of all site hoardings, screens or bunds that will provide acoustic screening during construction;
    - procedures for the installation of noise insulation (if deemed to be required) or provision of temporary re-housing and to ensure such measures are in place as early as reasonably practicable;
    - noise and vibration monitoring protocols including monitoring locations, stages during construction at which monitoring will be undertaken, and methods of publishing the results;
    - details of inspection and maintenance schedules to be undertaken;
    - processes to ensure ongoing compliance with all controls and consent for the works; and,
    - process for implementing corrective actions that may be required to avoid or address a potential non-compliance.
- A water management plan will be produced by the main works contractor, this will identify watercourses and waterbodies and will set out pollution prevention controls (MW-WAT2 of the OEMP) [APP-187].
- Protection of watercourse measures for works (MW-WAT6) to be implemented in or adjacent to watercourses in accordance with requirements set out by the Environment Agency. The main works contractor shall incorporate the following measures during the construction works:

  a) watercourses, including land and/or road drainage, within the construction sites will be maintained;

  b) protection measures, e.g. fencing, will be in place to protect existing water features from degradation and physical damage during construction;

  c) all areas with the potential to generate contaminated water will be bunded to prevent the release of contaminants; and

  d) no work in the channels of either the River Till or River Avon is planned, and measures will be taken with regard to works in the rivers' wider floodplains to limit the release of suspended sediment and solids into the water column.

- Only construction equipment and vehicles free of oil/fuel leaks which could cause material contamination would be permitted on site (MW-WAT7 of the OEMP).
- The River Till would be considered an environmental high-risk site. As such the following measures would be employed in order to prevent impacts (the below are particularly relevant to the haul road and traffic moving along it) (MW-AIR1 and MW-AIR2 of the OEMP) [APP-187]:
  - Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
  - All construction plant would use fuel equivalent to ultra-low sulphur diesel (ULSD) where possible.
  - Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on un-surfaced haul roads.
  - Maintain and inspect on-site haul routes for integrity and operate a programme of routing maintenance and where necessary carry out repairs to the surface as soon as reasonably practicable.

ii. Please quantify the estimated number of vehicle trips likely to be using the haul route.

3. The estimate number of vehicle movements was based upon the assumption set out within ES Appendix 5.4 [APP-193] paragraph 6.1.5,

4. *'it is not expected, based on discussions with the project team, that more than 200 HGV trips per day for more than 6 months will travel along the haul routes. Therefore, significant changes in emissions are not expected along these haul routes.'*.

5. These haul route figures, based on consultation with the contractor who provided construction advice during the preparation of the ES, are likely to be 6-8 per hour.

iii. Has the potential impact of these journeys been assessed in terms of potential environmental and biodiversity impacts?

6. Yes, the impacts associated with construction activities have been assessed, including in relation to construction traffic movements along the haul route and across the River Till (paragraphs 8.9.6 -8.9.175 of Chapter 8 [APP-046], specifically, 8.9.11, 8.9.23, and, 8.9.24).

7. As detailed within paragraph 8.8.26 of Chapter 8 [APP-046] "*It is considered that accounting for the implementation of measures set out within the OEMP, significant construction impacts to important biodiversity features associated with dust deposition, air pollution, pollution incidents, water quality, light, noise, and vibration would be avoided.*"

8. The movements of vehicles along the haul route would increase vehicle emissions in the area. However, as set out in paragraph 40 (page 17) of the HRA Likely Significant Effects Report [APP-265], the River Avon SAC has low air quality sensitivity to emissions of NOx from traffic, because phosphate (which does not come from atmosphere) is the principal growth limiting nutrient.

9. Furthermore, such an impact would be associated with the increase in vehicle exhaust emissions of NOx and the much greater operational vehicle movements on the permanent viaduct in a similar location have been assessed in the HRA Likely Significant Effects Report [APP-265], enabling a conclusion of no likely significant effect to be drawn.

iv. Please point to where this information can be specifically found in the ES.

10. In addition to the references given above, the relevant sections detailing the effects of construction can be found at the references below:

- The assessment of effects detailing no significant likely adverse effects associated with dust emissions during the construction phase (paragraphs 5.9.4 – 5.9.9 – Chapter 5 Air Quality [APP-043]).
- The assessment of effects detailing no significant likely adverse effects associated with air quality during the construction phase (paragraph 5.9.44 of Chapter 5 Air Quality [APP-043]).
- The assessment of effects detailing no significant likely adverse effects associated with NO_x deposition on designated habitats during the construction phase (paragraph 5.9.58 – Chapter 5 Air Quality [APP-043]).

11. The assessment of effects detailing no significant likely adverse effects associated with noise and vibration during the construction phase (9.9.24 – 9.9.27 Chapter 9 – Noise and Vibration [APP-047] and Appendix 9.2 – Construction Noise [APP-269])

Question Ec.1.14

Impact on River Avon SAC

With particular reference to the issues raised in section 1.0 of the Environment Agency's RR [RR-2060], can the Applicant comment and explain how they intend to address matters in relation to:

i. The assessment of likely impacts of any construction dewatering that may be required in terms of HRA, and the extent to which this has been fully considered in Table 3.1, items 55) – 57) of [APP-265]; and

ii. as a result of the above, whether the conclusion that no significant effects on the River Avon SAC are likely is still applicable in light of any further work being undertaken (noting that no information has been provided to date to inform an appropriate assessment for water quality elements of the River Avon SAC, if required).

Response

i. The assessment of likely impacts of any construction dewatering that may be required in terms of HRA, and the extent to which this has been fully considered in Table 3.1, items 55) – 57) of [APP-265];

1. The basis of the assessment of likely impacts of construction on the River Avon SAC is that it is unlikely that dewatering would be necessary for the construction of the tunnel or portals and therefore there would be no significant effects on the SAC as a result of dewatering. This is because of the combination of the likely construction method to be used and the location of the construction relative to the groundwater levels in the Chalk (i.e. construction above the water table).

2. For the construction of the cuttings leading to the portals and the retaining walls at the portals, under most conditions the construction would be in the unsaturated zone of the Chalk, above the water table (as described in the Environmental Statement Groundwater Risk Assessment Appendix 11.4 [APP-282]). This would mean dewatering would not be required. This also means that under most conditions there would be no pathway for impact on groundwater levels that contribute to flow in the River Avon and hence no Likely Significant Effect on any of the features for which the River Avon SAC is designated, as concluded in the Habitat Regulations Assessment Likely Significant Effects Report [APP-265] and summarised in Table 3.1 of the Habitat Regulations Assessment Likely Significant Effects Report [APP-265] items 56.

3. Under extreme flood conditions the groundwater conditions could be high enough to intersect parts of the construction. This is addressed in the Groundwater Risk Assessment Appendix 11.4 [APP-282], Table 6.1, which shows the average and peak groundwater levels relative to the depths of the cuttings and retaining walls at the western and eastern portals. Under average conditions the cuttings,

retaining walls and the tunnel base at both the portals would be well above the groundwater, so there would be no need for dewatering.

4. Extreme peaks of groundwater rarely occur, but if they happened to coincide with construction, the groundwater level could be above the base of excavations at the tunnel portals. In those conditions, appropriate measures would need to be taken which would likely include a temporary cessation of works until peak conditions subsided or localised dewatering being needed. The maximum impact of dewatering under those peak conditions would be to control groundwater levels to closer to 'normal' levels in the construction area. So no effects beyond those that occur during the natural variation of groundwater levels would be experienced.

5. Based on the current design it is likely that no abstraction of groundwater or surface water will be required. The Statement of Common Ground with the Environment Agency states under Matters Agreed that the Environment Agency will be consulted on the relevant aspects of detailed design, construction methods, CEMPs and any subsequent risk assessment and mitigation measures, as set out in each case in the Requirements and protective provisions in the draft DCO and the Outline Environmental Management Plan [APP-187]. Indeed, in certain circumstances under the protective provisions they would have an approval role in respect of detailed design and could attach conditions as appropriate, so would have suitable controls in place in such circumstances. The OEMP also contains obligations in relation to dewatering (MW-WAT8) (e.g. obtaining regulatory approvals where required).

   ii. as a result of the above, whether the conclusion that no significant effects on the River Avon SAC are likely is still applicable in light of any further work being undertaken (noting that no information has been provided to date to inform an appropriate assessment for water quality elements of the River Avon SAC, if required).

6. The conclusion still applies that no significant effects on the River Avon Special Area of Conservation (SAC) are likely and therefore no appropriate assessment is required, based on the submitted scheme.

Question Ec.1.15

Stone curlew

i. Do you agree that the proposed new Stone Curlew breeding plot within Parsonage Down SSSI and NNR described in paragraph 8.9.28 of the ES would provide effective compensation for the loss of an existing permanent plot to the south of the Winterbourne Stoke bypass?

ii. Can Natural England comment on the Applicant's proposed approach to address indirect effects on functionally linked habitat of the Salisbury Plain SPA features (namely Stone Curlew), in particular:

   a. The proposed approach which includes 'habitat modification' within another European site (Salisbury Plain SAC). The Applicant proposes to mitigate effects within the SPA by directly altering habitat within the SAC;

   b. the acceptability of the applicant's proposed approach to habitat modification within the SAC in the light of the conservation objectives for that site; and

   c. the Applicant's conclusion of no likely significant effects on the other qualifying features of the SPA, and hence only stone curlew are presented as a feature of the site in the Applicant's integrity matrices (Appendix C, matrix 2 of [APP-266].

The Applicant states at paragraphs 5.1.5 and 5.3.6 of [APP-266] that the locations of 'replacement' and 'additional stone curlew breeding plots have been agreed with NE and RSPB respectively. Paragraphs 5.1.7 and 5.3.8 also state that NE and the RSPB have agreed to take on the long-term management of these plots.

iii. Can NE and RSPB comment on the extent to which the location and specification and long-term management of a 'replacement' and additional' breeding plot has been agreed with the Applicant, and can the Applicant explain how these are to be secured as part of the DCO or other legal mechanism?

iv. Can NE and the RSPB provide further commentary on what long term management of these plots entails and the extent to which the Applicant relies on the success of these measures to conclude no AEOI for the Salisbury Plain SPA?

v. Can the Applicant explain the extent to which long term management provisions are included for within the provisions of the DCO and whether there is any potential for conflict between these provisions and any long-term management objectives that may be delivered separately by NE or the RSPB?

Response

v. Can the Applicant explain the extent to which long term management provisions are included for within the provisions of the DCO and whether there is any potential for conflict between these provisions and any long-term management objectives that may be delivered separately by NE or the RSPB?

1. *In response to v*. Legal agreements are being progressed between Highways England and Natural England and RSPB respectively. The agreements will include requirements for the maintenance of the new stone curlew plots at Parsonage Down National Nature Reserve (NNR) and Winterbourne Down RSPB reserve for a minimum of 10 years post construction. It is anticipated that the work required would be maintenance of the fencing around the plots and management to maintain the sparsely vegetated open sward suitable for stone curlews to nest. This management would likely involve periodic disturbance of the surface to prevent the area becoming a closed sward, e.g. by harrowing occasionally, outside the breeding season for stone curlew. This may be supplemented by grazing or mowing of vegetation. Any scrub which establishes would require removal, by the measures above.

2. *Highways England is not aware of any potential conflicts between these provisions and any long-term management objectives of Natural England or the RSPB. Winterbourne Down is managed by the RSPB to benefit stone curlew in particular, although other farmland species also benefit. Public access is restricted to defined areas during the breeding season for stone curlew and would not affect the new plot. RSPB identified options for a plot on the reserve and the preferred location was confirmed after geophysics investigations for archaeology. Natural England proposed the location for the stone curlew plot at Parsonage Down, which was confirmed as suitable by RSPB. Natural England took into account its medium to long term plans for the NNR in identifying the location.*

Question Ec.1.16

Stone curlew

i. With reference to the OLEMP, HEMP, and management activities that the applicant has stated will be the responsibility of Natural England and RSPB in respect of the replacement and additional stone curlew plots, can the Applicant explain how the monitoring of vegetation would be carried out to inform future action on habitat creation and management, and the extent to which the success of this monitoring has been assumed in the assessment of adverse effects on integrity for the SAC and SPA during construction and long-term operation.

ii. Given the apparent reliance on the success of the calcareous grassland establishment in the Statement to Inform Appropriate Assessment (and ongoing monitoring requirements), can the Applicant explain why specific matters such as species richness, percentage bare ground and sward height (for example) for different areas of grassland are not specified in the OLEMP and are instead to be development post-consent with the Landscape Steering Group?

Response

i. With reference to the OLEMP, HEMP, and management activities that the applicant has stated will be the responsibility of Natural England and RSPB in respect of the replacement and additional stone curlew plots, can the Applicant explain how the monitoring of vegetation would be carried out to inform future action on habitat creation and management, and the extent to which the success of this monitoring has been assumed in the assessment of adverse effects on integrity for the SAC and SPA during construction and long-term operation.

1. As detailed within the draft Statement of Common Ground between Highways England and Natural England, submitted to the Examination for deadline 2, under Matters Agreed (3.13):

   - 'The stone curlew mitigation breeding plot at Parsonage Down will be managed by Natural England for 10 years post construction, 15 years total.'
   - The specification of the plot condition would be set out within a management regime, that will form part of the legal agreements, which Highways England are currently in the process of agreeing with Natural England and RSPB.
   - It is anticipated that monitoring of the condition of the plot would be carried out annually to assess the cover of vegetation and determine the management required to maintain the suitability of the plot for stone curlew breeding. Natural England and RSPB have knowledge of the management of stone

curlew plots in the Salisbury Plain Special Protection Area (SPA) and surrounding 5km zone as well as in the wider 'Wessex' area.

- The precise details of the monitoring would be contained in the legal agreements mentioned above. It is likely that monitoring of the plot would be undertaken where certain measurements will be gathered, such as percentage of bare earth, vegetation encroachment, floral species lists and fencing condition (to be undertaken at suitable times of year). The thresholds that would trigger management actions will also be agreed within the legal agreements, and will follow current best practice for management for stone curlew.
- As the replacement plot is considered to be of a higher quality to that of a fallow plot, it is likely that the plot would be occupied readily. As such, it is considered that the replacement of a stone curlew plot is likely to be successful and thus no likely significant adverse effects on the integrity of the SPA both during construction and operation are likely.
- Regarding the Special Area of Conservation (SAC), the creation of the stone curlew plot at Parsonage Down does not represent a permanent loss of part of the site as it would if it was lost to the construction of infrastructure. Instead, Natural England agrees that it represents an opportunity for diversification of habitat within the large National Nature Reserve. Details in the legal agreements are anticipated to ensure that it will maintain a small part of the site in an early stage of succession of chalk grassland, favouring the herb species that need sparsely vegetated open ground or thin sward. The plots would not be kept completely bare of vegetation. The conditions are expected to be favourable for a range of invertebrates of early successional chalk habitats, including some of the chalkland butterflies.
- Because this would not have an adverse effect on the integrity of the SAC it is not necessary to monitor vegetation for that purpose. Nonetheless, the plot will be in an area of grassland which was last ploughed some 70 years and the plot would provide an opportunity to compare the early successional stages with the surrounding sward. It would also provide a comparator for the progress of new chalk grassland within east of Parsonage Down. Details of vegetation monitoring to inform future habitat creation will be developed in consultation with Natural England prior to construction and will be included in monitoring requirements implemented under the requirements of the Outline Environmental Management Plan (OEMP).

ii. Given the apparent reliance on the success of the calcareous grassland establishment in the Statement to Inform Appropriate Assessment (and ongoing monitoring requirements), can the Applicant explain why specific matters such as species richness, percentage bare ground and sward height (for example) for different areas of grassland are not specified in the OLEMP and are instead to be development post-consent with the Landscape Steering Group?

1. As set out in the Outline Environmental Management Plan (OEMP) [APP-187], MW-BIO2, the main works contractor must establish the new habitats identified within the Environmental Masterplan (ES Figure 2.5) [APP-059] within the Order limits and manage them accordingly to ensure their establishment and development to achieve their target purpose(s), through to any handover of the Scheme.

2. The OEMP sets out the requirement for the main works contactor to prepare a Landscape and Ecology Management Plan (LEMP) (MW-LAN1), in accordance with industry good practice. The principles for the LEMP are set out in the Outline Landscape and Ecology Management Plan ('OLEMP') [APP-267]. Highways England will be required to submit a detailed landscaping scheme in accordance with the requirement contained in paragraph 8 of Schedule 2 to the draft Development Consent Order (dDCO) [APP-020], which is required to be on the basis of the mitigation measures set out in the ES, which includes the OLEMP. The main works contractor will prepare a final version of the Construction Environmental Management Plan (CEMP) for the operational and maintenance phase of the Scheme in the form of a Handover Environmental Management Plan (HEMP) (required by the OEMP to be based on the CEMP and the LEMP in effect at the time) (item MW-G11 in the OEMP). Each CEMP, (including the LEMP, HEMP and any other accompanying method statements), will be developed in consultation with Highways England and relevant stakeholders, as specified in the OEMP.

3. As described in the OEMP [APP-187] MW-BIO13 botanical monitoring which has yet to be developed must be carried out to inform appropriate management of the chalk grassland and other habitats within the Scheme. This would set out specific targets that would signify success and trigger points for ongoing management activities, and may include the presence of targeted floral species, percentage of bare ground / scrub, sward height etc. This will inform the management action of 'grazing, mowing, control of scrub, and specific habitat management to create or maintain conditions of characteristic species of chalk grassland and other habitats'.

4. As such, it is considered the provisions secured by the dDCO allow a suitable amount of flexibility, but equally are sufficient and robust enough to ensure the detail of appropriate measures can be worked up and implemented post-consent (should the DCO be granted).

Question Ec.1.17

Stone curlew

i. Could the Applicant specifically explain how the success of the replacement breeding plot could be affected by Work No. 8 (creation of new chalk grassland habitat from tunnel arisings) (paragraph 5.1.5 of [APP-266])?

The Applicant explains that the replacement breeding plot will be "approximately 500m from the current plot and further than that from construction of the Scheme" and will be provided "in advance of the loss of the existing plot", but no reference is made to DCO or other legal mechanisms to ensure these specifications are met (notwithstanding a purported agreement with NE).

ii. Can the applicant explain where in the DCO the construction scheduling seemingly relied upon above is secured by appropriate requirements or other mechanisms?

iii. Could the Applicant provide a location plan to show the new plot sites at both Parsonage Down (in relation to the existing nesting site) and at Winterbourne Down?

iv. In respect of the Parsonage down plot, what certainty can the ExA have that DCO Work No. 8 and associated activities would not cause spatial or temporal disturbance to the new nesting site, and what DCO provisions secure this? It is noted that these plans may need to be provided on the basis that they contain confidential information.

Response

i. Could the Applicant specifically explain how the success of the replacement breeding plot could be affected by Work No. 8 (creation of new chalk grassland habitat from tunnel arisings) (paragraph 5.1.5 of [APP-266])? The Applicant explains that the replacement breeding plot will be "approximately 500m from the current plot and further than that from construction of the Scheme" and will be provided "in advance of the loss of the existing plot", but no reference is made to DCO or other legal mechanisms to ensure these specifications are met (notwithstanding a purported agreement with NE).

1. It is not anticipated that the works detailed within Works No. 8 would affect the success of the replacement breeding plot. The mitigation measures set out within iv (as below) are considered suitable to avoid / mitigate any disturbance effects associated with any activities identified within the construction phase. In addition, the legal agreements currently being discussed between Highways England and the relevant statutory bodies will provide for the timing of delivery and location of the replacement plot – see further detail on this below.

ii. Can the applicant explain where in the DCO the construction scheduling seemingly relied upon above is secured by appropriate requirements or other mechanisms?

2. The replacement breeding plot located within Parsonage Downs NNR is located outside of the Scheme boundary, as such it will be delivered through a legal agreement (as detailed within the draft Statement of Common Ground with Natural England, submitted to the Examination for deadline 2, issue reference 3.12). The legal agreement will include the following:

    - location of stone curlew plot;
    - size and scope of the plot;
    - date range within which the plot will be created;
    - specification of management; and,
    - duration of agreement.

3. Given the purpose of the replacement plot, it follows that it will need to be created prior to the construction phase and this is anticipated to be provided for via the legal agreements. The stone curlew plot is currently to be created at the Preliminary Works Stage, and this is referenced within the PW-BIO5 of the Outline Environmental Management Plan (OEMP) [APP-187], that monitoring of the newly created plots would be undertaken, as defined within the ES (Chapter 8) [APP-046]. Compliance with the OEMP is secured by the requirement contained in paragraph 4 of Schedule 2 to the draft Development Consent Order (dDCO) [APP-020].

iii. Could the Applicant provide a location plan to show the new plot sites at both Parsonage Down (in relation to the existing nesting site) and at Winterbourne Down?

4. Please refer to the attached Confidential Figure.

iv. In respect of the Parsonage down plot, what certainty can the ExA have that DCO Work No. 8 and associated activities would not cause spatial or temporal disturbance to the new nesting site, and what DCO provisions secure this? It is noted that these plans may need to be provided on the basis that they contain confidential information.

5. As detailed within the OEMP at items PW-BIO5 and MW-BIO8, (6.3 Environmental Statement Appendix 2.2 - Outline Environmental Management Plan) [APP-187], various mitigation measures will be included to minimise the impacts on stone curlew at the replacement plot (including visual screening). In addition, the OEMP contains a number of general mitigation measures to be employed which will also minimise impacts from the construction of the scheme. These will also therefore play a role in limiting impacts in respect of the replacement plot.

6. Compliance with the OEMP is secured through Schedule 2, paragraph 4 of the dDCO [APP-020].

Question Ec.1.18

Stone curlew

Item PW-BIO5 and MW-BIO8 of the OEMP [APP-187] talks about sensitivity of stone curlews to human disturbance within 450m of a nest site, and mitigation design accordingly. However, the Statement to Inform an Appropriate Assessment refers to a 500m distance within which disturbance could occur (eg at paragraphs 3.6.4, 5.1.5, 5.2.2, 5.2.4, 5.3.1 and appendix B of [APP-266]). Footnote 24 of [APP-266] provides a citation for a 500m distance within which stone curlew could be affected by construction, but the footnote appears to be missing.

i. Can the applicant confirm that the stipulations of mitigation measures in PW-BIO5 and MW-BIO8 of [APP-187] should refer to 500m and not 450m?

ii. Given that PW-BIO4 of the OEMP [APP-187] only restricts clearance within the nesting season (March to September) 'where practicable', can the Applicant explain how the mitigation proposed (if clearance is not possible outside of the bird nesting season) is effective in concluding no Adverse Effect on Integrity of the SPA ("*suitable nesting habitat to be removed shall be checked for nesting birds by the preliminary works contractor (ecology) or an appropriate specialist, immediately prior to its removal*")? In this regard, the ExA notes the assumptions made at section 3.5 of [APP-266] and that there is no temporal restriction built into the wording of PW-BIO5 [APP-266] in respect of stone curlew.

iii. Can the applicant explain why this it not part of the wording in the OEMP?

Response

i. Can the applicant confirm that the stipulations of mitigation measures in PW-BIO5 and MW-BIO8 of [APP-187] should refer to 500m and not 450m?

1. As detailed within Taylor *et al*, (2007)[9] the approximate disturbance range of a stone curlew, for a person with a dog can be in excess of 500m, the disturbance impact of human activities is lower (please refer to Figure extract below). Following consultation with RSPB, it was considered that an exclusion area of 450m is sufficient to avoid disturbance impacts on stone curlew associated with human activity. As such, 450m has been referenced within the PW-BIO4 and MW-BIO8 of the Outline Environmental Management Plan (OEMP) [APP-187]. It is considered to be a precautionary measure for the likely impact as the

[9] Taylor, E. C., Green, R. E. & Perrins, J. (2007) Stone curlews *Burhinus oedicnemus* and recreational disturbance: developing a management tool for access. Ibis 149.37-44.

construction work will mainly involve vehicles, which have a lower distance for disturbance, or people without dogs.

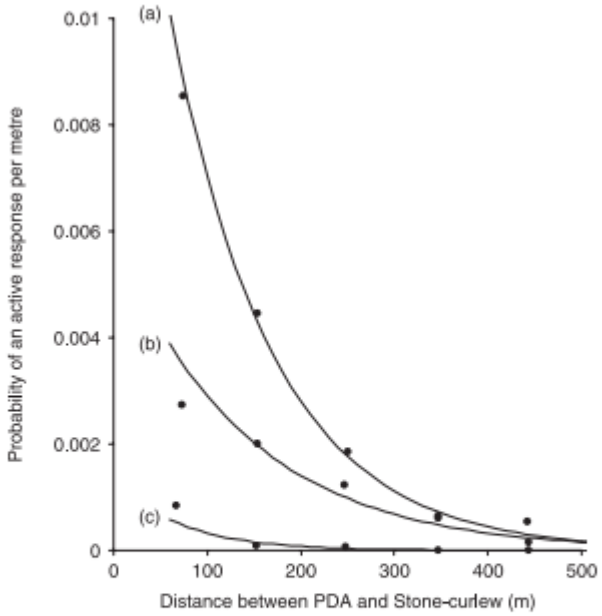

Figure 1. Probability per metre traversed of an active response (running or flying) by a Stone-curlew to a PDA in relation to distance between the bird and the PDA. Points are for distance bins and lines are fitted logistic regression models.[1] Results are shown separately for (a) walker with a dog, (b) walker and (c) vehicle. PDA, potential disturbance agents.

ii. **Given that PW-BIO4 of the OEMP [APP-187] only restricts clearance within the nesting season (March to September) 'where practicable', can the Applicant explain how the mitigation proposed (if clearance is not possible outside of the bird nesting season) is effective in concluding no Adverse Effect on Integrity of the SPA ("*suitable nesting habitat to be removed shall be checked for nesting birds by the preliminary works contractor (ecology) or an appropriate specialist, immediately prior to its removal*")? In this regard, the ExA notes the assumptions made at section 3.5 of [APP-266] and that there is no temporal restriction built into the wording of PW-BIO5 [APP-266] in respect of stone curlew.**

2. As detailed within PW-BIO4 clearance works should be undertaken where practicable outside the breeding bird season (for all breeding birds). Should clearance be undertaken during the breeding bird season, a suitably experienced ecologist will be checking the working area and surrounding area for the presence of breeding birds. Where active bird nests are present, no works to or in the vicinity (5m) of the bird nests will be undertaken until any young are no longer considered to be dependent on the nest.

3. PW-BIO5 of the OEMP details further measures (additional to that of breeding birds) should stone curlew be found to be nesting. This includes the following: all works would stop within the area around the stone curlew nest, liaison with Natural England and the RSPB would be undertaken, to identify specific and appropriate measures to be undertaken in order to avoid disturbance of the nesting pair. Whilst the appropriate measures would need to be considered on a case by case basis, these are likely to include monitoring of the nest from a distance, and suitable exclusion areas being set up with no further works proceeding within the exclusion area until the stone curlews are no longer considered to be utilising the nest site. As such, it is considered that no adverse effects on the integrity of the SPA are considered likely.

iii. Can the applicant explain why this it not part of the wording in the OEMP?

4. As set out above, should it be necessary to undertake works during the breeding bird season the measures set out above would apply, which are secured in the OEMP to ensure adverse effects do not occur.

Question Ec.1.19

Stone curlew

Do you agree that the scheme would not have any likely significant adverse impact on any other identified stone curlew breeding plot in the vicinity of the scheme and that the works are unlikely to result in any significant disturbance to breeding birds?

Response

1. To assist the ExA in navigating documentation: In the draft Statement of Common Ground between Highways England and Natural England, to be submitted to the Examination at deadline 2, at Issue reference 3.11, Natural England agrees there would be no disturbance of any other identified stone curlew breeding plot in the vicinity of the scheme. In the Statement of Common Ground between Highways England and RSPB, RSPB is satisfied that indirect disturbance impacts on breeding stone curlew can be avoided with the implementation of suitable working practices during the construction phase

Question Ec.1.20

Impact on habitats

RRs have commented that some preliminary ground investigations and works referred to in 8.9.65 have not been carried out with the care that would be expected in such a sensitive location.

What reassurance can the Applicant give that the precautionary and mitigation measures embodied in the DCO would be strictly adhered to during the construction phase to minimise the risk of unintended adverse effects?

Response

1. All ecological surveys have been undertaken in line with industry guidance and best-practice, and in consultation with the relevant stakeholders, including Natural England, Wiltshire Council Ecologist and RSPB. The approach to ecological surveys is set out in Table 8.7 of the Environmental Statement (ES) Chapter 8, Biodiversity [APP-046].
2. Where ground investigations and archaeological surveys have been carried out, the work has been supervised wherever appropriate by an Ecological Clerk of Works (ECoW) to ensure that no sensitive ecological receptors were affected.
3. Mitigation is secured in the Outline Environmental Management Plan (OEMP) [APP-187], implementation of which is secured by paragraph 4 of Schedule 2 of the draft Development Consent Order (dDCO) [APP-020]. Failure to comply with the OEMP would be a failure to comply with the DCO, which would be a criminal offence under s161 of the Planning Act 2008.
4. Table 2.1 of the OEMP [APP-187] describes the roles of the Environment Manager, the Ecological Clerk of Works and other specialists who will be responsible for ensuring that precautionary and mitigation measures will be adhered to.
5. The OEMP includes specific requirements for the protection of ecological receptors during preliminary works, secured by PW-BIO1 biosecurity, BIO2 great crested newts, BIO3 reptiles, BIO4 breeding birds, BIO5 Schedule 1 birds including stone curlew, BIO6 badger, BIO7 bats, BIO8 otter, BIO9 water vole, BIO10 other notable species.
6. As detailed within the OEMP PW-G and MW-G5, Construction Environmental Management Plans (CEMP) would be prepared, in consultation with Wiltshire Council and the Environment Agency. These CEMPs would include procedures to monitor compliance with the Scheme environmental actions and requirements and, as such, will be auditable, by the main works contractor (or another suitably competent authority) (MW-G3, G24, and G25).

7. The OEMP also includes specific requirements during the Main Works which include MW-G19 a management structure, which include the Ecological Clerk of Works, together with monitoring of actions and reporting of compliance (MW-G3, MW-G24, MW-G25). The overall requirements for protection of ecological receptors are summarised in MW-BIO1. Protection for species and habitats is referenced in MW-BIO3 – 12.
8. The provisions in the OEMP will therefore avoid or minimise the risk of unintended adverse effects.

Question Ec.1.21

Impact on habitats

The Government has recently signalled its intention to mandate net gains for biodiversity on new developments in England to deliver an overall increase in biodiversity to ensure that wildlife isn't compromised in delivering necessary infrastructure and housing: https://www.gov.uk/government/news/spring-statement-2019-what-you-need-to-know

The Wessex Chalk Stream and Rivers Trust [RR-1032] has commented as follows: "*There is a legal and moral obligation to improve the conditions of the chalk stream and create resilient ecosystems for wildlife and people. Although the fourth objective of Highways England's A303 Stonehenge scheme is 'to improve biodiversity (…)' we feel that is not the outcome for the water environment as much of the investigations proves 'no significant measurable impacts', i.e. allegedly preventing deterioration, but not promoting improvement. A more ambitious programme of interventions with a focus on the rivers Avon and Till in and around the scheme is needed to achieve that objective. Therefore, the Trust can only support the proposed scheme if significant changes are made to the proposal and further investments in the water environment are included.*"

Please provide a detailed response to [RR-1032] and explain how the scheme would contribute to the objective of improving the water environment and biodiversity as a whole.

Response

1. The proposed Scheme's objectives include the aim of improving biodiversity along the route. This will be achieved in a number of ways. Within the Outline Environmental Management Plan (OEMP) [APP-187], MW-BIO2, the main works contractor must establish the new habitats identified within the Environmental Masterplan (ES Figure 2.5) [APP-059] within the Order limits and manage them accordingly to ensure their establishment and development to achieve their target purpose(s), through to any handover of the Scheme. Details of the proposed biodiversity gains can be found in the ES Chapter 8 [APP-046], section 8, paragraphs 8.8.14 – 8.8.21, 8.9.65 – 8.9.66, and Table 8.14, *Habitat losses and gains associated with the Scheme*. The main habitat to be created in the scheme is chalk grassland, which is the main habitat that characterises the Salisbury Plain ecosystem. The Scheme would provide net gain of at least 186 ha of chalk grassland habitats, this would be secured through MW-BIO2 in the OEMP as detailed above. From consultation with stakeholders, Natural England and others via the Wiltshire Chalk Grassland Group, it was agreed that the priority for enhancement was chalk grassland, especially early successional stages of value as habitat and connectivity for butterflies of chalk grassland. This would be achieved by extending the chalk grassland adjacent to the Parsonage Down National Nature Reserve (NNR); providing four green bridges; and delivering a

mosaic of high-quality habitat along the proposed Scheme (OEMP item MW-BIO2). This is in accordance with the aims of Natural England's Porton to the Plains project to improve connectivity of chalk grassland. Natural England agrees that the scheme will deliver biodiversity net gain in the draft Statement of Common Ground between Highways England and Natural England, to be submitted to the Examination at deadline 2 (issues 3.5 and 3.6 refer to this matter).

2. New wetland habitats included in the scheme would be small scale habitat diversification associated with drainage infiltration areas (ES Chapter 8 Biodiversity [APP046], paragraph 8.9.106), which is in keeping with the character of the chalk landscape, these are to be secured through MW-BIO2 of the OEMP [APP-187]. The extent of the proposed Scheme has been kept to the minimum in the Till Valley and the new A303 will span the valley on a viaduct designed to minimise shading and avoid any adverse effect on the Site of Special Scientific Interest (SSSI)/ Special Area of Conservation (SAC). Thus it is anticipated that there will be negligible impact on the SSSI/ SAC. As such, there is little scope to create new or enhanced riverside habitats on land required for the construction of the Scheme, furthermore this would not be proportionate to the potential impact.

3. The proposed Scheme would, however, contribute to enhancement of the River Till by providing ecological network connectivity both west and east. It would provide continuous habitat from Parsonage Down NNR to the River Till SSSI. This increase in both the extent and diversity of associated habitats would provide enhancement for the River Till. Species that use both aquatic and terrestrial habitats would benefit, e.g. invertebrates whose larval stages are aquatic or use seasonally wet grassland may be able to utilise the grassland associated with the infiltration areas and the shelter afforded by shrubs planted on the A303 embankments.

4. The proposed Scheme would provide improvement of highway drainage compared to existing conditions, contributing to improving river conditions. Through the use of Sustainable Drainage Systems (SuDS), the scheme will deliver a significant improvement in road drainage quality against the existing system, which is likely to result in a moderately beneficial residual effect for water quality in the River Avon, as summarised in ES Chapter 11, Road Drainage and the Water Environment (APP-049), Table 11.10. [APP-049]. These drainage measures would be secured by the requirement contained in paragraph 10 of Schedule 2 to the draft Development Consent Order [APP-020]. This is in line with the Site Improvement Plan for the Avon River and Valley, where water pollution has been highlighted as a threat. This will also contribute to catchment objectives to improve the water quality in the River Avon and will ultimately result in a biodiversity net gain.

5. Through consultation with the Environment Agency, Natural England and the Hampshire Avon Catchment Partnership, Highways England is aware that there are potential projects to enhance the river system within the catchment. The proposed Scheme would not prevent the future delivery of those projects.
6. Through national Designated Funds, Highways England is supporting a range of environmental enhancement initiatives where these contribute to meeting the fund objectives nationally or regionally. Several local projects related to river enhancement have been put forward for consideration for funding, but any future support for them would be independent of the Scheme and does not form part of the DCO application and as such, have not been included within this Scheme.

Question Ec.1.22

Great bustard

i. What information is available on the current status of the great bustard in the UK and in the local area?

ii. How significant is the scheme as a threat to the success of the project to re-establish a sustainable breeding population of great bustard?

Response

i. What information is available on the current status of the great bustard in the UK and in the local area?

1. The great bustard is a globally threatened bird which formerly occupied lowland grassland and steppe regions extending across the middle latitudes from Morocco to China. Expanding and thriving in low to medium intensity agricultural landscapes, its range diminished with the proliferation of intensive agricultural practices and excessive hunting10.
2. The reintroduction of great bustards to the UK started in 200411 and the project is ongoing, with rearing, releasing and monitoring undertaken by the Great Bustard Recovery Group12. The Salisbury Plain area is the only area of the UK where great bustard have been re-introduced. Through on-going engagement with the Bustard Recovery Group, information has been provided by this group on great bustard local distribution, including sighting and nesting in the study area for the proposed Scheme. Great bustards are now breeding successfully in the wild, albeit still in low numbers13. Great bustards feed and shelter in the arable fields in the Salisbury Plain area, generally in oilseed rape in winter, and cereal crops, but also feed in areas of grassland, as evidenced by detailed studies of the diet of released birds14.. Table 8.12 of the Environmental Statement Chapter 8 Biodiversity [046] and paragraphs 8.1.35-8.1.36 of Appendix 8.1B [APP-233] summarise the baseline for great bustards at the time of writing.

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10 Scott Gooch, Kate Ashbrook, Andrew Taylor & Tamás Székely (2015) Using dietary analysis and habitat selection to inform conservation management of reintroduced Great Bustards *Otis tarda* in an agricultural landscape, Bird Study, 62:3, 289-302, DOI:10.1080/00063657.2015.1050993 http://dx.doi.org/10.1080/00063657.2015.1050993, and cited authors.

11 https://www.rspb.org.uk/our-work/conservation/projects/reintroducing-the-great-bustard-to-southern-england

12 http://greatbustard.org/the-project/

13 R Manvell, Great Bustard Recovery Group, pers. comm.

14 Scott Gooch, Kate Ashbrook, Andrew Taylor & Tamás Székely (2015) Using dietary analysis and habitat selection to inform conservation management of reintroduced Great Bustards *Otis tarda* in an agricultural landscape, Bird Study, 62:3, 289-302, DOI:10.1080/00063657.2015.1050993 http://dx.doi.org/10.1080/00063657.2015.1050993, and cited authors.

ii. How significant is the scheme as a threat to the success of the project to re-establish a sustainable breeding population of great bustard?

3. The potential of the proposed Scheme to affect great bustard populations was assessed in the Environmental Statement Chapter 8 Biodiversity [APP-046], paragraphs 8.9.141-8.9.144. No existing nest sites would be lost to the proposed Scheme. The potential for disturbance has been considered. Construction activity would be visible to great bustards at some locations, but measures such as the screening of construction compounds will provide mitigation and any disturbance is likely to result in a temporary adverse impact that would result in a neutral effect that is not significant [APP046].

4. Mitigation measures are included in the Outline Environmental Management Plan (OEMP) [APP-187], compliance with which is secured through paragraph 4 of schedule 2 of the draft Development Consent Order [APP-020]. In particular, measures to protect Schedule 1 species and stone curlew in PW-BIO5 and MW-BIO8 would also be applied in the unlikely event that great bustard (an Annex I species under the Birds Directive, that is considered to have similar legal protection to that of stone curlew) was found near the construction area.

5. The proposed Scheme would therefore not be a threat to the success of the project to re-establish a breeding population of great bustards. Furthermore, the grassland habitat creation (as secured at ref. MW-BIO2 in the OEMP [APP-187]) has potential to offer increased feeding areas for great bustard. Provisions of the Scheme such as the green bridges and diverting approximately 3km of the proposed Scheme into tunnel will also help to reduce the possible severance effects of the existing A303, and is likely to encourage dispersal into the wider landscape.

Question Ec.1.24

Need for Habitats Regulations Assessment/Appropriate Assessment

The European Court of Justice ruling in *People over Wind* determined that 'mitigation' (ie measures intended to avoid or reduce the harmful effects of the project on European sites) should not be taken into account when forming a view on likely significant effects during screening under the Habitats Regulations.

On this basis, the applicant appears to have placed reliance on a suite of 'measures' (through project design) that have that have the effect of reducing likely significant effects on European Sites during construction and operation. Indeed, in table 3.1 (page 21, item no. 66) [APP-265] under the heading "*Water quality impacts during construction without an Outline Environment Management Plan*" implying that impacts are likely without such a plan. This is also implied by items 8) and 9) of table 3.1 of [APP-265].

i. With respect to table 3.1 and matrix 3 of [APP-265], and having regard to the People over Wind judgement, could Natural England comment on the Applicant's approach in this regard?

ii. Section 1.2 of the Environment Agency's RR [RR-2060] highlights some concerns in respect of the Drainage Strategy and the detail regarding likely effectiveness of the treatment systems to deal with contaminants prior to discharge to ground or surface waters. Can the Environment Agency their views on the basis that the Applicant has ruled out LSE on the River Avon SAC?

iii. Can the Applicant confirm their position that conclusions of no LSE on the River Avon SAC during construction and operation have been reached without reliance on avoidance or reduction measures?

Response

1. With regard to point (iii), the Applicant confirms that conclusions of no Likely Significant Effect (LSE) on the River Avon SAC during construction and operation were reached without reliance on avoidance or reduction measures introduced to avoid or reduce harm to a European site. The measures that appear to be in question are referenced in the LSE [APP-265] report because their primary purpose for inclusion in the Scheme is not to protect the European sites but to comply with other legislative requirements that would apply whether or not any European sites were present. This is compliant with the People over Wind ruling which did not prohibit the consideration of any and all mitigation measures during determination of likely significant effects but only those which were introduced to avoid or reduce harm to a European site.

2. Pages 13 and 14 of the LSE report [APP-265] confirm this:

    a. With regard to water quality: 'Measures are embedded into the Scheme to comply with the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and Environmental Permitting (England and Wales) Regulations 2010 during both construction and operation to ensure pollution will not arise'

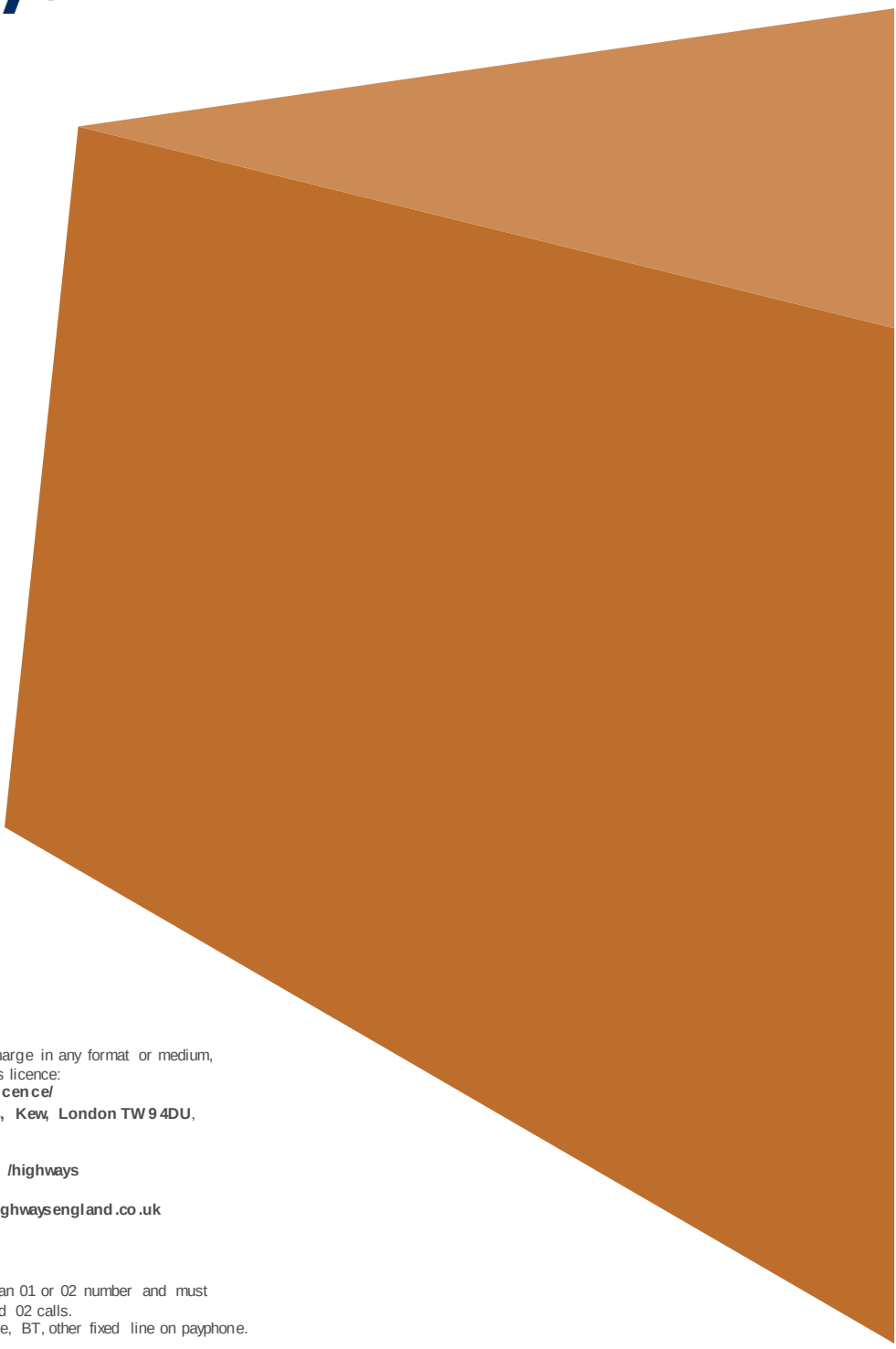
    b. With regard to water flows: 'Common law requires that property or land is not used in such a way that it increases the risk of flooding.'

    c. With regard to introduction of non-native species: 'In order to comply with the Wildlife & Countryside Act 1981 (as amended) which make it illegal to spread certain non-native species (listed in Schedule 9 of the Act) the contractor will implement control measures as necessary to prevent introduction or spread of invasive species'.

    d. With regard to noise: 'With regard to piling noise, the scheme will use a low noise piling method for purposes of noise attenuation reasons to avoid disturbance to residents of Winterbourne Stoke. This has the incidental benefit of also avoiding piling noise or vibration impacts on fish'.

3. As a result of these being measures included to comply with other legislative requirements, page 15 of the LSE report is able to confirm that 'No specific mitigation measures intended to address potential effects on the River Avon SAC are taken into account in this likely significant effects assessment, in line with case law.' That is because none of the aforementioned measures are being specifically introduced to avoid adverse effects on the SAC but to comply with other legislative requirements which would apply even if no SAC designation existed.

4. Therefore the Applicant can reaffirm with regard to point (iii) that the screening process documented in the LSE report has not taken account of any measures that were introduced to avoid or reduce harm to the River Avon SAC, although it did take account of measures that had already been incorporated into the Scheme before the HRA process was started in order to comply with other legislative requirements. This is why (for example) shading mitigation measures in the form of bridge design were taken forward to the appropriate assessment; because they were specifically introduced to avoid or reduce harmful effects on the SAC.



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