A417 MISSING LINK ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT

ADDITIONAL COMMENTS PROVIDED BY THE COTSWOLDS CONSERVATION BOARD ON 24th JUNE 2019 IN SUPPORT THE BOARD'S CONSULTATION RESPONSE DATED 21st JUNE 2019

CHAPTER 1. INTRODUCTION

Purpose of the Report

Paragraph 1.1.2 of the Scoping Report indicates that the report has been completed in accordance with the Design Manual for Roads and Bridges (DMRB) Volume 11. Unfortunately, the Scoping Report seems to treat DMRB Volume 11 as if that were the primary material consideration for decision makers rather than using that as an assessment tool to provide the information required to judge the scheme against the stated objectives and principles of the scheme, relevant legislative duties and requirements, and national, local and protected landscape policy frameworks.

Legislative and Policy Context

For the Planning Inspectorate (PINS) to be in a position by which it can advise the Secretary of State on a fully informed basis that reflects all aspects of relevant planning and environmental law and policy, it is essential that the scope of the EIA is geared to ensure that ALL relevant considerations that have a material bearing on the judgements to be made against legal and policy frameworks are taken into account and given proper weight. As it stands, the proposed scope of the EIA does NOT clearly demonstrate that this will be achieved. As such, it does not, in the Cotswolds Conservation Board's (the Board's) view, provide sufficient assurance in this respect to cover the requirements of: the Road Investment Strategy (RIS) objectives; the National Policy Statement for National Networks (NPSNN); other relevant policy frameworks specific to the AONB and local authority areas; statutory environmental duties on relevant authorities; or the scheme-specific vision and objectives. This is relevant to ensuring that the ES is fit for purpose relative to s.104 of the Planning Act 2008.

A key factor in considering the scope of the EIA is the fact that the proposed scheme lies entirely within the Cotswolds Area of Outstanding Natural Beauty (AONB). The statutory purpose of AONB designation - and the Board's primary statutory purpose[1] - is to conserve and enhance the natural beauty of the AONB. 'Relevant authorities' - including Highways England, the Planning Inspectorate and the Secretary of State - have a statutory duty to have regard to this purpose ('the duty of regard').

The duty of regard is also referred to in the NPSNN. The NPSNN (paragraph 5.151) establishes a presumption that development consent should be refused in AONBs unless a series of stringent tests can demonstrate that exceptional circumstances apply and that the development is in the public interest.

The Board accepts that there is a pressing need for a scheme to improve the Missing Link section of the A417. However, whilst there may be an exceptional need for a Missing Link

[1] The Board's two purposes are::

- To conserve and enhance the natural beauty of the Cotswolds AONB.
- To increase the understanding and enjoyment of the special qualities of the Cotswolds AONB.

scheme, this doesn't necessarily mean that the proposed scheme demonstrates exceptional circumstances because there may be alternative solutions that are more suitable because they would result in less harm to the AONB.[2]

Within this context, it is important to highlight the agreed Vision, Design Principles, Objectives and Sub-Objectives for the Missing Link scheme, which the Board outlined in Annex 1 of its consultation response dated 21st June 2019. For example, the agreed Vision is as follows:

- A landscape-led highways improvement scheme that will deliver a safe and resilient free-flowing road whilst conserving and enhancing the special character of the Cotswolds AONB; reconnecting landscape and ecology; bringing about landscape, wildlife and heritage benefits, including enhanced visitors' enjoyment of the area; improving local communities' quality of life; and contributing to the health of the economy and local businesses.

As stated in the *Scheme Assessment Report* (pp 172-3), the effects of the proposed scheme (option 30) on landscape, heritage, wildlife and water environment – all of which contribute to the character of the AONB – would be 'large adverse' in each case, and for water 'very large adverse'. As such, we are very concerned that the scheme as presented cannot adequately deliver its overall Vision, Design Principles and Objectives and, as a result, cannot deliver the NPSNN strategic objective of delivering '*networks which support the delivery of environmental goals'*.

Critically, the proposed scope of the EIA does not provide the framework for an adequately robust assessment to address the key policy tests of the NPSNN and other relevant policies and legislative duties and requirements that represent the material considerations that must inform the determination of any application based on this scheme, in accordance with, for example, s.104 of the Planning Act 2008.

The budget for the A417 Missing Link scheme was clearly set without any transparent application of the specific guidance and tests set out in paragraphs 5.150 to 5.153 of the NPSNN. As such, it would appear that the approach adopted to date is seriously in danger of what the Supreme Court has referred to as 'selling the pass' (i.e. setting in stone assumptions regarding budgets for individual projects before the overall effects and best means to avoid or reduce the most significant environmental effects have been identified and assessed). The EIA provides a mechanism to address this issue by, for example, assessing alternative options that would deliver better environmental outcomes.

The Board provided additional legislative and policy context in Annex 2 of its response dated 21st June 2019.

The legislative and policy context of the EIA are addressed in Recommendations 1, 2 and 4 of the Board's consultation response, dated 21st June 2019.

[2] There is relevant case law which reaches similar conclusions, such as the High Court case of 'R (Mevagissey Parish Council) v Cornwall County Council [2013] EWHC 3684 (Admin) Hickinbottom J'. In this case, which related to residential development in the Cotswolds AONB, the judge stated that: '*Even if there were an exceptional need for affordable housing in an area, that would not necessarily equate to exceptional circumstances for a particular development, because there may be alternative sites that are more suitable because development there would result in less harm to the AONB landscape'*.

CHAPTER 2. THE SCHEME

The Red Line Boundary

As stated in paragraph 2.3.3, the study area falls within the Cotswolds AONB (rather than 'the Cotswolds AONB is located within the draft Red Line Boundary', as stated in paragraph 2.3.5). This sets the AONB apart from the other environmental constraints listed in paragraph 2.3.5 because:

a) the AONB cannot be avoided by any surface route for this scheme;
b) s.85 of the CROW Act imposes a statutory duty on all public bodies and individual public servants to have regard to conserving and enhancing the AONB (with the expectation that adverse impacts will be avoided or mitigated where possible);
c) under the NPSNN, paragraph 5.151, there is a presumption against granting development consent within the AONB and stringent tests that need to be applied before development can be permitted.

The Scoping Report indicates that the Red Line Boundary, shown in Appendix 1, incorporates the land required for environmental mitigation. However, it is not appropriate at this pre-EIA stage, to already be specifying the land on which environmental mitigation will be required. For example, to mitigate adverse visual impacts, it may be appropriate, in some instances, to undertake the mitigation work (e.g. planting screening vegetation) closer to the viewpoint, which may be some distance outside the Red Line Boundary, than to undertake this mitigation close adjacent to the proposed route. A key consideration with regards to visual impact will be the Zone of Theoretical Visibility (ZTV), which is likely to extend much further than the Red Line Boundary. Similarly, in order to deliver significant net-gains in biodiversity, it may be appropriate for the scheme to provide for habitat creation outside of the Red Line Boundary.

Even within the Scheme as proposed – notably the South Hill approach for the A436 – the Red Line Boundary omits areas that may be required to optimise alignments and downgrade or revert redundant routes to habitat creation.

On a related point, paragraph 2.4.3 of the Scoping Report states that '*sufficient design work has been carried out to … be confident that all environmental mitigation which is considered likely to be required can be accommodated within the Scheme boundary'*. Given that the identification of potential mitigation options is an important component of the EIA itself, it is far too presumptuous, at this pre-EIA stage, to make this assertion.

Also, as outlined in our comments on Chapter 3, the Board is proposing that additional, alternative options should be considered in the EIA, for which the land-take and area required for mitigation may be considerably different.

The issue of the Red Line Boundary is addressed in the Recommendation 4 of the Board's consultation response dated 21st June 2019.

Scheme Description

As presented, the description of the development falls well short of providing an adequate basis for identifying all likely direct and indirect impacts effects needing to be assessed and what is required to avoid, reduce, remedy or offset adverse ones or optimise benefits. Closer attention needs to be paid to the sources and character of all the likely significant effects of the scheme in terms of the range and types of impact, impact

interactions and within-project, local and wider cumulative effects, as required by the EIA Regulations.

There is no listing of structures; no figures for maximum or minimum cutting widths; no figures for alignment curvatures; no indication of scope for varying these relative to standards and permitted departures and relaxations of design safety standards etc.

The description is far less clear and explicit than the equivalent explanation of the scheme that was presented in the Preferred Route Assessment Report (6.4 to 6.17 inclusive) in respect of Option 30. All of the Preferred Route Assessment Report description is relevant to identifying aspects of the proposed scheme that will require EIA assessment in relation to topics identified within the EIA Regulations and their interactions and the NPSNN and other policy considerations and frameworks for decision-making.

Coupled with the absence of any preliminary design plans, long sections or cross sections to illustrate the stage of design from which effects will be addressed, there is no means of judging what changes will have been made during the remaining preliminary design and interactive EIA process to show how the proposals for the scheme are developed from the baseline assumptions represented in the Preferred Route Announcement. The only partial exception to this is the consideration of the alternative options for the A436 junction which were part of what the Board recommended for consideration in September 2018.

We also note that within the general dearth of detailed description, there are significant unexplained changes from the Preferred Route Announcement, most notably that the proposed cutting at the Air Balloon is now described as 35m deep, but with no reference to retaining walls. By contrast the Preferred Route announcement (p 103) states that *"Major retaining walls would be required in conjunction with steepened slopes along the deep cutting in the vicinity of the existing Air Balloon roundabout, up to a maximum combined wall / slope height of approximately 28m."* In the complete absence of any explanation of this change it is therefore not clear:

a) Is the increase in maximum cutting depth real (e.g. based on more detailed survey data)? Or measured at a different place? Or possibly just a misprint?
b) Is the omission of reference to retaining walls merely a function of the description being so much less detailed? Or does it reflect an engineering decision that steep cutting slopes would be sufficiently stable not to require retaining walls? Or that very much wider shallower slope cuttings are now envisaged?

These – and other considerations have significant implications for the scope of assessment needed.

The scheme description is addressed in Recommendation 5 of the Board's consultation response dated 21st June 2019.

CHAPTER 3. ASSESSMENT OF ALTERNATIVES

As explained in our comments on Chapter 1, the Board is extremely concerned that the preferred option for the A417 Missing Link scheme, which forms the basis of the EIA, would not comply with the relevant legislative and policy framework and would not be compatible with the agreed Vision, Design Principles and Objectives for the scheme. We are also concerned about the lack of detail provided in the Scoping Report regarding exactly which alternative options will be considered.

It is essential that the EIA should consider a range of alternative options (not just variations of the proposed scheme) that have the potential to deliver better environmental outcomes.

This is particularly important given the fact that the scheme has not previously been the subject of a Strategic Environmental Assessment (SEA) or EIA, so this is the first opportunity to consider alternative options under the environmental assessment regulatory framework.

The Board accepts that any alternative options considered in terms of comparing their environmental effects with the preferred scheme need to be proportionate, reasonable and viable, and as such, we recognise that it would not be appropriate to include all previously considered options in the EIA.

We have advised Highways England that there are alternative options that were not identified in the options appraisal process that could meet (or, at very least, much more fully address) the scheme Vision, Design Principles and Objectives. These would also much more fully inform the NPSNN tests to demonstrate the 'exceptional circumstances' required to justify construction of new infrastructure in an AONB; and would fully take into account other relevant policies and legislation.

We believe that this policy context means the EIA must consider more ambitious but still – in a national context – proportionate measures to 'ameliorate' (i.e. 'avoid', 'remedy' and 'reduce') adverse environmental effects, taking account of costs and achieving high environmental standards (Annex 4). For example, given the substantial depth of cuttings that are now being proposed through a very sensitive part of the Cotswolds escarpment and the potentially difficult ground and groundwater conditions, the Board has identified that the cost difference between the cuttings proposed and an alternative involving a 'cut-and-cover' tunnel may not be significant, (sew Appendix A to this report).

Taking these points into account, the Board's principle recommendation is that the alternative options that are assessed and compared in the EIA should include the 'Gold', 'Red' and 'Blue' options shown in Annex 3 of our consultation response dated 21st June 2019. It is worth noting that:

- all three alternatives are significantly different from tunnel options considered prior to public consultation (for example, all three alternatives accommodate traffic from both the A417 *and* the A436 underground to some degree);
- all of the Board's alternatives are presented as holistic landscape-led vision; incorporating other beneficial considerations such as a Birdlip relief road instead of the proposed Birdlip Link;
- all the options are within the range of best past practice for protected landscapes (as indicated in Annex 4 of our consultation response dated 21st June 2019).

The issue of assessment of alternatives is addressed in Recommendation 3 of the Board's consultation response dated 21st June 2019.

CHAPTER 5. ENVIRONMENTAL ASSESSMENT METHODOLOGY

Section 5.1 and Appendix B

The information presented in Appendix B – and in the topic specific reports is clearly very incomplete, not showing:

- Landform and topography.
- Geology and soils.
- Landscape character areas / types.
- Results of the preliminary landscape assessment work carried out (e.g. ZTV).
- Historic landscape character areas.

- Woodland plantations and other key visual features.
- Registered Parks and Gardens and other historic parkland.
- Unlisted heritage assets of local historic interest.
- Known archaeological sites recorded in the HER.
- Protected species data.
- AONB special qualities.
- Priority habitats.
- Zone of Theoretical Visibility.

The chapters for the individual topics are variable in how much more information is referred to but they are not systematic in presenting what is already known and none of them provides additional mapping.

Overall this is a poor basis on which to consider the adequacy of the EIA assessment process, and very limited use in indicating potential impact interactions and likely cumulative effects.

In some cases (for example, archaeological remains and species) there are inherent uncertainties in the current baseline which reflects only a generalised assessment based on limited desk-based data gathering and walkover surveys of unknown extent. This applies equally to some other key topics such as geology and water.

There is no general statement to demonstrate that significant further research is required including field surveys, ground investigations and archaeological evaluations to provide a far more robust basis for forecasting the baselines conditions. There is no discussion of core principles (established by UK case law and draft legislation) for the application of the precautionary principle and worst case scenarios for assessing effects (cf PINS guidance on these matters).

The EIA scoping does not set out a procedure by which limitations and uncertainties will be identified and the necessary work will be carried out to establish an adequately robust baseline for forecasting the full baseline conditions and what objectively forecast margin of error is inherent in such predictions.

Section 5.1.11 (Future Baseline Scenario)

The EIA Regulations require (Schedule 4 s.3):

- *"A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge."*

The consideration of "*the likely evolution of the baseline and future baseline scenarios, without implementation of the Scheme and appraising only natural changes*" is not in fact what the Regulations require and just as 'natural beauty' of the AONB embraces what is in fact a landscape managed by people over millennia, so the concept of 'natural changes' has to be seen within a world in which climate, air quality, habitat and species loss, degradation of soils, changes to heritage assets and historic landscape character and even changes to the night sky are ALL the subject of human intervention or influence. This is perhaps most obvious in relation to traffic modelling (see section 5.3)

The 'natural' evolution of the baseline scenario thus means forecasting what *would* happen and what *would not* happen if none of the aspects of the scheme were implemented and no separate deliberate intervention was made to deliver them other than the framework already in place.

The key questions here are:

- What *presumptions* are in place that are likely to drive change (including those that drive forecasted changes in traffic)?
- What additional *trends* are detectable that might sway presumptions one way or another?
- What environmental assets and qualities that would be harmed by the scheme would *not* be harmed further than they are already?
- How far natural resources (water, soils carbon budget etc.) would not be altered?
- What opportunities for environmental enhancement would not arise?

The extent to which such change occurs is substantially due to human management predominantly driven by development needs. Hence it is right to refer to development plans, but this should also include consideration of relevant infrastructure plans including in particular road and rail infrastructure.

This is an area of significant uncertainties so a clear understanding of forecasting methods and confidence limits are important aspects of this in respect of all EIA topics, not just traffic (cf EIA Regs Schedule 4 s.6).

General approach to assessment of sensitivity, scale of impacts, significance of effects and policy implications and scheme objective outcomes

The general approach set out in section 5.4 to gauging the sensitivity of resources/receptors, the scale of beneficial or adverse impacts and from these, the significance of effects reflects DMRB vol 11 but there are significant problems in relating this framework to key decision-making considerations:

- The oranges and lemons issue: different topics have very different numbers of assets/resources/receptors and therefore the number of beneficial or adverse effects of different grades is not relevant across topics even though this may be very relevant to the balance of cumulative harm and benefits within topics.
- This is exacerbated by impact interactions across multiple different topics
- This is further exacerbated by cumulative effects arising within the scheme; and those of the scheme with other parts of the network and other local development

But even more importantly, the grading of effects is not related to NPSNN policies and associated tests and criteria that must be assessed where certain thresholds are met – some of which could require consideration of major measures to address effects properly within a broader perspective.

In this context it is fundamentally important to recognise the substantial challenges set by the basic requirements, vision, design principles, objectives and sub-objectives of this scheme as set out in the table on pp. 63 to 64 of the 'Preferred Route Assessment Report' and in Annex 1 of the Board's consultation response dated 21st June 2019.

In addition, there are several sub-objectives and a register of design principles (see the Scoping report (section 2.2) only gives the Client Scheme Requirements and Vision, not even giving a specific cross reference to the overarching design principles, objectives and

sub objectives. As explained in section 4.3, these were the subject of detailed consultation with stakeholders including the Board who played a significant role in drafting the Vision, Design Principles, Objectives and Sub-objectives. At the last technical workshop the Board was assured that the vision, design principles and objectives would be key considerations in the EIA process.

As it stands these core considerations are largely side-lined in the body of the scoping report.

- The only reference to the **Vision** is simply to quote it (paragraph 2.2.1) – there is no commitment to draw conclusions as to how far the scheme would or would not deliver the vision in respect of matters covered by the EIA. This should be a key consideration for PINS when determining the application, and even the full consideration of the overall Vision is presented in the Statement of Case, it is essential that the conclusions of the ES should feed into it.
- Other than the account of consultation meetings, there is no reference anywhere in the Scoping Report – even in the Landscape section – to the **Scheme Design Principles**, though these are a key consideration for consideration of NPSNN paragraphs 1.150-1.153.
- The only references to **Scheme Objectives** (or sub-objectives) in relation to the actual Environmental Impact Assessment and commitments to mitigation are as follows:
  - Landscape paragraph 8.4.5 *"All mitigation design would be consistent with the Scheme objectives"*
  - Climate paragraph 15.4.2 *"Explore alternative lower carbon options to deliver the project objectives"*
- Other than the account of consultation meetings, there is no reference anywhere in the Scoping Report to the **Register of Design Principles.**

Design and mitigation measures

The scoping report fails to demonstrate that there will be a consistent approach to distinguishing clearly between those measures that, with respect to statutory duties and national policy requirements to conserve and enhance natural beauty, wildlife and heritage, would:

- 'avoid' significant adverse effects
- 'reduce' significant adverse effects
- 'offset' significant adverse effects

OR contrariwise would

- 'remedy' current and past problems
- create beneficial outcomes
- improve existing benefits

It is noticeable that with the exception solitary mention in relation to otters (p111), there is no reference to the guidance provided by DMRB Volume 10 – Environmental Design and Management. This reveals a glaring discrepancy given how DMRB volume 11 is mistakenly treated as the overarching basis for judging significant effects, when in fact its main role is to inform judgements against national legislative requirements and policy.

Both volumes should be used strictly within the context of being guidance for providing relevant information to inform whether the scheme will deliver its Vision, Design Principles

and Objectives in a manner that fulfils statutory and national policy requirements. The overall approach and how it is developed for each topic and their interactions should be reconfigured accordingly.

The general approach to design and mitigation also fails to indicate how they relate to the overall EIA requirement to show how interactive and cumulative effects will be addressed, not merely as an aggregation of small actions but in respect of what other measures or alternative solutions might be adopted to address significant effects – especially within the context of NPSNN paragraphs 5.150 to 5.153 which require specific consideration of these matters in relation to effects on the AONB.

Grading of Significance of Effects

The EIA Regulations do not require the significance of effects to be graded. What is required is that 'significant' effects must be:

a. identified – i.e. those that represent a material consideration for decision-makers in relation to policy and legislative frameworks; and
b. described in a manner that enables them to be given due weight in the balance with other public interest considerations.

While regularised gradations of significance may assist in this, their particular value is to help ensure consistency of judgment within relevant topics to assist ascribing appropriate weight to be given to different issues in terms of policy and statutory requirements and the overall goals for the scheme. With some minor exceptions this scoping report substantially fails to establish a framework demonstrating how significant effects will be identified and described in ways that directly inform judgments in respect of the material considerations that are embodied in the stated vision, design principles and objectives of the scheme when set within the relevant statutory requirements and policy frameworks.

The issue of the environmental assessment methodology is addressed in Recommendation 6 of the Board's consultation response dated 21st June 2019.

Tables 5.2, 5.4 and 5.5

Presumably one of the aspirations of the proposed scheme is to have positive environmental impacts / outcomes (as per the agreed Vision, Design Principles and Objectives). As such, it would be appropriate for the tables used in the methodology to have separate entries for beneficial impacts and to grade these beneficial impacts according to their significance / magnitude. This is needed to assist consideration of net adverse or beneficial effects and make necessary comparisons with alternative means of avoiding and ameliorating harm and enhancing the environment, as required by EIA Regulations and national policy and statutory duties.

ES Requirements Omitted

- **Regulation 14(4):** The statement of expertise should include brief details of the relevant specialist professional experience of contributors relevant to the technical information and assessments supplied in relation to each EIA topic. This should take account of relevant professional standards (e.g. the Chartered Institute of Field Archaeologists Code of Practice requires that work carried out by its members is duly credited for their work).

ENVIRONMENTAL ASSESSMENT TOPICS (CHAPTERS 6-15)

The Board's over-arching recommendation relating to these topics is provided in Recommendation 7 of the Board's consultation response dated 21st June 2019.

Comments relating to the individual topics are provided below.

CHAPTER 6. AIR QUALITY

There is no consideration of interactive effects with landscape and recreational activities, especially relative to the national and regional long distance paths. This is potentially significant in-combination effect with noise and visual intrusion relative to tranquillity as a key attribute of the AONB. The Board would anticipate some benefits, and potentially some problems.

CHAPTER 7. CULTURAL HERITAGE

This summary is too superficial and, although it is said to have followed relevant policy and guidance, that is not evident in the very limited account presented. Key problems include:

- The study area needs to be tiered relative to potential effects: while this is indicated paragraph 7.1.1 in respect of Leckhampton Hill, it is not clear in the absence of a ZTV to help assess potential setting effects that all cases of potentially significant setting issues have been identified.
- In general, the effects on Historic Landscape Character represent a very clear and substantial area of impact interaction with Landscape impacts and there needs to be a fully joined up approach to assessment that combines established best practice for both disciplines with a common study area. This would most appropriately be the parishes that the Red Line area for scheme affects and is immediately adjacent to (noting comments on the Red Line Area above).
- There is no indication that consideration will be given to increases or reductions of traffic intrusion relative to historic buildings, settlements and roads (some of which may be beneficial effects).
- There is no indication that consideration will be given to intangible heritage and cultural capital (cf the Board's Draft Position Statement on cultural capital; associations of Gustav Holst Way, Crickley Hill, issues of such relationships to tranquillity).
- Wholly inadequate account of sources of temporary and permanent impacts, including how permanent effects on the fabric of heritage assets mostly arise from construction works and how *temporary* construction sites, compounds haul roads etc. are likely to result in *permanent loss* of any subsoil archaeology.
- There is no identification of key impact interactions (classic examples being issues of landscape and setting, visual and noise intrusion and setting; historic landscape and ecology; archaeology and soil). In this case the contribution that archaeology makes to the character and interest of the AONB is critical.
- No discussion of indirect effects that may arise (these are effects arising from complex pathways and for example can lead to physical damage to or loss of heritage assets arising from more extreme levels of intrusion on the setting of heritage assets – whether for example this applies to Crickley Hill Farm; hydrological effects etc.).
- Although the assessment assumptions and limitations reflect to a reasonable extent the deep uncertainties and limitations that apply – especially to archaeological sites and monuments – this is not fully explained in relation to archaeological sampling methods and mitigation.

- The scope of the survey areas and survey methodologies and standards are not defined; nor is the sampling coverage of each survey technique given. It is not clear if the joint geotechnical and archaeological ground investigations are being developed jointly to meet mutually relevant needs, or simply archaeological monitoring of geotechnical studies (i.e. mitigation of planning stage impacts). The archaeological purpose of this survey (e.g. to assess potential of colluvial, landslip and tufa deposits) is not stated.
- The relationship of the different survey methods to the red line area and which parts are required for permanent land take and which are temporary construction sites is not set out (it is very unhelpful that the draft Red Line Area does not distinguish these areas of potentially very different impact).
- Given the clear archaeological potential of the area, it is not satisfactory that there should be no archaeological evaluation to test the reliability of the surveys identified.
- A general comment is made in respect of preserving archaeology *in situ* but this needs to demonstrate that any proposals will be based on full engineering assessment of relevant load bearing parameters (include speed of laden trucks) and relevant technical literature (e.g. Preserving Archaeological Sites In Situ and DEFRA studies) relative to compliance with BSI standards and Defra advice on soil handling on construction sites.

Overall, the scope defined is vague and riddled with uncertainty and is not clear about how uncertainties and limitations will be addressed. This is fundamentally at odds with the EIA Regulations requiring that an Environmental Statement must include:

- s. 14 (3)(b): *the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment; and*
- Schedule 4 s.5 (d): *A description of the likely significant effects of the development on the environment resulting from, inter alia… the risks to … cultural heritage.*

The absence of any archaeological field evaluation is especially serious: it is an entirely 'reasonable' requirement applied to far smaller developments than this and in areas with far less obviously high potential. It is also fundamental to addressing (or at least reducing) the 'risk' of total loss of significant archaeological heritage.

This is also clearly at odds with PINS Advice Note 17 in respect of cumulative effects (in this case multiple archaeological sites, some of high potential) and the need to address uncertainties in the context of the precautionary principle (a generally accepted in environmental methodologies) and worst-case scenarios. Fundamental to this is the NPSNN policy:

- *5.139 A documentary record of our past is not as valuable as retaining the heritage asset and therefore the ability to record evidence of the asset should not be a factor in deciding whether consent should be given.*

From this two key points arise:

- It is necessary to forecast – based on established archaeological sampling theory and practice[3] - what the total archaeological content of the area affected is likely to

[3] See Hey, G., Lacey, M., 2002: *Evaluation of Archaeological Decision Making Processes and Sampling Strategies,* Oxford Archaeology and Kent County Council; and Historic England, *Geophysical Survey Advice* https://historicengland.org.uk/advice/technical-advice/archaeological-science/geophysics/. See also DMRB Vol 11 para 5.7.11: '*The proportion of the proposal area to be trenched should be chosen on a case-by-case*

be and how significant it is (e.g. in relation to current state of knowledge and research agendas)
- Any loss or extensive significant damage (including in relation to the Cowley roundabout Roman settlement any cumulative harm) is substantial harm
- As an issue for *determination* consideration of residual effects after mitigation apply to measures to avoid or reduce loss or preserve features *in situ;* the need to undertake recording action is very necessary for offsetting the loss, but does not diminish the significance of those losses in terms of the basic planning balance.

With all aspects of archaeological sampling a key consideration is what is not recovered when only a percentage is investigated and what, in a worst case scenario might be lost if only a small percentage is recovered. The issue is not merely to characterise the remains that would be harmed but to consider the risks of losing critical remains (such as human burials) that may be inherently difficult to locate.

Currently the scope makes no attempt to address how requirements of s.14 (3)(b) and Schedule 4 s.5(d) of the EIA Regulations will be addressed in the context of NPSNN 5.139 to meet the needs of Pins Advice Note 17.

In addition, the Cultural Heritage chapter of the EIA should:

- refer to (and address) the relevant special qualities of the Cotswolds AONB (i.e. 'significant archaeological, prehistoric and historic associations'; and 'a vibrant heritage of cultural associations');
- highlight that cultural heritage is one of the factors contributes to the 'natural beauty' of the AONB and should, therefore, be a consideration under the 'duty of regard';
- refer to Policy CE6 (Historic Environment and Cultural Heritage) of the Cotswolds AONB Management Plan.

CHAPTER 8. LANDSCAPE

A clearer distinction needs to be made between the landscape as a physical resource as defined by the Florence Convention reflecting a wide range of characteristics (including for example topographical ecological, aquatic, land use, historical, archaeological and cultural associations) and visual characteristics of the area of the scheme and its surroundings. As a landscape-led scheme wholly within a protected landscape, the study area for landscape effects needs to be much wider than that defined. Its characteristics need to be considered within the context that the area is amongst the most sensitive within the Cotswolds AONB, as indicated by the numerous overlapping designations, extent of public access land and convergent national and regional trails.

Section 8.1

The study area and assessment need to be based on a greater understanding of the physical characteristics of the area in the context of how it is experienced (i.e. perceived by people using all senses) in a kinetic way as people live and work in it, travel through it as

basis, but in studies of areas of known archaeology it has been shown that the optimum percentage is between 5% and 10% of an asset. Trial trenching is good for assessing the location, complexity, character, condition of assets and the quality of artefacts. It is less effective for revealing the layout of buried remains. The timing, location and percentage of the area to be trial trenched should be discussed with consultees and agreed with the Overseeing Organisation'.

visitors by foot, bike, horse or vehicle, or come to explore it in the context of an important country park and other attractions.

We suggest that as with historic landscape character – for which there is a very close interaction – a suitable combined study area for the landscape assessment within the local context would be the parishes affected or immediately adjacent. The visual assessment should be based on ZTV analysis.

Section 8.2

Despite being a 'landscape led' scheme the baseline account provides NO indication relative to either scheme vision, design principles and objectives OR the tests set by NPSNN of how the landscape has influenced choices in preliminary design.

The baseline description does not explicitly reflect (or even refer to) the preliminary landscape assessment carried out for the scheme at the shortlisted options stage, and in particular does not provide any account of the issues which that study was intended to highlight in terms of major considerations needing to be taken into account in developing the scheme.

The description of the baseline does not refer to key scheme objectives and design principles (cf Register of Design Principles) that relate to how well the scheme fits into the landscape – and how that will differ from the current road (or, in relation to cumulative effects, its predecessor) and pre-existing completed sections of the Swindon – Gloucester road.

The account of the baseline environment refers to appropriate characterisations and (to a limited extent some significant features within the area) but these are generic characterisations of large areas and the baseline does not attempt to synthesise or highlight the particular characteristics that mainly influence the specific area affected by the scheme. This is an essential step for adequate assessment of effects.

The description makes no mention of the relationship of the current A417 to the landscape. This is essential if a valid comparison is to be made with how the proposed scheme affects the landscape and if cumulative effects of successive schemes are to be considered. This is also essential for assessing the appropriateness and effectiveness of measures to restore redundant roads into the landscape.

Section 8.2.9 refers to the special qualities of the AONB. Several of these special qualities should also be mentioned specifically in the context of landscape character:

- the Cotswold escarpment (i.e. Landscape Character Type (LCT) 2 in the Cotswolds AONB Landscape Character Assessment);
- the high wolds (i.e. LCT 7);
- river valleys (i.e. LCT 8).

Although Section 8.2 provides an indication of where the A417 can (and would) be seen from, there is no mention of which specific, grid referenced viewpoints are to be used to assess visual effects. There should be a consultation with interested parties on which viewpoints should be used to represent the range of groups of people who may be affected (visual receptors). Whilst it is appropriate to assess impacts relating to individual viewpoints, consideration should also be given to 'unfolding views', especially the progression of different views that will be experiences by users of the national and regional trails, the country park and National Trust land, other open access land and other rights of

way. Arguably the largest body of visual receptors will be the users of the A417 the reconfigured A436 approach and other links, so views from all the new roads should also be considered.

The PINS guidance on cumulative effects expects worst case scenarios to be considered. This suggests that the visual assessment should provide montages for the worst views (i.e. those views that are most adversely affected) as well as standard practice of representative and key viewpoints.

Sections 8.3 to 8.5

The description of 'potential' impacts, design and mitigation and likely significant effects does not refer to key scheme objectives or design principles (both overarching and the Register of Design Principles) that relate to how well the scheme fits into the landscape – and how that will differ from the current road (or, in relation to cumulative effects, its predecessor).
In effect, far from being *'landscape-led'* and meeting the principle that *'any solution involving a new road must ensure that the scheme is designed to meet the character of the landscape, not the other way round,'* the account shows that consideration of landscape has largely followed the dictates of engineering as affordable a scheme as possible. It makes no reference to and is not rooted in the guidance and tests set by NPSNN paragraphs 5.150 to 5.153 or any other local policy frameworks.

The account treats the landscape as superficial cover, with minimal mention of topography. No mention is made of the fundamental issue of the scale of changes in topography, and the account is entirely lacking the objectivity that would be provided by giving quantitative measures of the scale of the proposed scheme as established by the preliminary design to date. Although the description of the scheme (p 17) refers to the cutting through the scarp being up to 35m deep, this account makes no mention of ANY figures to give a scale of the dimensions of the scheme in terms of:

- widths of carriageways and verges;
- lengths depths and widths of cuttings and embankments ;
- preliminary estimates of areas required for:
    - permanent road corridor (i.e. out to highways boundary walls, hedges or fences);
    - temporary construction works (haul roads, compounds, storage areas, etc.);
    - landscaping extending beyond the road corridor including any use of land to dispose of surplus materials;
    - reclamation of redundant road corridor;
- currently estimate volumetric alteration of topography.

Most significantly the description of effects entirely fails to convey the scale of the proposed cutting through the scarp which, from material presented in consultation discussions, would be deeper and in preliminary designs to date narrower than the M3 at Twyford Down, Winchester.

Section 8.4

By omitting any mention of the scale of impact, the account fails to identify key issues for design. For example:

- at the base of the scarp and its lower levels there are key challenges in respecting and fitting in with the landform and watercourse with clear problems of significant cumulative effects adding an additional; carriageway to the existing road

- despite major steep faced/retained cuttings into bedrock limestone through the scarp and in the alignment round Emma's Grove there is no mention of local character of rock outcrops and cliffs and how these might influence design choices
- the landform east of Emma's Grove is a NE/SW spur of high ground that slopes down towards Ullen Wood making this a key area where alignments are critical
- the head of the dry valley at Shab Hill is a sensitive landform that needs particular care in design, especially minimising the impact of any junction in this location and choices in horizontal and vertical alignment
- the detailed alignment of the scheme across the High Wold area between Shab Hill and Cowley is highly exposed and detailed alignment to optimise best fit into existing field patterns, as well as choices of vertical alignment to minimise intrusiveness are critical.

Paragraph 8.4.5 refers to the AONB Landscape Strategy and Guidelines (LSG) but the Scoping Report does not indicate how this will be utilised. To address this issue, the EIA should tabulate the relevant 'local forces for change' shown in the LSG for each Landscape Character Type (LCT), identifying the extent to which the proposed development and alternative options will avoid the 'potential landscape implications' and help to deliver the 'landscape strategies and guidelines' for the relevant LCTs.

Section 8.5 and 8.6

As in the case of Cultural Heritage there is significant lack of clarity about the distinction to be made between permanent changes and effects arising during construction and how these would remain but also change during operation (e.g. as planting matures) and temporary changes that would occur during construction, distinguishing between those that have no lasting effects and those that require remediation.

These need to be considered in the basic context of why different areas of land are required, and any off-site effects:

- permanent road corridor (i.e. out to highways boundary walls, hedges or fences);
- temporary construction works (haul roads, compounds, storage areas, etc.);
- landscaping extending beyond the road corridor including any use of land to dispose of surplus materials;
- reclamation of redundant road corridor;
- off-site effects.

Offsite effects could include:

- any significant changes in traffic intrusion relative to tranquillity issues in the surrounding area;
- any off-site disposal of surplus materials including any specific off-site restoration of drystone walls;
- any off-site enhancement of visitor access to the AONB;
- interactions with other topics especially any off-site habitat creation;
- offsetting carbon costs through extensive woodland planting (and the potential scale that would be required to achieve net zero emissions by 2050).

There are no proposals for establishing a quantitative basis for establishing the scale of such changes to the landscape in terms of:

- the area AND volumetric scale of changes to the landform of the AONB;

- the areas of different land uses arising from the scheme as compared with the baseline scenario;
- how these compare with the footprint of the present A417 and A436 and associated landscaping within the sections of route within which they would be altered
- the cumulative effects on the AONB of this scheme in these terms in combination with previously completed sections of the A417 as contributions to the Swindon to Gloucester route.

The account of effects has had no explicit regard to the Cotswolds AONB Landscape Strategy and Guidelines (see comments on section 8.4) or the statutory purposes of the AONB (including public access and understanding). It also misses important potential benefits and is wholly inadequate in addressing or drawing any conclusions about the overall vision for the scheme or its general tripartite design principles for the AONB.

However, there are also even more fundamental problems with the scope proposed. The identification of 'likely' significant effects makes no reference to the specific 'great weight' criteria presumptions and tests set by NPSNN paragraphs 5.150 to 5.153. By virtue of paragraph 1.151 the mere existence of the scheme wholly and unavoidably located within the AONB is automatically - by virtue of Government policy - a highly significant adverse effect that establishes a starting point of an assumption of refusal.

There is a further fundamental problem (as explained above sections I to V) that the scope of this topic provides no basis for assessing the potential to address the NSPNN presumption of refusal against means by which significant effects could be ameliorated, at what cost and to what 'high environmental standard.' In the Board's view that can only be judged in the context of **best** past practice in other protected landscapes.

It is of great importance to appreciate that the scheme vision and design principles represent the fundamental basis for judging the proposals against the guidance and tests set by NPSNN paragraphs 5.150 to 5.153.

Paragraph 8.6.2 is wholly inadequate in failing to make any reference to the following as key material considerations:

- NPSNN paragraphs 5.1.43 to 5.1.53 and 1.58 to 5.161, and many other references to landscape and visual issues throughout (but especially paragraphs 5.150 to 5.153);
- Local Authority landscape policies for the AONB;
- Local Authority Design Guidelines;
- Cotswolds Conservation Board's Management Plan; Landscape Strategy and Guidelines; Positions Statements.

There is no indication of the multitude of impact interactions that arise in relation to landscape, visual, heritage, ecology, geology and soils, water, community, tranquillity (noise, visual, air quality) human health (amenity recreation) and climate issues that are specifically relevant to the effects of the AONB.

There is no consideration of how cumulative effects related to these issues will be addressed, including effects when viewed in respect of:

- The effects already caused by previous parts of the overall expressway.
- How far the effects of previous upgrades made to the A417 would be extended, exacerbated or remedied.
- The contribution of this scheme to overall impacts on nationally and internationally protected landscapes in terms of *'individual networks and as an integrated system'.*

The Scoping Report refers to the third edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA3) but, in its methodology, relies primarily on the DMRB guidance on landscape and visual effects. Although the broad method in both sets of guidance is similar, the approach to evaluating impacts / effects is different, with the GLVIA3 providing more transparency in how judgements are made and what they are based on. The result of not using GLVIA3 as the main source of guidance is that Table 8.2, dealing with landscape, is not at all clear about what sensitivity means - it mixes value with ability of the landscape to accommodate change. These are separated more explicitly in GLVIA3. Similarly the comparable Tables, 8.4 and 8.5, also simplify the judgements that need to be made about visual impacts/effects.

Tranquillity and Dark Skies

The Scoping Report refers to the issues of tranquillity and dark skies (e.g. paragraph 8.2.3) but then pays very little attention to how these issues will be addressed in the EIA.

The EIA should have a section that specifically addresses the issue of tranquillity, including the interaction of noise, visual impact and other sensory disturbance. This should explicitly state that the 'tranquillity of the area' is one of the AONB's special qualities. It should also refer to Policy CE4 (Tranquillity) of the Cotswolds AONB Management Plan 2018-2023 and the Board's new position statement on Tranquillity[4] and identify how these policies and position statements will be addressed. For example, it may be appropriate to use the tranquillity mapping methodology developed by CPRE or the University of Winchester / Dorset AONB.

Similarly, the EIA should explicitly state that 'extensive dark skies' is one of the special qualities of the AONB. It should also refer to Policy CE5 (Dark Skies) of the Cotswolds AONB Management Plan 2018-2023 and the Board's new position statement on Dark Skies and Artificial Light and identify how these policies and position statements will be addressed.

Overall

The scope of the landscape and visual topic has been composed as if this were a minor scheme in an ordinary area of landscape without any formal designations: except for a few specific references to particular places and features it could be anywhere. It is in effect a generic scope tweaked to fit this scheme without reference to its specific vision, design principles and objectives and the major national policy issue which, unless a series of clear tests are adequately met, invokes a presumption of refusal.

For the reasons given above, the Board considers this topic scope as presented would fall well short of adequately informing PINS about the effects of the scheme relative to key policy guidance, presumptions and tests set by the NPSNN, especially when considered in the context of the goals of the schemes and the requirements of s.204 of the 2008 Act.

CHAPTER 9. GEOLOGY AND SOILS

The study area is not adequately defined to take account of offsite effects, for example, in respect of impacts on quarries elsewhere. It is possible that much of this is dealt with under other topics but, if so, the interactive impacts and effects must be identified.
Section 9.2 makes no reference to palaeontological interests or normal contractual obligations in respect of 'fossils and antiquities'.

[4] To be adopted by the Board on 25th June 2019.

The scope of information available from past borehole investigations is not given. From copies of historical borehole logs that the Board has obtained, on or close to the route, and the long profile of the proposed scheme, there would appear to be potential for four or more significant stages of rotational land-slipping and slumping, with records of peat survival at c. 180m OD. But in the summary of baseline information there is no reference to the likely quaternary date of this material, or the possible existence of tufa deposits or known areas of peat, nor the often very localised occurrence of such deposits, or their potential national significance in respect of geological, palaeontological and archaeological interest of the scarp. Such deposits have been of major significance in tracing the evolution of the Cotswolds landscapes, and where associated with Palaeolithic, Mesolithic or later archaeology, a key consideration for hominid and early human activity in the area. There is a substantial academic literature on this topic.

There is similarly no reference to archaeological interactions with soils in respect of colluvial deposits, where these are likely to survive or how extensive they might be.

No attempt is made to relate these issues to indirect pathways to risks of human health and cultural heritage required by EIA regulations, either in relation to physical and structural requirements to address the stability of areas known to be at risk of landslips, or the risk of well preserved, palaeo-environmental and archaeological material, or these relate to the character and interest of the AONB.

The hydrological effects have potential to result in indirect effects arising for ecology and archaeology due to alterations of complex water tables and peat deposits in zones of land slipping and slumping. This includes the potential for indirect impacts on offsite resources arising due to dewatering caused by changes to ground and surface water thereby altering the soil geochemistry.

No consideration is given to interactions between soils and archaeology – especially with regard to the archaeological interest and potential of the plough zone generally and colluvial deposits in particular, or how such material would be redistributed from its source. No reference is made to the need to consider and resolve technical requirements of BSI standards and DEFRA soil handling in relation to potentially significantly conflicting technical requirements needed to achieve archaeological preservation *in situ* either beneath temporary haul roads, compounds and storage areas, or permanent embankments, false cuttings, landscaping areas, and disposal of surplus materials.

The very brief references to Ground Investigations (section 9.7) gives no indication of what baseline information these studies would be intended to enhance, what methods would be used, what sampling limitations are inherent in such methods or how these methods would relate to requirements of other related topics such as archaeology and ecology.

Overall this topic needs significant overhaul both to meet EIA requirements in respect of risks, interactions indirect effects and cumulative effects. It does not adequately identify possible indirect effects, impact interactions, cumulative effects, risks or worst case scenarios. It falls well short of meeting what can be reasonably expected in relation to precautionary principles.

This section of the EIA should explicitly refer to the following special qualities of the Cotswolds AONB and identify how these special qualities will be addressed:

- ‘the unifying character of the limestone geology’;
- ‘distinctive dry stone walls’ and

- ‘variations in the colour of the stone from one part of the AONB to another which add a vital element of local distinctiveness’.

It should also explicitly refer to Policies CE2 (Geology), CC5 (Soils) and CC6 (Water) of the Cotswolds AONB Management Plan and identify how these will be addressed.

CHAPTER 10. BIODIVERSITY

As with other topics, this Chapter makes no reference to the overarching vision, design principles and objectives of the scheme. As a result there is insufficient consideration of impact interactions (including benefits) with landscape, historic landscape and access (especially open access sites).

In particular that the study area for this topic needs to include a landscape-scale consideration of key habitats that characterise this part of the AONB. This is crucial for assessing both adverse and beneficial impacts, but also for identifying key habitat creation opportunities.

In this context, the EIA should explicitly identify ‘limestone grasslands’ and ‘ancient broadleaved woodland’ as two of the special qualities of the Cotswolds AONB. It should explicitly identify how these special qualities will be assessed, how adverse impacts will be avoided / mitigated / reduced and how a significant net gain will be delivered.

There is no specific reference to habitats associated with the built environment (for example, buildings, such as the Air Balloon pub, and dry stone walls) as potentially significant for species.

There is insufficient reference to key landforms and habitats that could influence how habitat creation could reflect existing characteristics of the landscape. For example, there is no reference to cliff and rock face habitats on Crickley Hill in reference to landscaping / habitat design considerations for deep cuttings; nor creation of new hedges and walls.

There is no reference to any requirement to offset carbon costs through woodland planting or the scale that would be required to achieve net zero emissions by 2050.

With regard to the likely effects, this chapter rightly recognises the opportunities for significant benefits as well as adverse effects, but it fails to show the potential range and scale of these differing effects needing to be assessed relative to:

- permanent road corridor (i.e. out to highways boundary walls, hedges or fences);
- temporary construction works (haul roads, compounds, storage areas, etc.);
- landscaping extending beyond the road corridor including any use of land to dispose of surplus materials;
- reclamation of redundant road corridor;
- off-site effects.

Overall, this Chapter is flawed in not fully embracing a landscape scale approach for a ‘landscape-led’ scheme or considering the key value of habitats and species to the character of the AONB and the opportunities that are presented for landscape scale improvements.

While there is some reference to interactions with hydrology (including the need for more survey information and assessment), very little attempt is made to consider potential impact interactions with heritage, geology and soils (see above) or ecology at a landscape scale as

a key attribute of the AONB's natural beauty. Nor is there any reference to potential ecological interactions with planting related to carbon cost offsetting.

In respect of the cumulative and interactive effects for ecology there is no indication that any relative quantitative analysis of the overall losses and gains of different habitats lost or harmed or created or extended would be assessed. This makes it very hard to see how the overall impact on this aspect of the natural beauty of the AONB would be objectively reported.

With regard to habitat creation, no mention is made to any standards for sourcing planting material or the indirect effects of this in terms of supply from local sources. No reference is made to AONB Management Plan policies, Position Statements or landscape strategy and guidelines in this – or any other respect. For example, the EIA should explicitly refer to Policy CE7 of the Cotswolds AONB Management Plan 2018-2023 and identify how the scheme will to deliver that policy's principles of 'bigger, better, more and joined' and how it will deliver significant net-gains in biodiversity.

As with other topics there is a basic inadequacy to reference key national policy and legislative considerations, scheme vision, design principles and objectives.

Overall some significant changes are needed to ensure that the scope of this assessment will properly meet EIA requirement and fully inform decision-making in respect of the effects of the scheme on habitats and species and how these relate to natural beauty of the AONB and other topics

CHAPTER 11. MATERIAL ASSETS AND WASTE

In respect of surplus materials generated, it is not satisfactory that only the A436 options are considered in terms of quantifying baseline expectations. These options are as much subject to changes of design (alignment, landscaping, etc.) as the main A417. This is a very substantial issue because of the scale of the cutting through the scarp of the Cotswolds, which as proposed would be deeper and somewhat narrower than the cutting created for the M3 through Twyford Down near Winchester. As it stands the scope provides no means of identifying the baseline scenario set by the current preliminary design could be addressed through design modifications or other means.

It does not provide the basis for making any comparison with alternatives studied, although this is an important factor in terms of overall environmental effects.

There is no indication that interactions with landscape or other issues would be considered, though these are of substantial significance. This especially applies for example to climate relative to use of material resources as well as carbon costs of handling and transporting surplus materials

There is no reference to the Register of Design principles in respect of issues that have a bearing on generation and handling of surplus materials; nor interactions with key issues such as landscape and ecology.

The potential indirect effects of severing or removing material assets (such as buildings, fields, etc.) from their parent businesses are not sufficiently identified (rarely, such effects can, for example, result in major physical changes to heritage assets because of changes of use).

Within the waste hierarchy there is no indication of options for reuse elsewhere, for example, reuse of suitable stone for offsite landscape benefits in restoration of stone walls, and what practical measures would be needed to facilitate such use.

There is no indication of how cumulative effects would be considered.

CHAPTER 12. NOISE AND VIBRATION

This chapter insufficiently identifies interactions with other EIA topics and, as a result, the whole scope is flawed. This especially relates to tranquillity as a key attribute of the AONB. The Cotswold Conservation Board is due on 25th June to adopt an updated position paper on Tranquillity, now separated from - though still cognate with - its already updated Light Pollution and Dark Skies. The Position Statement in draft form was been subject to consultation with key stakeholders including Highways England who have commented as follows:

> *1. Noting the recommendation that "proposals that are likely to impact on the tranquillity of the Cotswolds AONB should have regard to – and be compatible with – the Cotswolds AONB Landscape Character Assessment and the Cotswolds AONB Landscape Strategy and Guidelines", we agree and would like to emphasise this point.*
>
> *We recognise that great weight should be given to conserving landscape and scenic beauty in nationally designated areas and that the A417 project seeks high environmental standards and, where possible, measures to enhance other aspects of the environment.*
>
> *The need to protect tranquillity through design of the A417 project should be balanced with the need to protect the other special qualities of the AONB; this is a landscape led scheme and therefore the use of engineered noise mitigation measures, including road surface materials, bunds, noise barriers and cuttings should be sympathetic to and support landscape character.*
>
> *2. The requirement that "the noise impact of the upgraded A417 is substantially reduced" is somewhat non-specific / subjective and therefore difficult to demonstrate compliance with. We propose that this statement refers to specific policy requirements to remove ambiguity.*
>
> *Also, this statement refers specifically to one aspect of one part of our strategic road network (the A417 improvement scheme), implying that the position is not consistent across the AONB. We propose that the statement does not refer specifically to this one part of the network.*
>
> *In light of the points above, a suggested alternative form for this sentence is given below for consideration:*
>
> > *In particular, Highways England should ensure that highway schemes within the AONB support the aims of the Noise Policy Statement (NPS) for England:*
> > - *To avoid significant adverse noise effects*
> > - *To mitigate and minimise adverse noise effects*
> > - *To improve the noise environment where possible*
> >
> > *with specific reference to the NPS consideration of "quiet places and other areas that are particularly valued for their tranquillity, acoustic environment or landscape quality such as Areas of Outstanding Natural Beauty".*

3. With any highway realignment project, there are areas that will experience a reduction in noise and areas that will experience an increase; this means the objectives of the CCB regarding tranquillity will be met in some areas and not in others.

The A417 improvement project aims to reduce noise impacts in more sensitive areas (residential, and areas of particular tranquillity or high setting value). Despite mitigation, there inevitably may be areas subject to localised noise increase where the highway is realigned. The aim of the project is that any such increases would be limited to areas that, whilst still part of the AONB, have lower sensitivity to changes in tranquillity.

We expect the number of residential areas experiencing noise from the upgraded scheme to be reduced compared to forecast levels for the unimproved road. Therefore, at a landscape scale, we expect this part of the AONB to see an improvement in noise impact as experienced by sensitive receptors.
This approach concurs with your stated long-term aspiration of "fewer areas being affected by noise pollution and other aural and visual disturbance."

The Board has welcomed this positive response and has incorporate much of the suggested wording into the new Tranquillity Position Statement. However, we would note that *sensitive receptors* are NOT restricted to *residential, and areas of particular tranquillity or high setting value* but need also (amongst other considerations) to reflect public access and wildlife receptors and cultural capital considerations.

The Board is correspondingly disappointed that NO mention is made of tranquillity in the noise and vibration scoping chapter, despite it being referred to frequently – though with no indication of how effects would be assessed – in the landscape and visual scope.
This topic needs to be brought fully in line with HE's response to the Board about its Position Statement on Tranquillity and the AONB with recognition of a much wider idea of sensitivity.

The whole assessment methodology needs to be reviewed to ensure that the full sensitivity of the area as shown on the Environmental Constraints Map:

- AONB as a sensitive area as a whole (see Management Plan and tranquillity statement) including local roads used by residents and visitors to the AONB – including cyclists.
- Regional trails (Gloucestershire Way and Gustav Holst Way).
- National Trust land.
- Crickley Hill Country Park (including local cricket ground).
- Open access land.
- Designated heritage assets where noise intrusion is relevant to their setting.

The legislation and policy list (paragraph 12.6.6 to 12.6.7) should in addition refer to key legislation and guidance relevant to the above, including:

- The CROW Act (with regard to nature conservation, open access land and the AONB).
- Cotswolds AONB Management Plan, Landscape Strategy and Guidelines and Position Statements.
- Listed Buildings and Conservation Area Act and Historic England guidance on setting.

Paragraph 12.6.8 of the Scoping Report should also refer to other relevant environmental statutory duties of 'regard', 'special regard' or 'particular regard', etc., in respect of the AONB, wildlife, listed buildings and Conservation Areas and more generally, the Infrastructure Act, under which noise and vibration are relevant considerations.

The standards set for identification and assessment of impacts and the assessment of significant effects should be considered more fully in the context of the cumulative weight of policy and statutory obligations that have overlapping relevance across the study area. A noise modelling map should be developed to show levels of impact for all the above receptors.

The noise standards, taken in the context of NPPF and NPSE requirements, are insufficient to address landscape-scale tranquillity issues. While the LOAEL standard defining the *'level above which adverse effects on … quality of life can be detected'* would be a sensible starting point, there is a significant issue of how this is to be judged within a policy that actively seeks to enhance tranquillity. In order for this to be assessed in comparison with the existing environment, a landscape-scale noise map needs to be created over the whole area within which the present A417 and the scheme proposals have a detectable effect on tranquillity.

The magnitude of impacts, scale of significance and factors determining significance are not well suited to determining effects on tranquillity and need to revisited, relative to landscape-scale tranquillity issues.

From such a baseline, the relative spatial - as well as qualitative - changes in noise environment as a key factor for tranquillity across the landscape could be predicted and assessed. This should then be combined with the verified Zone of Visibility and changes in air quality to create an overall landscape-scale assessment of intrusion on tranquillity, showing areas where both benefits and adverse effects would occur, This needs to cover a large enough area for comparisons to be made in respect of alternatives.

With regards to potential mitigation measures, consideration should be given to the role that reducing speed limits can play in helping to reduce noise from traffic.

CHAPTER 13. POPULATION AND HUMAN HEALTH

This chapter does not fully consider recreation, amenity and effects on people in relation to any of the other topics. It is especially flawed in not taking into account National Trust Land, Crickley Hill Country Park, heritage visitor attractions, open access land and rights of way relative to overall landscape, visual, tranquillity, heritage and ecology issues (see above).

As with the Noise and Vibration chapter, the baseline of sensitive areas and locations is very inadequate, and no systematic criteria are suggested or applied. As with other sections NO reference is made to relevant AONB Management Plan policies, Position Statements or Landscape Strategy and Guidelines. For example, the EIA should explicitly identify the following special quality of the Cotswolds AONB and how this special quality will be addressed:

- *an accessible landscape for quiet recreation, with numerous walking and riding routes, including the Cotswold Way National Trail*.

It should also refer to – and address - Polices UE2 (Access and Recreation) and UE3 (Health and Well-being) of the Cotswolds AONB Management Plan.

The reference to 'no view' from the road is relevant to comparisons with tunnels (which are an issue for alternatives rather than the scheme as proposed) but does not apply to the present A417 or the scheme proposed, for which views from the road are a very significant means by which people experience the AONB as they pass through the countryside.

The Human Health baseline makes no cross reference to Geology and Soils (risks of contamination and possible risks of land instability).

The section on local economy makes no reference to traffic flows relative to economic benefits or adverse effects, and there is no clear methodology by which the key test o paragraph 1.151 and 1.152 are to be judged.

The issues of severance make no references to the need to consider any key losses of functionality in businesses or any indirect effects (e.g. for heritage assets) that might arise if assets are separated from their businesses.

As with several other topics, the assessment methodology (13.6) makes reference only to DMRB, not the relevant policy legislative and other standards by which significant effects need to be assessed and reported. The lack of any reference to the implications of the scheme being wholly and unavoidably located within the AONB and the policy and legislative implications that arise from this is again a glaring omission.

CHAPTER 14. ROAD DRAINAGE AND THE WATER ENIRONMENT

This section does not consider potential interactions and indirect effects of dewatering landslip materials on assets of archaeological and/or geological interest in respect of preserved peat deposits in slumped materials on the scarp. It does not address interactions with landscape and ecological effects of changing or culverting water courses, nor the landscape design issues arising in relation to the siting and design of balancing ponds etc.

Relevant policy considerations in NPSNN and in the Cotswolds AONB Management Plan (e.g. Policy CC6) are not referred to, nor guidance provided by DMRB volume 10.

CHAPTER 15. CLIMATE

This chapter refers to examining the effects of the scheme in terms of the total carbon costs of its whole life cycle, but does not explicitly identify all the key elements of this or how they will be assessed. Amongst other considerations, this needs to include all the carbon costs of manufacturing and transporting materials used in for construction (notably steel and concrete); the energy involved in site clearance and construction works and landscaping; the costs of loss of existing vegetation; the energy used in offsite works (including any off-site disposal of surplus).

It will need to consider whether these together with all the operational effects are offset by any measures reducing carbon cost such as new planting and the extent to which operational effects reduce existing carbon costs of congestion.

The scope proposed does not show, in relation to each of these how carbon costs would be minimised or offset.

It is not clear that the proposed methodology will address these matters.

There is no reference to the Cotswolds climate strategy or AONB Management Plan policies and guidance on climate change. For example, the EIA should explicitly refer to – and address - Policies CC7 (Climate Change – Mitigation) and CC8 (Climate Change –

Adaptation) of the Cotswolds AONB Management Plan 2018-2023, as well as the '*Climate Change Strategy for the Cotswolds AONB*'.[5]

There is no reference to off-site mitigations such as offsetting carbon costs, which could be through extensive woodland planting (and the potential scale that would be required to achieve net zero emissions by 2050).

The Section fails to identify the need to consider cumulative effects, especially in respect of the rest of the development plans and programmes of which this scheme is part and other related development facilitated, served or directly or indirectly stimulated by the scheme. Currently the proposed scope falls well short of the PINS guidance (Advice Note 17) on cumulative effects and the need to consider worst case scenarios on a precautionary basis.

CHAPTER 16. ASSESSMENT OF CUMULATIVE IMPACTS

Impact Interactions

The proposal to treat 'combined effects' and 'cumulative effects' as if they were all part of the concept of cumulative effects is unhelpful. Impact interactions involve very common ways in which particular elements of the development give rise to a multiplicity of effects on the environment and especially relate to where such interrelationships give rise to effects that are *intrinsically* the product of a combination of two or more single-topic effects. The classic example is the setting of heritage assets which is defined as how the surroundings of an asset contribute to its significance and how that is understood and appreciated. Historic England guidance shows how assessment of setting issues typically includes considerations of: landscape; topography; visual, noise and other perceptual qualities; vegetation and historical ecology; the water environment; amenity recreation and access and much else.

In the context of the scheme, an overarching consideration of similar *intrinsic* importance is the interaction between different aspects of the environment that contribute to the 'natural beauty' of the AONB, which is NOT just landscape and visual. The Cotswolds AONB Management Plan, Position Statements and Landscape Strategy and Guidelines all show how the whole essence of the AONB is an intrinsic interaction of EIA environmental topics. The concept of 'Natural Capital', which now underpins Government policy towards the natural resources and interactions with cultural heritage, social and economic factors is also highly relevant.

In our comments on preceding chapters we gave highlighted some – but by no means all – of the relevant EIA topic interactions that are relevant. In order for these to be identified fully, very close collaboration and discussion between specialist is needed so that all relevant interactions are identified and methods of addressing them can be agreed – especially where, for example, joint input to field surveys (e.g. photomontages; ecology and heritage hedgerow assessments; ground investigations and archaeology; landscape and historic landscape character) needs to be developed.

The relevant topic interactions are thus best identified and methods explained within and between topic chapters with clear cross-referencing. The overall approach to impact interactions should be explained with reference to the relevant definitions (including PINS Advice), the overall principle of how methods will be adopted and adapted to address the specific interactions relevant to those scheme, especially in respect of 'natural beauty', 'setting', 'natural capital' and an overall 'landscape-led' scale of assessment.

[5] http://wardens.cotswoldsaonb.org.uk/userfiles/file/climate-change/climate-change-strategy-adopted-june-2012.pdf

These key interactions need to be firmly anchored into the relevant policy and legislative framework covering such interactions – again very obviously in relation to 'setting' 'natural beauty' and ecology, including habitats, species, water and soils. This needs to be set within the context Government policy statements, especially those on 'Natural Capital', DEFRA's 25 Year Plan, the DCMS White Paper on Culture (including heritage and landscape aspects).

It is within this wider context that the 'great weight' to be accorded to conserving the AONB encapsulated in paragraph 5.150 of the NPSNN needs to be set, and the fundamental presumption against this scheme against which all the tests in paragraphs 5.151- 5.153 of the NPSNN need to considered. Currently there is no adequate demonstration that this will be achieved, either at the level of individual impacts and effects or the higher level interactions that arise when cumulative effects are considered.

The issue of impact interactions is addressed in Recommendation of the Board's consultation response dated 21st June 2019.

Cumulative Effects

As proposed, the scope of cumulative effects to be considered is far too narrowly drawn, and reflects an inadequate consideration of National policy and legislative frameworks to address properly the EIA requirements and PINS Advice Note 17 when seen within the context of s.104 of the Planning Act 2008.

It is especially important to distinguish between 'in-combination' effects arising from 'impact interactions' – which often occur in relation to very specific characteristics of the design of the scheme (including alignments and basic design parameters) and in relation to measures intended to address its environmental effects, construction and operation – from overall issues of how a multiplicity of such interactions contribute to the overall effects of the scheme in relation to the tests and weight to be given to issues as set out in policy and wider legislative frameworks.

This is different again from the need to consider the effects of this scheme relative to other developments within the policy set out in paragraph 2.10 of NPSNN to consideration of the scheme within the context of "individual networks and as an integrated system.

NPSNN requires that:

- **4.16** When considering significant cumulative effects, any environmental statement should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been granted, as well as those already in existence). The Examining Authority may also have other evidence before it, for example from a Transport Business Case, appraisals of sustainability of relevant NPSs or development plans, on such effects and potential interactions. Any such information may assist the Secretary of State in reaching decisions on proposals and on mitigation measures that may be required.
- **4.17** The Examining Authority should consider how significant cumulative effects and the interrelationship between effects might as a whole affect the environment, even though they may be acceptable when considered on an individual basis with mitigation measures in place.

For this scheme, it is important to recognise that the 'Missing Link' is part of the overall upgrade of the Swindon to Gloucester route. As such, the approach to identifying and assessing cumulative effects in accordance with paragraphs 4.16 to 4.17 of NPSNN, along

with paragraph 2.10, must include consideration of the other sections of the whole route to show how the scheme proposal '*would combine and interact with the effects of other development (including … those already in existence*)'. This should include assessing '*how significant cumulative effects and the interrelationship between effects might as a whole affect the environment, even though they may be acceptable when considered on an individual basis with mitigation measures in place'*. This will help to ensure that PINS and, ultimately, the Secretary of State are fully informed of the total effect on the environment and, in that context, the '*mitigation measures that may be required'*.

In this context it is especially important that the overall environmental effects of the Swindon to Gloucester route as well as its overall contribution to economic, safety and social benefits are considered, especially with regard to NPSNN paras 1.151 to 1.154. In this context it is important to appreciate, describe (and map) this as part of the baseline environment. In particular, the Board draws attention to the very substantial part of the last section of the route to be upgraded (the A417 north of Cirencester) wholly located within the Cotswolds AONB and its significant effects, to which the present scheme, as proposed, would add considerably more.

In the context of PINS Advice Note 17 and NPSNN, Section 16.1 of the Scoping Report does not adequately explain how the cumulative effects of this scheme - and others - on nationally and internationally protected landscapes would be assessed in the context of s.104 of the Planning Act. Relevant factors include:

- the absence of any SEA at an upstream level within the RIS delivery plan and programme and Route Strategies; and
- the Ministerial answer of to a parliamentary question (Written Question 217075, February 5th 2019) as to whether RIS would be subject to Strategic Environmental Assessment, that the effects of the RIS plan/programme are to be addressed through individual EIAs.[6]

The issue of cumulative effects is addressed in Recommendation 9 of the Board's consultation response dated 21st June 2019.

[6] https://www.parliament.uk/business/publications/written-questions-answers-statements/writtenquestion/Commons/2019-02-05/217075/

Appendix A

A417 – Cutting v Tunnel Approximate Cost Comparison

A comparison of the likely cost of a cutting compared with a cut and cover tunnel has been carried out for the Board's 600m long Red route tunnel option.

The maximum depth of cutting required for the Red route tunnel is around 25m and this appears to be a similar cutting depth to that required for the Highways England (HE) option 30.

The key issues for construction in the particular ground conditions towards the North end of the A417 route, which are likely to determine the design and construction, are as follows:

1. The properties of the limestone rocks, in particular hardness and direction of bedding planes. It seems likely that excavation of the rock will require large dozers with rippers and backacters to load to dump trucks. This is a relatively slow and expensive process.
2. The ground strata below the limestone beds. The publically available borehole data (obtained from BGS website) shows beds of soft materials, including clays, silts and peat, underlying the limestones. These soft strata, in combination with ground water flows, are likely to affect stability of a cutting and therefore influence side slopes in both temporary state during construction and especially for long term stability of a permanent cutting
3. Ground water: There are many known springs along the base of the escarpment with substantial water flows. Therefore control of ground water will be a key issue for design of permanent works to provide long term stability and for temporary stability during construction.

Taking the above key issues into account, two cases have been considered for our approximate cost estimates:

A. An optimistic case: Side slopes for the permanent cutting of 45 degrees (relative to horizontal) and 75 degrees for a temporary cutting in which to construct a tunnel. A unit rate for excavation of the rock of £80/m3.
B. A pessimistic case: Side slopes for the permanent cutting of 30 degrees (relative to horizontal) and 60 degrees for a temporary cutting in which to construct a tunnel. A unit rate for excavation of the rock of £120/m3.

Our estimated costs based on these assumptions are shown in the table below. An overall width of tunnel structure of 30m has been taken, sufficient for a dual 2-lane road with hard shoulders.

Assessment of ground conditions	Cutting Side Slopes		Approx. Cost £M	
	Cutting	Tunnel	Cutting	Tunnel
	Degrees to horizontal			
Optimistic rock & ground water conditions	45	75	52	67
Pessimistic rock & ground water conditions	30	60	91	91

Note that the cost given above are NOT total costs. They are comparative costs excluding elements which are common to both cutting and tunnel options (roadworks, etc), and excluding contractor's site set up and preliminaries costs and contingencies.

This comparison of costs shows that the cost of a tunnel option could be similar to, or only slightly greater than the cost of an open cutting. HE said during earlier discussions that a tunnel would be very substantially more expensive than a cutting. We suspect that HE's conclusion may have been based on their own generic unit cost rates used for preliminary sifting of highways scheme options. However, these rates may not be appropriate for the ground conditions expected on the A417 route.