

**From:** [REDACTED]  
**To:** [A303 Stonehenge](#)  
**Subject:** Environment Agency Written Representations - Deadline 4 - A303 (Stonehenge) Amesbury to Berwick Down DCO  
**Date:** 21 June 2019 19:00:46  
**Attachments:** [REDACTED]

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Dear Sir/Madam

Please find attached the Written Representations from the Environment Agency for Deadline 4 for the A303 (Stonehenge) Amesbury to Berwick Down DCO application.


Please contact me if you have any queries.

Kind regards

Kath

**Katherine Burt**  
**Sustainable Places - Planning Specialist**  
**Wessex Area, Environment Agency**

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Ms Wendy McKay  
Lead Member of the Panel of Examining  
Inspectors  
The Planning Inspectorate  
National Infrastructure Planning  
Temple Quay House  
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Bristol BS1 6PN

**Your Ref: TR010025**

Our Ref:  
A303Stonehenge\_WReps\_21062019

Date: 21 June 2019

Dear Ms McKay,

**A303 (Stonehenge) Amesbury to Berwick Down scheme**  
**Environment Agency – Written Representations – Deadline 4**

Please find enclosed our written representations for the A303 (Stonehenge) Amesbury to Berwick Down Scheme Development Consent Order (DCO) on behalf of the Environment Agency.

We have provided our comments to the documents submitted by the Applicant to the Planning Inspectorate at Deadline 3 (31 May 2019). We also provide our written summaries of oral submissions that we attended between 4 and 14 June 2019.

Our representation outlines where further work, clarification or mitigation is required to ensure that the proposal has no detrimental impact on the environment. In particular we request that where the EA has asked to be consulted on any work, we wish the DCO and any supporting documents to be amended to stipulate that we should be “consulted on” and “agreement reached with the EA prior to development taking place”

Please contact Katherine Burt, Planning Specialist, if you require any further information. We look forward to continuing to work with the applicant to resolve the matters outlined above, and to ensure the best environmental outcome for this project.

Yours sincerely

  
**Barry Smith**  
**Team Leader - Sustainable Places**  
**Environment Agency – Wessex Area**

*Contact details:*

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# Written Representations

## On behalf of the Environment Agency

Further to our previous responses dated the 11 January 2019, 3 May 2019 and 31 May 2019, we wish to provide comments on the documents submitted to the Planning Inspectorate at Deadline 3. We also provide our written summaries of oral submissions that we attended between 4 and 14 June 2019. We have continued to be involved in discussions with Highways England (the applicant).

### **A) DOCUMENTS RECEIVED AT DEADLINE 3**

#### **1.0 Draft DCO dated May 2019**

##### **1.1 Article 3 Disapplication of legislative provisions**

1.1.1 We note the removal of Section 24 (restrictions on abstraction) of the Water Resources Act 1991, which we support. Consequently any abstraction (including dewatering), unless covered by exemption will require an abstraction licence.

1.1.2 The version of the draft DCO submitted at Deadline 3 does not include the latest Protective Provisions agreed between the EA and Highways England. However, we have now agreed Protective Provisions to be included in the draft DCO to cover EA flood risk permitting activities. We understand that these are to be included in the next version of the draft DCO.

##### **1.2 Article 7 Limits of deviation**

1.2.1 It is noted that Limits of Deviation to the vertical and lateral alignment of the tunnel are to be set by the DCO to allow for changes in the currently proposed design during detailed design by the contractor.

1.2.2 The Bored Tunnel Limits of Deviation Plan (TR010025-2.16 Rev P02) submitted with the DCO application indicates an upper limit for the crown of the tunnel at 70 mAOD at the lowest point of the tunnel - beneath Stonehenge Bottom - and no lower limit to its vertical alignment.

1.2.3 The groundwater risk assessment to date (most recently updated in *Implications of 2018 Ground Investigations to the Groundwater Risk Assessment, P04. AECOM, Mace, WSP, April 2019*) has assessed the impacts of an alignment where the crown, at its lowest point – beneath Stonehenge Bottom – is 55 mAOD. This assessment places the tunnel beneath the expected elevation of the Whitway Rock which is thought to act as a preferential flow horizon (although the presence of these and exact location has not been confirmed to date). Due to the risk of the tunnel impeding flow along this horizon should its alignment, design or construction methodology change, it is essential that any changes to the detailed design are adequately risk assessed. The EA should be consulted on any updated design and risk assessment and agreement reached with the EA regarding conclusions and any mitigation measures proposed.

1.2.4 We would welcome consultation with us before the proposed Limits of Deviation for the tunnel could be invoked.

##### **1.3 Article 13 Discharge of water**

1.3.1 We recommend that this article be amended to include groundwater and dissolved pollutants in the text. This is required because groundwater is a sensitive resource in the vicinity of the A303 Amesbury to Berwick Down site and requires particular protection. Here is our recommended amended wording:

“Discharge of water (5) The undertaker must take such steps as are reasonably practicable to secure that any water discharged into a watercourse or public sewer or

drain or to the ground under this article is as free as may be practicable from gravel, soil or other solid substance, oil or matter in suspension or dissolved pollutants. “

- 1.3.2 This amendment is in line with the draft DCO recently discussed at the A303 Sparkford to Ilchester DCO Examination in Somerset. Please see Part 4 (Supplemental Powers) Article 20 Discharge of water of the A303 Sparkford to Ilchester DCO.

**1.4 Requirement 3 Preparation of detailed design, etc**

- 1.4.1 With regard to the requirement for approval to be sought for changes to the detailed design we note that as it stands, there is no requirement for public consultation if the changes are deemed to “*not give rise to any materially new or materially worse adverse environmental effects from those reported in the environmental statement*”. It is not clear that the Environment Agency would be involved in making the judgement as to the likely degree of impact of any changes.

- 1.4.2 We would therefore recommend the EA should be consulted on any changes to the construction design or methodology and no development should take place until written agreement by the EA is provided that all apparent environmental risk have been considered and mitigated.

**1.5 Requirement 4 Outline Environmental Management Plan**

- 1.5.1 Requirement 4 (3) of the draft DCO dated May 2019 states:

“The undertaker must make each construction environmental management plan and each handover environmental management plan produced in accordance with the OEMP available in an electronic form suitable for inspection by members of the public.”

- 1.5.2 There does not appear to be any other requirement in the draft DCO to ensure a CEMP and HEMP are produced and implemented. We consider that more specific mention of these plans should be included in the DCO. This is required to ensure that adequate measures are put in place during the construction stage to protect the environment and then appropriate maintenance put in place for the longer term. We would wish to be consulted on the CEMP and HEMP documents, and included as a consultee in any proposed Requirements for these and no works should commence until written agreement that these plans provide appropriate measures and mitigation to protect the environment during construction and operation of the scheme.

- 1.5.3 We consider the definition and requirement for a CEMP and HEMP should be more clearly stated in the DCO.

- 1.5.4 In addition - item MW-G5 of the OEMP requires that the Environment Agency is *consulted* during preparation of the CEMP. We would request that the wording is amended to require our *approval* or “agreed in writing with the Environment Agency” to ensure that risks to the environment are adequately managed. It would seem that as it stands, the only approval required is that of the applicant. We do not consider that this provides assurance that the CEMP will be adequately scrutinised prior to approval.

**1.6 Requirement 6 Protected Species**

- 1.6.1 We believe this requirement should relate to both permanent and temporary works.

**1.7 Requirement 7 Contaminated land**

- 1.7.1 We have previously requested inclusion of a pre-commencement requirement in the DCO to undertake investigation and risk assessment of potentially contaminated land along the route alignment, particularly the former military sites. We consider that where contamination may reasonably be expected to exist, risks should be investigated prior to works commencing rather than relying on a less controlled discovery and greater potential for mobilising contamination if found during the main construction works.

- 1.7.2 We understand that ground investigation and risk assessment of these sites has been or is currently being carried out. We would welcome the opportunity to review the results of

these assessments at the earliest opportunity and would be in a position to agree discharge of the additional Requirement in the DCO should we be satisfied that acceptable risk to controlled waters has been demonstrated prior to construction taking place and appropriate methods are in place to investigate and where appropriate remediate any contamination identified.

### **1.8 Requirement 10 Drainage**

- 1.8.1 We welcome the addition of text requiring consultation and written agreement with the Environment Agency during detailed design of the drainage system.

### **1.9 Requirement 11 Details of consultation**

- 1.9.1 We would support the addition of Requirement 11, which will ensure where consultation is required to satisfy DCO Requirements, the applicant must provide summary of this to the Secretary of State. Also if consultee recommendations have not been adopted the summary should explain why. This is a good addition to the DCO, however, it only appears to relate to Requirements rather than the more detailed aspects of the OEMP clauses. Therefore we would still wish be consulted and our written agreement obtained on those matters relevant to the EA.

### **1.10 Schedule 11 Protective Provisions**

- 1.10.1 The EA have agreed with Highways England specific Projective Provisions to be included in the draft DCO. These are not yet in the current version submitted, but we understand they will be submitted within the next version.

### **1.11 Additional Requirement – Environmental Enhancement Plan**

- 1.11.1 As discussed to our previous written representations, we would recommend that a Requirement be included in the draft DCO that states:

“(1) No part of the authorised development is to commence until an Environmental Enhancement Plan has been submitted to and approved in writing by the Secretary of State, following consultation with the planning authority, the Environment Agency and Natural England.

(2) The Environmental Enhancement Plan must be implemented in accordance with the approved details referred to in sub-paragraph (1).”

- 1.11.2 Alternatively we would be satisfied for the need for the production of the plan to be included in the OEMP or HEMP. This could be included in the list of plans in OEMP reference MW-G7 and then the implementation/maintenance aspects covered in the HEMP as required.

- 1.11.3 Further information on why we request an Environmental Enhancement Plan to be produced is given below in the section relating to Issue Specific Hearing 7 – Biodiversity, biological environment and ecology.

## **2.0 Consolidated Environmental Mitigation Schedule**

- 2.1 We do not have any further comments to add to those give in our written representation dated 31 May 2019.

## **3.0 Amended OEMP dated May 2019**

### **3.1 MW-WAT12 Flood Risk Management Plan**

- 3.1.1 We support the inclusion of this plan in the OEMP. However, we recommend some additional wording to MW-WAT12 relating to climate change allowances. This is given below:

“Flood Risk Management Plan:

The main works contractor shall prepare a Flood Risk Management Plan to the Authority for approval, as part of the Water Management Plan. The plan will summarise:

- a) any areas within Flood Zone 3 plus appropriate allowance for Climate Change areas susceptible to groundwater flooding, and other flood risk sources, such as sewer flooding;
- b) any applications made, or likely to be made, for an environmental permit, where required in relation to flood defence, for temporary and permanent works and the status of the works;
- c) any specific requirements or conditions of the approval that will be obtained from the relevant consenting bodies;
- d) any flood risk management or mitigation measures implemented, or to be implemented, in support of temporary and permanent works proposals; and
- e) a statement on the cumulative flood risk impact of temporary and permanent works. The plan shall be developed following consultation with the Environment Agency.”

### 3.2 MW-WAT13 Flood Risk – general provisions:

3.2.1 We are satisfied with the wording of MW-WAT13 provided in the amended OEMP dated May 2019 and agree with its aims. However, at the current time we are still in discussion with the applicant regarding the details within the Flood Risk Assessment (FRA), as it appears the current scheme has the potential to change the flood risk in the area. This would need to be reflected in the OEMP. This is relevant because MW-WAT13 refers to the FRA given in ES (Appendix 11.5) the latest version is dated May 2019, particularly in the third paragraph highlighted in bold below. We recommend that either the FRA and/or the OEMP should be amended and we would expect to see no increase in flood risk from the scheme.

3.2.2 MW-WAT13 states:

“Flood Risk – general provisions:

The main works contractor shall, where reasonably practicable, minimise works within the floodplain. Temporary compounds and haul routes will be located outside of EA Flood Zones 2 and 3 and primary overland flow paths wherever reasonably practicable.

The main works contractor shall be responsible for obtaining from the Environment Agency updated modelled water levels (1% AEP including climate change) as well as updated information on the required standard of protection of the flood defences.

**The main works contractor shall ensure that flood risk is managed safely throughout the construction and implementation period, and that all designs do not cause increased risk levels from those assessed in the Flood Risk Assessment (FRA) included in the ES (Appendix 11.5), and include the provision of a safe refuge during a flood event.**

The main works contractor shall be responsible for providing and maintaining continuous flood defence provision, where relevant, for both permanent and temporary works, to the statutory flood defence level as detailed within the FRA.

The main works contractor shall consider and implement appropriate measures to manage the potential risks of flooding from rivers, localised perched groundwater, overland surface water flows and sewer surcharging, in accordance with the details provided within the FRA. This will include consideration of potential flow paths within the site which could become active in the event of extreme rainfall and/or sewer surcharging, particularly during temporary works. Overland flow paths will be determined by site topography, therefore vulnerable operations and materials will be located within elevated parts of the site where reasonably practicable, away from potential flow paths. If this is not possible, other appropriate protection measures will be incorporated.

The main works contractor shall assess potential build-up of groundwater on the upstream side of below ground structures, as this may lead to rise in groundwater levels and in severe occurrences of groundwater flooding, and mitigate where appropriate. At the end of construction, where temporary support, such as sheet piling and secant piles, do not form part of the operational structure, pile walls where required will be removed,

cut-down or piped through routes provided to prevent the potential build-up of groundwater.”

- 3.2.3 We are currently in discussions with the applicant regarding the FRA, OEMP and other documents relating to flood risk matters.

### **3.3 MW-BIO3 River Till ecological mitigation**

- 3.3.1 Piling - We note that non-impact piling is now included in the OEMP. We presume this means non-percussive piling. If this is the case we would be satisfied with this method, however, we would still wish to be consulted on the timing and nature of any proposed piling to avoid fisheries impacts. We therefore provide below some suggested additional text to the piling paragraph in MW-BIO3 in the OEMP. We would then be satisfied that permanent adverse impacts could be avoided.

#### *“Piling*

Non-impact piling shall be used for the construction of both the temporary bridge and the permanent viaduct. The Environment Agency should be consulted on the timing and nature of any proposed piling, and any agreed measures implemented into the scheme to avoid fisheries impacts”

- 3.3.2 Temporary bridge - We note that the wording has recently been changed in MW-BIO3 to recommend relocation of the temporary bridge after every two years. We have not been cited on this change and would like further discussion as to why this is the case, as it is not necessarily something we would support. We would also like to see commitment to actively restoring the river corridor to previous condition or better (as recommended in the River Avon Restoration Plan) upon cessation of the temporary crossing(s). With these considerations included we would be satisfied that permanent adverse impacts could be avoided.

### **4.0 Updated Flood Risk Assessment dated May 2019**

- 4.1 We have reviewed the updated FRA with its associated flood risk model both dated May 2019. We are still in discussion with the applicant with regard to the detail in the FRA. We will provide a more comprehensive response on the FRA at Deadline 5 (19 July 2019).

## **B) WRITTEN SUMMARIES OF EA ORAL SUBMISSIONS PUT AT HEARINGS HELD BETWEEN 4 AND 14 JUNE 2019**

### **5.0 Issue Specific Hearing 1 - Draft DCO (4 June 2019)**

- 5.1 Please refer to our comments given on the draft DCO dated May 2019 in the section above. These cover the points that we raised at the DCO Issue Specific Hearing held on the 4 June 2019.

### **6.0 Issue Specific Hearing 2 - Hydrological implications for Blick Mead (5 June 2019)**

- 6.1 We note the relatively short period of groundwater level monitoring carried out at Blick Mead to date (November 2018 to March 2019). A longer period of record would provide greater confidence that the conceptual model described by Highways England in the Tiered Assessment (Environmental Statement Appendix 11.4 Annex 3 Blick Mead Tiered Assessment, October 2018) is supported by site specific data. Evaluating a short dataset in the context of a longer dataset from a suitable nearby monitoring point to allow estimation of ground and surface water levels at the site under a wider range of hydrological conditions is relatively common-place in hydrological assessment although the suitability of the reference site must be ensured and the uncertainties introduced by using this method recognised.

- 6.2 The data presented in 'Blick Mead monitoring to March 2019' (Document ID HE51506-AMW-EWE-SW\_GN\_000\_ZZ-TN-WR-0015, AMW 5<sup>th</sup> April 2019) does appear to support the general conceptual model presented that there is potential for upward flow of groundwater from the chalk and sands and gravel into the lower permeability alluvial deposits that contain the Mesolithic remains of interest. The specific data that support this are the groundwater levels (heads) recorded in WS05 and WS02 (reported in 'Deadline 1 Blick Mead – Note regarding proposals for additional monitoring (Highways England, April 2019) as having response zones isolated to the chalk) being higher than the elevation of the Mesolithic deposits. This means that groundwater in the chalk will be exerting an upward pressure through the sands and gravels and into the base of the Mesolithic deposits, potentially – depending on the permeability of the Mesolithic deposits - reaching an elevation equal to the levels recorded in monitoring boreholes WS02 and WS05. The fine grained nature of the Mesolithic deposits reported will impede this upward flow to some degree.
- 6.3 Upward flow of groundwater from the chalk into the superficial deposits is well known by the Environment Agency in this area and is evidenced by relative groundwater levels recorded in our nearby monitoring boreholes 'Amesbury Deep' and 'Amesbury Shallow' (as presented in Fig. 2.12 of ES Appendix 11.4 Annex 3) and by accretion of flow in the River Avon along this reach.
- 6.4 Groundwater levels recorded in boreholes WS03, WS09, WS10, reportedly monitoring the alluvial deposits at Blick Mead, are higher than both the elevation of the Mesolithic Deposits and groundwater levels in WS02 and WS05 that monitor the chalk. This may suggest the presence of perched groundwater (originating from infiltration of rainwater into the alluvial deposits lying above the Mesolithic layer) and being at a higher hydraulic head, having the potential to migrate downwards thus contributing to the wetting of the archaeological artefacts. It should however be noted that the difference in groundwater heads recorded in the alluvial deposits and chalk are relatively small and could be explained by their relative positions and constitute an expression of the natural hydraulic gradient of a single, connected groundwater body across the site. Reference to borehole logs – thus far not presented – including the surface elevation of the boreholes, detailed stratigraphic log, screened intervals and water strikes would aid clarification of the presence of perched groundwater and the possibility that the Mesolithic layer is wetted to some degree by water infiltrating down from above.
- 6.5 Chemical analysis of groundwater taken from the Mesolithic layer may also aid determination of its origin in that water infiltrating down through the overlying alluvial deposits may be expected to have a somewhat lower calcium carbonate content than that received from the chalk below. We do note however, the apparent widespread occurrence of made ground consisting of chalk rubble across the site as reported in 'ES Appendix 11.4 Annex 3 Blick Mead Tiered Assessment' which could raise the calcium carbonate content of local recharge into the alluvial deposits. Other parameters may be more useful in determining the origin of water in the Mesolithic layer.
- 6.6 If it was determined that the Mesolithic layer is wetted by water draining down from above via local recharge into the alluvial deposits rather than from deeper groundwater moving upwards from the chalk, any impacts on groundwater levels in the chalk that may arise from the proposed tunnel would be less likely to impact the Mesolithic deposits because this perched groundwater body in the alluvium would not be in continuity with the affected chalk groundwater body.
- 6.7 The groundwater modelling carried out to date and presented in 'ES Appendix 11.4 Annex 1 Numerical Model Report' (AMW, July 2018), 'Stage 4 – Implications of 2018 Ground Investigations to the Groundwater Risk Assessment' (AMW, April 2019) and 'Stage 4 – Supplementary Groundwater Model Runs to Annex 1 Numerical Model Report' (AMW, April 2019) indicate that any impacts on groundwater level from the proposed scheme are unlikely to extend as far as Blick Mead under low groundwater conditions when there may be considered a greater risk of the Mesolithic layer drying out (as we understand is the potential risk to preservation of the archaeology). In this



scenario, the model predicts the maximum reduction in water level due to the presence of the tunnel to be 5 cm immediately to the south of the central portion of the tunnel with the limit of measurable impact (2 cm) being 750 m from Blick Mead at its nearest point (Fig 4.6 of Appendix 11.4 Annex 1 Numerical Model Report, AMW, July 2018).

- 6.8 These reports do not however present the model outputs for reduction in groundwater levels caused by the proposed tunnel during periods of high groundwater level, the focus being on flood risk under such conditions so only rise in level is plotted (Fig. 4.1 of Appendix 11.4 Annex 1 Numerical Model Report, AMW, July 2018). It is recognised that the magnitude of any drop in groundwater level due to the tunnel under peak conditions is likely to be insignificant in comparison to the seasonal rise resulting in water levels remaining significantly above the Mesolithic layer. However, presentation of the predicted reductions in groundwater level down gradient of the tunnel during high groundwater level conditions and demonstration of whether any fall that may extend as far as Blick Mead would be significant in comparison to the seasonal rise would provide confidence in this assumption.
- 6.9 We note that there is potential for the final design to deviate from that assessed to date and would therefore expect further risk assessment of the final design since the magnitude and extent of impacts on groundwater levels may change.
- 6.10 Should dewatering be required in the vicinity of Blick Mead as part of the scheme, there is the potential for impacts to groundwater levels in the chalk beneath the site. Any dewatering will be subject to regulation by the Environment Agency under the Water Resources Act 1991 and we would expect appropriate assessment of risk to all potential receptors to be carried out prior to the issue of any licence.

## **7.0 Issue Specific Hearing 4 – Flood risk, groundwater protection, geology, land contamination, waste and materials management**

### **7.1 Geology, ground conditions and groundwater flows**

- 7.1.1 We are generally reasonably satisfied at this stage that the proposed DCO and OEMP and other documents contain sufficient controls for the scheme. However we would like wording changed to seek our 'agreement' of the items we are to be consulted on (not just consultation). This is to ensure that our comments would be agreed and then implemented in the detailed proposals. We certainly expect further risk assessment once the final design has been confirmed and that should take into account results of the additional ground investigation that is ongoing.
- 7.1.2 In terms of our more specific comments for each of the hearing points discussed, these are given below.

#### ***Methodology and monitoring***

- 7.1.3 Detail design should be further risk assessed to ensure the level of environmental impact is satisfactory this should consider the construction method and location in relation to preferential flow horizons. The OEMP provides control in relation to this. In particular:
- OEMP: PW-G1 and MW-G5: Preparation of CEMPs. EA should be consulted on CEMP for preliminary works as well as main works (EA consultation currently only stated in MW-G5 for main works).
  - OEMP: PW-WAT1 and MW-WAT4: CEMP to include measures to control pollution
  - OEMP: MW WAT7: Control of pollution to waterbodies.
  - OEMP: MW-WAT8: adopt methods to minimise need for and extent of de-watering.
  - OEMP: MW-WAT9: Approval of material for grouting.
  - OEMP-WAT10: Groundwater Management Plan to show how GW resources will be protected. To include monitoring of level and quality, derivation of trigger levels and action plans should they be reached.

- OEMP-WAT11: Management of impacts on abstraction boreholes: Monitoring and mitigation of resources and quality.
- OEMP-WAT 14: Drainage system to conform with DCO.

7.1.4 At the hearing we outlined de-watering may have significant impact on sensitive environment and may generate significant volumes of water that would need to be managed. We also identified abstraction licence policy indicates “no consumptive resource available” so if there were any net loss, it may not be possible to issue an abstraction licence for any de-watering. Consultants have therefore assumed in all risk assessments that there will be NO dewatering. Assumptions has been that tunnel boring machines will be used for construction with no de-watering.

7.1.5 With regard to dewatering we consider the following references in the OEMP cover these issues:

- OEMP: MW-WAT3: Use sustainable methods for construction waste water discharge including relevant permits where required.
- OEMP: MW-WAT8: adopt methods minimise need for and extent of de-watering.
- OEMP MW WAT9: Approval of material for grouting.
- OEMP-WAT10: Groundwater Management Plan to show how groundwater resources will be protected.
- OEMP: W-WAT11: Protection of existing abstractions including consultation over mitigation measures, monitoring and emergency measures to overcome adverse impacts.

### **Construction**

7.1.6 At the detailed stage the applicant will need to assess final construction approach on groundwater quality and quantity. De-watering has the potential to cause widespread impacts. The assumption to date has been that no de-watering will take place and the impact of dewatering has not been assessed. Any proposals for this should be further risk assessed and EA consulted on agreement reached regarding any conclusions and mitigation measures put forward. De-watering would need a licence from the EA. This would only be granted where it would not have a detrimental impact on water quality or quantity. Discharge from any scheme may need permitting and the risk would need to be determined (flooding, water quality impacts (e.g. phosphorus), etc).

7.1.7 We also expect the tunnel boring methodology including use of drilling fluids and grouts to be appropriately risk assessed. The assessment should consider the potential for invasion of these fluids into the surrounding ground and any resulting risk of pollution or impediment to groundwater flow.

7.1.8 OEMP: PW-G1, MW-G5, MW-G7, MW-WAT8, MW-WAT9, MW-WAT10, WM-WAT11, MW-WAT14 provide some controls of these activities.

### **Long term effects**

7.1.9 The OEMP MW-WAT10 requires a Groundwater Management Plan to be produced. This should include an update to the Groundwater Risk Assessment for the final design and construction plan. The EA request to be consulted and agreement reached with us regarding this prior to development taking place.

## **7.2 Flood Risk and Drainage**

7.2.1 We have reviewed the updated FRA with its associated flood risk model both dated May 2019. We are still in discussion with the applicant with regard to the detail in the FRA. We will provide a more comprehensive response on the FRA at Deadline 5 (19 July 2019).

- 7.2.2 However, as mentioned at the Flood Risk Issue Specific Hearing we can confirm that the matters under discussion with the applicant relate to flood plain compensation and model validation. Further update on this will be provided at Deadline 5.
- 7.2.3 As part of our strategic overview role we support Wiltshire Council with the upper allowance (40% for surface water) being applied to the road drainage design. This is due to the consequences of the testing of this allowance on the proposed design and the freeboard being used up. An alternative option for Highways England is to demonstrate that no increase in flood risk is caused by not designing the road drainage to the 40% allowance.
- 7.2.4 In terms of groundwater protection, we support the use of Sustainable Drainage Systems (SuDS) and there is generally likely to be an improvement. However there is potential risk increase where run-off is collected and discharged in one location unless treatment system is sufficient and there is potential to isolate run-off containing contamination in the event of accident (Note in particular at east and western portal).
- 7.2.5 Drainage systems need enough capacity to hold storm run-off, pollution spill and firefighting foam. This should incorporate an automated system to shut.
- 7.2.6 The nature of the drainage systems to be put in place for the scheme may need to go beyond standard requirements due to the sensitivity of the catchment. This includes consideration of appropriate storage volumes.
- 7.2.7 EA request to be consulted on the detailed design and our agreement obtained. The agreement by Secretary of State, in consultation with Wiltshire Council and the EA should be gained prior to any development taking place.

### **7.3 Contamination (including groundwater contamination)**

- 7.3.1 Risk assessment should be undertaken where required. Remediation of possible areas of contamination should be carried out prior to development taking place. We would request to be consulted, and our written agreement obtained, on any risk assessment and remediation proposals, prior to development taking place.
- 7.3.2 The OEMP should consider human health and environmental impacts of scheme and contamination. This should be included in MW GEO1 of the OEMP which currently only requires control of risks to humans from disturbance of contaminated land. OEMP PW-G1 and MW-G5: requires the preparation of a CEMP which in part will identify how any contamination identified during construction will be managed. EA request to be consulted on this and agreement reached regarding final plan.

#### ***Monitoring and Remediation***

- 7.3.3 The Groundwater Management Plan should include an updated risk assessment of final design, also the proposals for final level and quality monitoring network and plan, including trigger levels to use as threshold for potential impact and further investigation as required by MW-WAT10 of the OEMP.

### **7.4 Waste and Materials Management**

#### ***Onsite depositing of tunnel arisings***

- 7.4.1 The application states that tunnel arisings will be deposited, dewatered and treated before being used in the project under the CL:AIRE Code of Practice.
- 7.4.2 This means that the appointed 'Qualified Person' must make sure that any waste which is treated or deposited on site for any reason is tested first to make sure that waste does not contaminate the ground on which it is put. The CL:AIRE Code of Practice provides further detail, if required.

- 7.4.3 The contractor should also ensure the development does not result in any increased flood risk and or loss of water resources, through increased run-off and reduced recharge to the chalk aquifer.

***Offsite disposal of tunnel arising's (under exceptional circumstances)***

- 7.4.4 If waste from the tunnel had to be sent off site for treatment or for disposal it would have to be tested and then sent with the appropriate documentation to a waste facility which could treat and/or dispose of the waste. The documentation would have to include waste transfer notes / consignment notes depending on which was applicable.
- 7.4.5 If part of the site had to have a waste permit in order to treat the tunnel arising's before being consigned or sent to another site for disposal then a Standard Rules permit / Bespoke permit would have to be applied for before any waste could be treated and left the site. Depending on where the site would be positioned would depend if it was a standard rules or a bespoke permit. The local area office would be able to provide pre-application advice.

***Use of materials***

- 7.4.6 Use of waste arising's from the site would depend on the test results.

## **8.0 Issue Specific Hearing 5 – Noise and vibration (12 June 2019)**

- 8.1 The EA's main issue in relation to noise and vibration relates to the potential impact on fish. The nature of any required piling in the vicinity of watercourses needs to be addressed. We note that non-impact piling is now included in the OEMP. We presume this means non-percussive piling. If this is the case we would be satisfied with this method, however, we would still wish to be consulted on the timing and nature of any proposed piling to avoid fisheries impacts. We have provided some suggested text to the amended OEMP in the relevant section above and would be then satisfied that permanent adverse impacts could be avoided.

## **9.0 Issue Specific Hearing 7 – Biodiversity, biological environment and ecology (14 June 2019)**

- 9.1 **Issue 5.1: Whether there is any potential for the Proposed Development to achieve a net gain to wetland habitat.**
- 9.1.1 As referred to in our written representations dated 11 January, 3 May and 31 May 2019 **we believe that there is potential to achieve a net gain to wetland habitat.** This net gain would contribute to restoration of the rivers Avon and Till (both SAC and in unfavourable condition) which the A303 currently crosses and additional crossing proposed. Although we acknowledge that the HRA for the new proposals has concluded no Likely Significant Effect to SAC habitats and species, the current infrastructure of both river crossings (which will not be removed or altered) is hindering local implementation of the River Avon Restoration Plan (the ongoing delivery plan to reach favourable condition, agreed with Natural England and Hampshire Avon Catchment Partnership). There is no commitment within the current proposals to directly enhance the area or compensate, nor take advantage of existing partnership opportunities that may contribute to overall net gain and achieve multiple benefits. (These were offered throughout the consultation process, both local to Amesbury and the River Till, and/or slightly further afield or with a larger zone of influence). We also suggest that with considered design, such projects could potentially contribute to the adverse impacts on visual landscape and tranquillity as detailed in the Environmental Statement section 7.
- 9.1.2 In addition to previous reasoning in our written representations dated 11 January, 3 May and 31 May 2019, we would like to draw attention to the natural capital that the river provides to the wider population and catchment. Multiple benefits could be achieved by contributing to climate change resilience, potential air quality/noise benefits from any increased (wet) woodland, wellbeing and recreational benefits from angling and other

public opportunities, not least alongside species and habitat improvements from improved morphology.

- 9.1.3 Potential water quality improvements have been mentioned by Highways England via road drainage solutions, and also improved terrestrial cross-catchment connectivity via the new chalk habitat. However, whilst we support the concept of the new chalk grassland corridors and the construction waste efficiencies it provides, we query whether the road drainage design actually should be considered as best practice rather than true enhancement for the water environment.
- 9.1.4 We would also like to add references to government aspirations for river restoration, net gain, partnership working and multiple benefits. These include Making Space for Nature, Biodiversity 2020 (*...we will work with transport agencies and key delivery partners to create coherent and resilient ecological networks in the natural areas at the edges of our strategic roads and railways...; ... Our agencies will work together to support local delivery and engage...*); A Green Future: 25 year plan; National Planning Policy Framework; South West River Basin Management Plan and the River Avon Salmon Action Plan. In particular we would reference the recent Biodiversity Net Gain good practice guidance as published by CIEEM and CIRIA (and 2019 government consultation), promoting:
- Being inclusive, equitable, sharing benefits amongst stakeholders;
  - Being additional to achieve conservation outcomes that demonstrably exceed existing obligations;
  - Optimise sustainability and the wider environmental benefits for a sustainable society and economy.
- 9.1.5 We are happy to provide further detail if required.
- 9.1.6 Whilst we fully support and attend the A303 Benefits Steering Group and its associated Biodiversity Working Group (and acknowledge the recent funding for a Biodiversity Strategy), we do not believe this provides adequate commitment or prioritisation to the water environment at this stage. We would however support a commitment to continue these groups for a number of years to allow useful multi-organisation discussions and to maximise the successful delivery of enhancements and other benefits.
- 9.1.7 Therefore, as a solution, we propose an Environmental Enhancement Plan for the water environment, as suggested in written representation dated 3 May and 31 May 2019. This would commit Highways England to explore and utilise the opportunities within the Hampshire Avon Catchment Partnership to deliver the River Avon Restoration Plan and its associated multiple benefits. This could be via direct monetary contributions, or alternatively in-kind machinery or staff time and expertise.
- 9.1.8 We would recommend that a Requirement be included in the draft DCO:  
“(1) No part of the authorised development is to commence until an Environmental Enhancement Plan has been submitted to and approved in writing by the Secretary of State, following consultation with the planning authority, the Environment Agency and Natural England.  
(2) The Environmental Enhancement Plan must be implemented in accordance with the approved details referred to in sub-paragraph (1).”
- 9.1.9 Alternatively we would be satisfied for the need for the production of the plan to be included in the OEMP or HEMP. This could be included in the list of plans in OEMP reference MW-G7 and then the implementation/maintenance aspects covered in the HEMP as required.

**9.2 Issue 5.2: Effectiveness of measures to avoid adverse impacts during construction phase.**

***Piling***

9.2.1 As mentioned during the noise and vibration Issue Specific Hearing, the nature of any required piling in the vicinity of watercourses needs to be addressed. We note that non-impact piling is now included in the OEMP. We presume this means non-percussive piling. If this is the case we would be satisfied with this method, however, we would still wish to be consulted on the timing and nature of any proposed piling to avoid fisheries impacts. We have provided some suggested text to the amended OEMP in the relevant section above and would then be satisfied that permanent adverse impacts could be avoided.

***Temporary crossing(s) of the River Till***

9.2.2 We note that the wording has recently been changed to recommend relocation of the temporary bridge after every two years. We have not been cited on this change and would like further discussion as to why this is the case, as it is not necessarily something we would support. We would also like to see commitment to actively restoring the river corridor to previous condition or better (as recommended in the River Avon Restoration Plan) upon cessation of the temporary crossing(s). With these considerations included we would be satisfied that permanent adverse impacts could be avoided.

***Invasive species***

9.2.3 Please see our response to Issue 7.1. With these considerations included pre- and during construction, and commitment to finishing any actions in the relevant post-construction maintenance plan, we would be satisfied that permanent adverse impacts could be avoided.

**9.3 Issue 6.1 Effectiveness of measures to secure long term management of calcareous grassland etc to maximise gains in biodiversity.**

No further comment.

**9.4 Issue 6.2: Opportunities for management by grazing.**

9.4.1 We would defer to Natural England in relation to managed by grazing (although we support the hearing comments that a correct grazing/mowing regime is fundamental to long-term success of establishment of chalk grassland health and diversity). In addition, we would recommend that the HEMP should also include a maintenance regime for the area around the drainage structure and river crossings, as well as any ongoing invasive non-native species management, to sustain appropriate chalk river habitat.

**9.5 Issue 7.1: The EA's recommendation that OEMP measures PW-BIO1, MW-BIO5, and MW-BIO6 should be expanded in respect of biosecurity and invasive species. Should the draft DCO include provision for a full survey and control plan prior to preliminary works commencement?**

9.5.1 Please reference our written representations dated 3 and 31 May 2019. To conclude, yes, we consider the draft DCO should include provision for a full survey and control plan prior to the commencement of preliminary works. This is required because we believe the sections in the OEMP relating to biosecurity and invasive non-native species are too broad and unprepared given the extent of the other data gathering exercises. Invasive non-native species and biosecurity can be managed effectively, but success depends on thorough and considered method statements, and having any rapid response plans in place should a new species become known. This would infer that early information as to the presence and distribution of invasive non-native species is essential, especially given the size and complexity of soil/people/transport movements in the works area. Early knowledge will also make any required management more successful and cost-effective due to appropriate lead-in time and budget allocated. We would emphasise that the full survey and control plan can be a relatively straightforward exercise and should adhere to industry best practice.

9.5.2 We also believe that the DCO should commit to completing any ongoing invasive species treatment started, and also aim to monitor and manage any invasive non-native species which may have resulted from the construction works unknowingly. This could be incorporated into any maintenance or management plan.

9.5.3 There seems to be slight confusion in Highways England's response to our written representations as regarding HRA and legislation to prevent spread, and we welcome further discussion to clarify. Our comments above would still apply.

**9.6 Issue 7.2: Natural England recommendation that opportunity to manage hedgerows to improve their condition during temporary possession for construction should be taken.**

9.6.1 Part of Highways England's explanation for not including net gain to the specific water environment is that the river corridors will benefit from the improved chalk grassland providing wildlife corridors and increased cross-catchment terrestrial connectivity. Therefore if Natural England felt that such management was in the benefit of hedgerow health and sustainability, which is part of this wildlife corridor, we would agree.



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