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**Annex 1: Natural England's responses to Examining Authority's initial questions.**

**Question 1.2.13.**

NE

**Ancient Woodland and Veteran Trees**

Are there concerns remaining with regards to the operational phase effects of the Proposed Development upon Ancient Woodland and Veteran Trees?

**Answer**

Ullen Wood Ancient Semi-Natural Woodland

Natural England's principal concern during scheme operation is the effect of air pollution on Ullen Wood ancient semi-natural woodland (ASNW). Ullen Wood is an ancient semi-natural woodland and therefore considered to be irreplaceable habitat of national importance. It is situated to the north-east of the scheme adjacent to the existing A436. As a result of the scheme, the A436 roundabout would be within 45m of the woodland and the new A436 and A417 alignment would be within 25m of the woodland at its nearest point, although the road would be within a deep cutting.

Moving the road closer to Ullen Wood would result in air quality impacts on this ASNW. The Environmental Statement states in Chapter 8 – Biodiversity paragraph 8.10.262:

*Air quality modelling shows a maximum increase in nitrogen deposition within the ancient woodland of 1.08kg N/ha/yr, which is a 10.8% increase against the lower critical load for broadleaved woodland at 10kgN/ha/yr. The lower critical load would also be substantially exceeded in the "Do-Minimum" baseline in 2026, with total nitrogen deposition predicted at over 34kg N/ha/yr throughout the woodland.*

A total of 2.1ha of ancient woodland at Ullen Wood is predicted to be degraded as a result of nitrogen deposition, because it will receive more than 0.4kg N/ha/yr increase as a result of the scheme. This is considered to be a threshold beyond which nitrogen deposition will likely lead to loss of species. Permanent degradation of this area of habitat is predicted through a reduction in species richness and/or changes in species composition. We attest that this amounts to the loss of ancient woodland habitat, rather than degradation, albeit over a long timeframe. The Environmental Statement concludes that this would be a significant adverse effect on Ullen Wood.

Impacts are unavoidable with this proposed route. National Highways has stated that speed control measures and barriers would not be suitable here. The types of vegetation management measures that are sometimes employed in these circumstances, such as cut and

remove, would not be suitable in woodland habitat. It is therefore not possible to mitigate for this effect. In accordance with the mitigation hierarchy, National Highways have therefore proposed compensation.

The landscape design for the scheme includes 2.1ha of new woodland planting adjacent to Ullen Wood, in areas that will receive less than 0.4kg N/ha/yr increase as a result of the scheme. This is shown on Figure 7.11 of the Environmental Masterplan (Document Reference 6.3). This compensation is presented as appropriate to this location, taking into account other habitat types in the area such as calcareous grassland. In addition, National Highways will explore opportunities to contribute towards the enhancement of Ullen Wood through improvements to its management.

The LEMP states in paragraph xlvi:

*Monitoring for change in species composition would be required in Ullen wood during the operational phase of the scheme to ensure the efficacy of conservation management techniques in preventing degradation of woodland habitat from increased nitrogen deposition.*

Paragraph xvii states:

*A conservation led woodland management plan to alleviate environmental pressures on Ullen Wood will be implemented to improve woodland structure, creating variation of light conditions in the woodland and increasing diversity of the ground flora. This will be achieved through introduction of woodland management measures such as selective thinning of trees (taking natural ash dieback/ related felling into account), rotational coppicing of hazel, and erection of deer exclusion fencing.*

Natural England accepts that the scheme impacts are unavoidable with this route, that mitigation is not possible, and we therefore accept the principle of compensation, in this specific case. We are satisfied that the compensation proposed is appropriate in the circumstances. This subject is included in our Statement of Common Ground with National Highways, in the 'matters agreed' section.

#### Veteran trees

A veteran beech tree within the scheme boundary will experience an increase of 1.04kg N/ha/yr. This represents a 10.4% increase against the lower critical load (for broadleaved woodland) at 10kg N/ha/yr. This is stated in paragraph 8.10.268 of the Chapter 8 – Biodiversity. Permanent degradation of this habitat feature is expected.

Paragraph 8.10.271 of Chapter 8 – Biodiversity states that mitigation measures will be undertaken to improve the health of the trees, but that the degree to which these measures will counteract degradation from nitrogen deposition are not quantifiable. There is therefore considered to be a permanent affect to the integrity of this veteran beech tree. The residual effect associated with the scheme is considered to be large adverse at the national level, and significant.

**Question 1.3.4.**

Applicant, Natural England, Gloucestershire Wildlife Trust

**Calcareous Grassland**

- a) Chapter 15 of the ES [APP-046] purports to provide a gain of 72.5 hectares of calcareous grassland habitat. Is this expected delivery robust and is there evidence to suggest the full quantum stated would be successfully delivered?
- b) With reference to paragraph 2.8.48 of Chapter 2 to the ES [APP-033], is the creation of calcareous grassland possible on a bridge?
- c) Would the habitat be able to survive with potential nitrogen deposition and air pollutants emanating from the road below, given the summary in paragraph 8.8.8 of ES Chapter 8 [APP-039]?

**Answer**

- a) Chapter 15 of the ES [APP-046] purports to provide a gain of 72.5 hectares of calcareous grassland habitat. Is this expected delivery robust and is there evidence to suggest the full quantum stated would be successfully delivered?**

The Environmental Statement lacks detail on methods for grassland restoration and creation that are specific to this project and it is therefore not possible to comment on whether the approach is likely to provide a robust delivery.

There are examples of schemes where large areas of calcareous grassland have been established successfully and with the appropriate method statements, aftercare and monitoring, Natural England's view is that 72.5ha could be achieved. However, a review into the success of frequently implemented compensation measures found that only 33% had met its goals<sup>1</sup>. We would like to see a best- and worst-case scenario. This could then be considered alongside information from the biodiversity metric.

In terms of creating calcareous grassland, the Environmental Masterplan gives the following commitments:

- BD57 – All calcareous grassland will be created on subsoil of low fertility excavated materials. No topsoil will be imported.
- CC13 – The scheme design must carefully consider the use of appropriate tree and shrub species and low maintenance wildflower grassland (calcareous grassland) to reduce associated maintenance operations. Calcareous grassland, which has been used throughout the scheme, only requires cutting once a year (reducing maintenance-related emissions) can be seeded directly on to low fertility excavated materials or subsoil, which would remove the requirement to import topsoil during construction.

<sup>1</sup> Tischew, S., Baasch, A., Conrad, M. K. & Kirmer, A. Evaluating Restoration Success of Frequently Implemented Compensation Measures: Results and Demands for Control Procedures. *Restor. Ecol.* 18, 467–480 (2010)

Calcareous grassland can take a long time to become species rich. Management therefore needs to be long term. Research by Redhead et al. states:

*Even in a well connected landscape, natural regeneration to a community resembling ancient calcareous grassland in terms of functional traits and plant community composition takes over a century, although changes at the level of individual species may occur much earlier. These findings confirm the uniqueness of ancient calcareous grassland. They also suggest that the targets of re-establishment efforts should be adjusted to account for the likely time-scale of full community re-assembly.*<sup>[2]</sup>

Natural England considers that the aftercare of the grassland created will be essential to its success. We argue that the success of quality habitat establishment should drive management decisions e.g. the cutting regime, rather than reducing maintenance for emission reasons (CC13). The project will need to have guarantee of a robust aftercare programme for a minimum of the next 30 years, and ideally longer. Monitoring should be undertaken throughout this time with mechanisms in place for feedback so that corrective action can be taken if establishment is not working. The existing documents mention the importance of aftercare and monitoring, but give no timeframes or mechanism to put this in place that can guarantee this will continue for this length of time. Management prescriptions provided in the Environmental Statement for both the species rich grassland and the calcareous grassland would need to be reviewed to ensure establishment and maximise the biodiversity of these habitats.

**b) With reference to paragraph 2.8.48 of Chapter 2 to the ES [APP-033], is the creation of calcareous grassland possible on a bridge?**

Calcareous grassland can be established on shallow soils and although it will be more prone to drying out, NE's opinion is that more drought tolerant species associated with this community should readily establish on a bridge. For example, the Chilterns AONB Detailed Design Principles suggested seeding low fertility topsoil areas with a locally appropriate grassland and wildflower mix to green bridges<sup>2</sup>.

**c) Would the habitat be able to survive with potential nitrogen deposition and air pollutants emanating from the road below, given the summary in paragraph 8.8.8 of ES Chapter 8 [APP-039]?**

There are many examples of calcareous grassland communities existing adjacent to busy roads. Nitrogen pollution can affect the species diversity of calcareous grasslands and some individual species may be too sensitive to establish and the dominance of grasses may increase. However, the presence of nitrogen deposition is unlikely to prevent the establishment of a calcareous grassland community as a whole. JNCC Report, No. 449 on the Interpretation of evidence of nitrogen impacts on vegetation in relation to UK

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<sup>[2]</sup> Redhead, J. W. et al. The natural regeneration of calcareous grassland at a landscape scale: 150 years of plant community re-assembly on Salisbury Plain, UK. Appl. Veg. Sci. 17, 408–418 (2014).

<sup>2</sup> [6974-Chilterns AONB HS2 CEIP Part 1 Detailed Design Principles low res.pdf](#)

biodiversity objectives provides evidence<sup>3</sup>. As this will be an artificially created and managed habitat, once it is established it may be possible to undertake certain management techniques that are specifically designed to reduce harm from nitrogen deposition.

**Question 1.3.5.**

Applicant, Natural England, Gloucestershire Wildlife Trust

**Wildlife Crossings**

- a) What evidence is there to demonstrate the success/ effectiveness of wildlife crossings, such as the one proposed here for the Gloucestershire Way, from other road schemes?
- b) Is it a robust solution to protect or provide for biodiversity in this manner?

**Answers**

**a) What evidence is there to demonstrate the success/ effectiveness of wildlife crossings, such as the one proposed here for the Gloucestershire Way, from other road schemes?**

Bridges built across roads and railways to allow wildlife movement can stop species from becoming isolated and reduce the number of traffic accidents. The report: "Green Bridges – a literature review"<sup>4</sup> was undertaken by Land Use Consultants on behalf of Natural England. It looked at scientific evidence from 56 examples across the world. concluded that they 'provide effective mitigation in addressing ecological fragmentation, with evidence of wildlife use recorded on a large number of bridges' (p3). Information was also discovered which 'suggests that green bridges can function in their own right as small-scale mosaics in a wider landscape' (p40).

The study found that green bridges could become an important part of the sustainability of future transport projects by:

- creating a safe crossing point for wildlife movement
- joining up habitats and connecting colonies, as they are also used by wildlife as a home in their own right
- creating a crossing point for people and benefiting pollinators
- integrating roads and railways into the surrounding landscape<sup>5</sup>.

Green bridges are common in Europe and North America, but only a few have been built in Britain. Some examples here in the UK are the A21 at Scotney Castle in Kent, in the High Weald AONB, which was completed in 2005; ~~and~~ the Mile End green bridge over the A11

<sup>3</sup> Emmett, B.A., Rowe, E.C., Stevens, C.J., Gowing, D.J., Henrys, P.A., Maskell, L.C. & Smart, S.M. 2011. Interpretation of evidence of nitrogen impacts on vegetation in relation to UK biodiversity objectives. JNCC Report, No. 449  
[Interpretation of evidence of nitrogen impacts on vegetation in relation to UK biodiversity objectives \(jncc.gov.uk\)](http://jncc.gov.uk)

<sup>4</sup> [REDACTED]

<sup>5</sup> [REDACTED]

in London; and the A556 green bridge which opened in 2017. There are other examples from the Netherlands, Sweden, Canada and Australia.

**b) Is it a robust solution to protect or provide for biodiversity in this manner?**

The A417 is already a substantial barrier to the movement of fauna and flora. Without the green bridge the proposed scheme would exacerbate this situation. Gloucestershire Wildlife Trust's work on Nature Recovery Networks (pers comms) has shown this to be a pinch point for the north-south movement of species. Enabling species to move north is critical for their adaptation to climate change. The green bridge is the only way for some species to effectively cross the road. The habitat connections to and from the green bridge are equally important, and the improvements to these connections that were recently proposed are welcome.

Natural England considers the scale and design of the green bridge to be acceptable, if not quite meeting our initial advice. In our response to the Preliminary Environmental Information Report consultation, we had stated:

*We welcome the multi-functionality of the proposed Gloucestershire Way crossing, including the provision of access and the aspiration to provide landscape and habitat connectivity. However, we advise widening the bridge from the proposed 25 x 70m to provide a greater degree of connectivity and more closely reflect the recommended width/length ratio of 0.8 for bridges seeking to achieve this. This is set out in the Landscape Institute Green Bridges Technical Guidance Note 09/2015<sup>6</sup> (p8), which is the best available guidance currently on different types of green bridges. We recommend that this bridge should be at least 40m wide in order to deliver all of its stated functions.*

*In order to fulfil its purpose, this bridge needs a 25m functional habitat patch of calcareous grassland and scattered scrub with dense hedgerows either side to reduce disturbance and confine stock to their habitat patch, a recreational zone, plus maintenance strips. Figure 2.1 General Arrangement Sheet 2 of 6 shows that a recreational zone is proposed on the outer edge of the bridge, to avoid disturbance and degradation of the habitat (PEIR 2.7.40); we recommend a hedge screens the path from the wider habitat to achieve this. Planting could also be considered between the path and the southern side of the bridge to provide some screening of the road for users, whilst still allowing space for any necessary maintenance. We support the proposed habitat of species-rich grassland, scattered scrub and native-rich hedgerows connecting to habitat either side of the bridge. This would serve the required ecological function more effectively on the larger scale that we propose.*

The scheme also proposes the inclusion of greened bridges, which have been located and designed to be utilised by bats crossing the road, and underpasses for bats and badgers.

**Question 1.3.34.**

Applicant, Natural England

**Scope of HRA**

The Applicant explains that it has consulted Natural England throughout the process. Point 6.16 of Table 4-1 in the Statement of Commonality [APP-419] states that in an email dated April 2021, Natural England stated it is “satisfied about the approach and conclusions of the draft HRA”.

- a) A copy of this email has not been provided in the HRA Screening Report; can a copy of the e-mail be provided for completeness?
- b) Could Natural England confirm that they are satisfied with the scope of the Applicant’s assessment of effects on European sites?
- c) Is NE content with the Applicant’s approach to the in-combination assessment?
- d) Are there any other sites or site features that could be affected by the Proposed Development?

**Answers**

**a) A copy of this email has not been provided in the HRA Screening Report; can a copy of the e-mail be provided for completeness?**

Natural England wrote to Arup on 1 April 2021, our reference 348579. This letter is attached in Annex C.

**b) Could Natural England confirm that they are satisfied with the scope of the Applicant’s assessment of effects on European sites?**

**c) Is NE content with the Applicant’s approach to the in-combination assessment?**

**d) Are there any other sites or site features that could be affected by the Proposed Development?**

Natural England is satisfied with the Habitat Regulations Assessment on all counts, with the exception of the consideration of European eel, which is a listed interest feature of the River Severn Ramsar site. We are asking that the Severn Estuary Ramsar site is progressed through to the Statement to Inform Appropriate Assessment stage of the Habitat Regulations process.

The Severn Estuary Ramsar site is approximately 19km west of the scheme boundary. A section of Norman’s Brook which runs adjacent to the existing A417 will be subject to realignment as a component of the scheme. This section which will subject to direct effects from the scheme is approximately 50km upstream from the Severn Estuary Ramsar’s furthest upstream boundary.

The HRA says that because the affected extent of the (very large) catchment is tiny in percentage terms, risks of effects on eel are ‘negligible’. SIAA paragraph 248:

*However, the affected reach of Norman's Brook, approximately 1.1km in length, represents a small proportion of the River Severn catchment which eel may utilise, approximately 0.0005% of the total catchment. As such the any potential reduction of functional habitat for eel is concluded to be negligible.*

Natural England advises that this reasoning is not satisfactory to allow a conclusion of no likely significant effects, with reference to the 'People over Wind' judgement (CJEU ref C323/17). We have not given this advice previously as our thinking and evidence on functionally linked watercourses of the Severn Estuary has developed in the last year and is still emerging. However, with the scheme now at Examination stage, we advise the following approach.

It is clear from the River Habitat Survey and Fish Habitat Assessment Report in Appendix 8.23 that Norman's Brook is severely modified and that there are many barriers to fish passage. European eel is the possible exception to this. The report concludes:

*4.1.2 Fish habitat within the survey sites is fragmented by significant weirs and culverts, many of which are considered to be impassable to all fish species (with the potential exception of European eel).*

There is therefore the possibility of eels being impacted by works. We advise that there is a likely significant effect, and that this matter should therefore be progressed to the Appropriate Assessment stage of the Habitat Regulations Assessment process.

The Appropriate Assessment can take mitigation and watercourse enhancement already being proposed into account. The Environmental Management Plan sets out a requirement in BD28 for the sensitive timing of works in relation to fish:

*BD28 Sensitive timing of works involving realignment of tributary of Norman's Brook regarding tufa habitat, aquatic macroinvertebrates and fish (including eggs laid in spawning habitats) to minimise habitat damage and mortality and injury of species.*

The Landscape and Ecological Management Plan (LEMP) states:

*5.16.1 The detailed design of the new river habitat in the diverted channel would be agreed in consultation with EA specialists. The detailed design would focus on balancing the habitat requirements (substrate, depth, flow types and refuges) of aquatic communities present, with returning the river to a more natural step-pool habitat that would have existed prior to modification of the river by numerous weirs.*

*5.16.2 The new channel would also seek to improve connectivity of habitat for aquatic species. The requirements for fish passage through this channel may be further refined following pre-construction fish surveys.*

The scheme provides a good opportunity to improve the Norman's Brook for eel and other species by removing barriers and restoring the watercourse to one with more natural hydrological functions, including flows and habitats. The exact proposals are a matter for detailed



design if the DCO is granted and will be agreed in consultation with EA specialists. We advise that this detailed design should include improving the watercourses potential to support populations of European eel.

**Question 1.3.35.**

Applicant, Natural England

**Habitats Regulation Assessment**

The Department of the Environment, Food and Rural Affairs (DEFRA) published a policy paper on 1 January 2021 relating to changes to the Habitats Regulations 2017 following the United Kingdom's (UK) departure from the European Union. Explain whether this paper has any bearing on, or implications for the Proposed Development.

**Answer**

This paper<sup>7</sup> explains the amendments that the Secretary of State for the Environment, Food and Rural Affairs and Welsh Ministers made to parts of the 2017 Regulations, so that they operate effectively post EU Exit. Most of these changes involved transferring functions from the European Commission to the appropriate authorities in England and Wales. All other HRA processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant. The obligations of a competent authority in the 2017 Regulations for the protection of sites or species have not changed. Natural England advises that there are no changes relevant to the consideration of this scheme.

**Question 1.3.41.**

Applicant, Natural England

**Beechwoods SPA**

In the Habitats Regulation Assessment Statement to inform Appropriate Assessment

[APP-415] the conclusions section includes: Paragraph 10.1.2 which states that there is uncertainty of the efficacy of integral mitigation measures *“and it would therefore not be robust to draw a conclusion of no adverse effect on integrity based on those measures.*

*Therefore, additional precautionary mitigation will be provided in the form of measures to control recreational use of the SAC to address this uncertainty; and 10.1.3 which states In conclusion, there will be no significant adverse effect upon the integrity of Cotswold Beechwoods SAC as a result of the scheme, either alone or in combination with other plans or projects.”*

a) Can the Applicant confirm what the 'additional precautionary mitigation' measures are which are proposed for the Cotswold Beechwoods SAC? The Applicant is requested to identify any factors that might affect the certainty of the implementation of the additional precautionary mitigation measures.

b) Can Natural England confirm if they agree that there will be no adverse effects on the integrity of the Cotswold Beechwoods SAC without the additional precautionary mitigation measures?

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<sup>7</sup> [REDACTED]

## Answer

The additional precautionary measures referred to in the conclusion are described in section 7 of the Appropriate Assessment:

### **7.1 Mitigation**

*7.1.1 Due to the possibility that integral measures to the scheme in the form of alternative recreational provision will not remove the risk of an effect entirely, a precautionary approach is being taken to mitigation for this scheme, in order to increase confidence that recreational disturbance would not result in detrimental impacts to the qualifying interests of the SAC. Natural England are supportive of the provision of additional recreational control measures at the SAC (Statement of Commonality (Document Reference 7.3)). They recommend that these are developed in tandem with the recreation mitigation strategy currently being prepared by the local planning authorities in the vicinity of the SAC.*

*7.1.2 Highways England will work with Natural England and Stroud District Council (in their capacity as lead authors/ owners of the recreation mitigation strategy), to agree specific measures to control recreational use of the SAC. Such measures may include the provision of signage/ interpretation boards to raise public awareness of the value of ancient woodland and trees, and the importance of respecting measures installed to reduce root compaction. From correspondence with Natural England it is understood that the draft mitigation strategy includes reference to signage and information boards, and that there is an opportunity for Highways England to collaborate with the participating planning authorities to provide suitable measures.*

*7.1.3 The commitment to agree such measures is identified in the Register of Environmental Actions and Commitments contained within ES Appendix 2.1 EMP, and documented in Annex D LEMP (Document Reference 6.4) of ES Appendix 2.1 EMP.*

Without these additional measures, there is the possibility that the scheme would have some recreational impacts on the Cotswold Beechwoods SAC. The A417 Missing Link scheme includes the Cotswold Way crossing, the Gloucestershire Way green bridge, the Air Balloon Way, and parking provision near to the Golden Heart. These new assets could potentially significantly alter the way people utilise this landscape, and the interrelationship between these assets and the Cotswold Beechwoods is difficult to predict. The Beechwoods are only a 2.3km walk from the new Cotswold Way crossing. The *additional precautionary mitigation* proposed is therefore considered to be necessary to the conclusion of no adverse effects on the integrity of the Cotswold Beechwoods SAC.

**Question 1.4.22.**

Environment Agency, Natural England, GCC, CDC, TBC

**Other Consents**

The ES notes that the contractor appointed to undertake the construction works would need to apply for various environmental permits, discharge and other consents once detailed design is complete. Given that such applications have not been made, the Examining Authority and Secretary of State cannot be sure from the information provided if adequate avoidance or mitigation of environmental effects are possible, and therefore if all of these consents are achievable. Could the Environment Agency and the relevant local authorities with responsibilities in this area please provide an opinion on the likelihood of all such permits and consents being achieved?

**Answer**

Natural England has provided Letters of No Impediment for all protected species which require licences, namely bats, badgers and Roman snail.

**Question 1.3.14.**

Applicant, Natural England, GCC, TBC, CDC and CCB

**Barrow Wake Car Park**

What would be the effects of closing the Barrow Wake car park, taking into account the need to manage recreational pressure within the Crickley Hill and Barrow Wake SSSI and for recreational use in the area generally?

**Answer**

Sites of Special Scientific Interest are the finest sites for wildlife and natural features in England, supporting many characteristic, rare and endangered species, habitats and natural features. Crickley Hill and Barrow Wake SSSI is a mixed biological and geological site. It supports a diverse range of vegetation types, including calcareous grassland, orchids, scrub, and mosaics and transitional habitats, which support a rich and varied invertebrate fauna including butterflies.

The Barrow Wake car park would be a logical and attractive place to park in order to access the Crickley Hill country park via the new footbridge, the new Air Balloon Way trail and the National Trail. The improved visitor appeal of the area would likely lead to increased footfall in the SSSI. Our concern is that this is likely to lead to increased trampling and erosion within the SSSI, particularly as people move to the ridgeline to enjoy the views, damaging the calcareous grassland, the species interest and soils.

The removal of the car park at Barrow Wake would mean that it would not become a focal point for visitors to the area. The reversion of the car park to calcareous grassland could help to offset the biodiversity losses of this scheme. This would buffer the SSSI and contribute towards the aspirations of the Nature Recovery Network.

**Question 1.3.15.**

Natural England

**SAMM for Crickley Hill and Barrow Wake SSSI**

a) Would a contribution towards Strategic Access Management and Monitoring be required to manage and mitigate the increased recreational pressure on the Crickley Hill and Barrow Wake SSSI?

b) If yes how would this be secured?

**Answer**

SAMM stands for Strategic Access Management and Monitoring. This is an approach taken by a Local Planning Authority in order to avoid an adverse effect on the integrity of a Habitats site as a result of recreational pressure. Visitor surveys would be undertaken and a 'zone of influence' would be established. Development within that zone would make an agreed monetary contribution towards actions set out in the SAMM, in order to offset the additional recreational pressure that the new residents would cause on that Habitats site. New development in the area would share the full cost of the necessary actions. These actions are normally on the Habitats site itself. For example, a SAMM could collect money towards the creation of a new permissive access route or fencing.

The type of approach described above is usually driven by the Habitats Regulations. However, the same approach could theoretically be applied to a Site of Special Scientific Interest, provided the reasoning was sound and it was legally securable. Payment into a SAMM would usually be written into planning policy and governed by a Memorandum of Understanding between partners.

As the owners and managers of the site, Gloucestershire Wildlife Trust and the National Trust have information on visitor numbers and behaviours collected in 2018, but this would need to be updated. Gloucestershire Wildlife Trust have on-site evidence of the impact of erosion on SSSI vegetation (pers comms).

The professional opinion of Natural England is that alongside SAMM, there is a need to deflect access away from the designated sites in this part of the world by providing alternative countryside destinations for people to visit for recreation. As described in our answer to Question 1.3.41, the Cotswold Beechwoods Special Area of Conservation are also being negatively impacted by recreational pressure. The Cotswold Beechwoods are approximately 2.3km walking distance from the new Cotswold Way Crossing proposed in the A417 missing link scheme. High levels of growth are proposed in the Severn vale, particularly around Gloucester, Brockworth, Hucklecote, Churchdown and Cheltenham, which are also in close proximity to the A417 Missing Link scheme. Stroud District Council, Tewkesbury Borough Council, Cheltenham Borough Council, Gloucester City Council and Cotswold District Council commissioned visitor surveys and the production of a plan to mitigate adverse effects on the integrity of the site, which would result from additional recreational pressure resulting from their planned growth. This mitigation plan includes on-site actions to manage the pressure and also the provision new, alternative greenspaces, to be funded by development.

The scope here for a creative and innovative approach that blends the NSIP, SSSI impacts, growth proposals and a SAC focused strategic solution is significant. This is potentially something that could be progressed through the Designated Environmental Funds. It is our strong recommendation that National Highways, the Local Planning Authorities, the National Trust and Gloucestershire Wildlife Trust work together to devise a holistic solution to the issue of recreational pressure. Natural England would be pleased to be involved in this discussion. This is also covered in paragraphs 4.20 and 4.30 of our Written Representations.

**Question 1.3.21.**

Applicant, Natural England

**Water Features – Harm to Wildlife**

- a) Would the introduction of attenuation ponds and drainage basins in close proximity to the Proposed Development encourage wildlife into areas where the potential for harm or strike increases?
- b) Would it be likely species might cross the A417 in new locations to access the water features, altering the foraging and distribution habits?

**Answer**

Broadly speaking attenuation ponds and drainage basins are useful for a range of species. Whilst there may be a level of mortality due to collisions this will not offset the overall benefits of these features.

Wildlife crossing points have been located at the points where species movements were highest, in order to enable species to cross safely. This includes bat and badger underpasses and the green bridge. In addition, in order to reduce risks as far as possible the Environmental Management Plan BD41 requires the planting of woody species of a height of at least 3m to be undertaken in areas considered to be of high collision risk for wildlife with particular regard to bats and barn owls.

**Question 1.3.23.**

Applicant, Natural England, Wildlife Trust

**Edge Habitat**

- a) Is a 2m buffer between works compounds and hedgerows sufficient to maintain 'edge habitat' for wildlife as stated in ES Chapter 8 paragraph 8.9.47?
- b) Should this separation distance be wider to avoid noise, vibration, dust and disturbance through human activity?

**Answer**

Natural England has no standard guidance on this matter. Our standing advice on Ancient woodland and veteran trees<sup>8</sup> may be of some use. It suggests that the size and type of buffer zone should vary depending on the scale, type and impact of the development. For ancient woodlands, you should have a buffer zone of at least 15 metres to avoid root damage. A buffer zone around an ancient or veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter. We understand that the 2m minimum buffer is based on the cross-compliance guidance designed to protect hedgerows from agricultural activities. Road construction activities will have different impacts and may necessitate a larger buffer.

**Question 1.3.27.**

Applicant, Natural England

**Construction Noise Effects**

Are the species of fish identified in paragraph 8.9.102 of ES Chapter 8 sensitive to noise and vibration (are they able to 'hear') and if so, would construction activities cause harm to or early displacement of these fish?

**Answer**

This question is potentially better answered by the specialists in the Environment Agency's fisheries team. However, we can confirm that noise and vibration from construction activities can and would impact on fish.

Appendix 8.23 River habitat survey and fish habitat assessment report lists seventeen fish species identified during the desk survey, including the following species of conservation importance:

- Brown trout; NERC Act - Species of Principal Importance, 2006. UK BAP - JNCC, 2007.
- European eel; IUCN – Critically Endangered, 2001. NERC Act - Species of Principal Importance, 2006. UK BAP - JNCC, 2007.
- Brook lamprey; Habitat directive – Annex II, 2003.
- Lamprey sp. ammocoetes; Habitats Directive – Annex II species, 2003.
- European bullhead; Habitats Directive - Annex II species, 2003. 4.1.2

It states that fish habitat within the survey sites is fragmented by significant weirs and culverts, many of which are considered to be impassable to all fish species (with the potential exception of European eel). Nevertheless, diverse and varied habitats with the potential to support all life stages of salmonids, and potentially coarse fish were recorded, should isolated populations exist (Paragraph 4.1.2). The LEMP sets out that pre-construction surveys will be undertaken and results used to inform mitigation and translocation strategies.

In-river construction would avoid sensitive fish breeding seasons. Fish would be relocated to an unaffected reach of Norman's Brook downstream of the new channel (as opposed to the new channel section itself). Consultation with the Environment Agency would be undertaken in advance of any works. The realignment of Norman's Brook would be conducted under the relevant guidance in this LEMP and EA permits.

**Question 1.3.36.**

Natural England

**Reptile Surveys**

Paragraph 2.5.8 of the Reptile Survey states that a number of surveys were undertaken in July 2019, outside of the optimal survey season and other access restrictions impacted on obtaining survey data. Provide a response as to the accuracy and acceptability of the Applicant's assessment.

**Answer**

Paragraph 2.5.8 of the Reptile Survey states:

*2.5.8. A number of surveys were undertaken in July 2019, outside of the optimal survey season. Surveys in July are not normally undertaken as the typical higher temperatures mean that reptiles do not need to visit survey tiles to warm up. Surveys were undertaken in July due to a period of poor weather in June delaying surveys, as well as certain site access restrictions meaning that to undertake 20 survey visits, surveys had to continue in July.*

It goes on to state:

*However, this is not considered to be a significant constraint as surveys on all sites extended over a wide part of the survey season, and were not restricted to sub-optimal months. Surveys were only undertaken during suitable temperatures and the July surveys provided some valuable results, including recordings of adder on sites where none had been recorded during the spring surveys. Overall, the surveys are considered to provide a robust assessment of the distribution and abundance of reptiles along the corridor of the proposed scheme.*

On the basis of the information shared to date, Natural England is satisfied with this proposed mitigation and has no objections to the scheme in relation to impacts on reptiles. As a licence is not required, there is no need for a Letter of No Impediment. This is covered paragraph 6.20 of our Statement of Common Ground.

**Question 1.3.29.**

Natural England

**Translocation**

It is proposed (with reference to measure BD19 in the EMP) to translocate reptiles to suitable receptor sites. Would Natural England be supportive of this or could keeping populations local to the area (i.e. provision of suitable nearby compensatory habitat, perhaps with one of the attenuation ponds as a focus) be achievable?

**Answer**

A wildlife licence is not required for works impacting reptiles. Natural England has written standard advice for reptiles<sup>9</sup>.

The Landscape and Ecological Management Plan states:

*lviii. Receptor sites for reptiles would be monitored post construction, as per survey guidelines for presence/absence surveys and/or population assessment surveys. This would be in agreement with relevant stakeholders such as GWT. Monitoring would be undertaken at one year, three years and five years post construction.*

We are satisfied that this is an appropriate approach. Equally if a suitable site were to be created as a part of the scheme then that would be equally welcome. Ultimately we would support the translocation of reptiles to whatever site was deemed to be the most suitable to securing the long-term health of reptile populations.

**Question 1.3.16.**

Natural England

**Great Crested Newt Licence**

- a) Based upon the findings of the Environmental Statement and the studies thereto, is it likely that there will be a requirement for a great crested newt license to be sought and obtained by the Applicant prior to construction?
- b) Has the Applicant sought a letter of no impediment?

**Answer**

Natural England met with the consultants to discuss the potential impacts of the scheme on great crested newts on 19 August 2021. We can confirm that there is no licence required at present and therefore no Letter of No Impediment is necessary.



**Question 1.3.32.**

Applicant, Natural England

**Land Surveys**

The ES reports some difficulties gaining access to land for surveys. To what extent does this mean that the knowledge of local ecology is not comprehensive, and are the assumptions that have been made in lieu of full survey results fair and reasonable for an informed assessment?

**Answer**

Section 8.5 of the ES Chapter 8 – Biodiversity describes the assessment assumptions and limitations. It is our understanding that all outstanding surveys were carried out in 2021 and that information gathered would not materially affect the decisions that had been taken. We therefore agree that the Environmental Statement is still valid.

**Question 1.8.8.**

National Trust, Natural England, GCC, TBC, CDC, CCB

**Compliance with NPSNN**

Notwithstanding any disputes over landscaping and the effectiveness thereof, what are the parties' views of how the Proposed Development complies with the National Policy Statement for National Networks specifically in regard to development within an AONB?

**Answer**

Natural England assumes that this question refers to the policy requirement paragraph 5.153 of NPS National Networks (NPSNN) p.75;  
*Where consent is given in these areas, the Secretary of State should be satisfied that the applicant has ensured that the project will be carried out to high environmental standards and where possible includes measures to enhance other aspects of the environment. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered.*

We note that this paragraph is in effect an extension of the policy set out in paragraph 5.151 specifically the third bullet point.  
*any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.*

Natural England's view is that the design of the Proposed Development provides for the project to be carried out to high environmental standards in respect of landscape and visual amenity and does include measures to enhance other aspects of the environment. The applicant has therefore presented a scheme design which responds to its designated landscape location, and by comparison goes beyond what would be expected of a major road scheme located outside of a designated landscape.

Design Manual for Roads and Bridges (DMRB). See Highways England documents 7.1 Case for the Scheme sections 7.2 to 7.5 (Table 7.4 is particularly helpful in this regard) and 7.7 Design Summary Report, specifically section 4.3 which has reference to the NPSNN requirement for 'Good Design'.

**Question 1.8.10.**

Applicant, Natural England, CCB, GCC, TBC, CDC

**Viewpoints**

- a) Clarify what consultation was undertaken with stakeholders on the locations of viewpoints used for photomontages and whether agreement was reached. If agreement was not reached, provide details of the differences between parties.
- b) Do you have any comments on the presentation of baseline photographs and visualisations?
- c) Are additional viewpoints required and, if so, show these using maps and explain the rationale as to why such viewpoints need evidencing?

**Answer**

- a) Clarify what consultation was undertaken with stakeholders on the locations of viewpoints used for photomontages and whether agreement was reached. If agreement was not reached, provide details of the differences between parties.**

The applicant undertook a number of consultations with NE as to the location and nature of the viewpoints used in the Environmental Statement during 2019. A site visit was undertaken with the applicant's representative on the 28<sup>th</sup> January 2020 where final agreement was reached.

- b) Do you have any comments on the presentation of baseline photographs and visualisations?**

NE is satisfied that the number, location, quality and nature of the photographs and visualisations used in the Environmental Statement is sufficient for the decision maker to reach a fully informed decision as to the likely nature and effect of the Proposed Development on the landscape and visual amenity of this portion of the Cotswolds AONB.

- c) Are additional viewpoints required and, if so, show these using maps and explain the rationale as to why such viewpoints need evidencing?**

No further viewpoints are required. 47 viewpoints is sufficient and provides adequate cover for the purposes of understanding the likely scale and nature of the effect on the statutory purpose of the Cotswolds AONB.