A417 Missing Link ExA Questions 2 – comments by G Lambrick MA FSA MCIfA

The matters raised the ExA's second round of questions in respect of heritage and cumulative effects relate to some fundamental issues arising from flaws in the adequacy of the ES, including the scale nature and seriousness of harmful effects; whether sufficient consideration has been given to avoiding or reducing them; how they relate to the cumulative effects of the infrastructure development of which this is the 'missing link' and whether mitigation measures are adequate.

These issues are important considerations in how the tests for exceptional circumstances for infrastructure development within a nationally protected landscape need to be judged in respect of the policy tests in NSPNN paras 5.151 to 5.153.

2.5 Draft Development Consent Order

2.5.13. (Historic England, Joint Councils, Cotswolds Conservation Board) Requirement 9

The Applicant has made changes to the wording of Requirement 9 to include specific reference to the OWSI and DAMS and included a definition of these and identified these as certified documents. Are the parties satisfied that these amendments address the concerns previously raised?

1. The wording of Requirement 9 remains problematic especially 9(1) which allows commencement of development as soon as schemes of investigation have been agreed, not when the relevant work has been completed.
2. Seeking to encapsulate the complex matter of integration between archaeology and construction works into a single catch-all negative provision is deeply unsatisfactory. A better provision would be to put a positive onus on the developer to facilitate all archaeological works and develop a jointly agreed programme of work integrated with the overall construction programme, and approved by the county archaeologist in consultation with Historic England, to ensure that all archaeological work, including that required for remains not previously identified, is not hindered or compromised from being fully completed in accordance with site specific WSIs, including any agreed modifications, before damaging construction work progresses.
3. The definition given in the revised DCO Schedule 9 currently refers to an unrevised document that has significant shortcomings. As noted below, this would cement those shortcomings in law with no obligation to meet higher environmental standards than those set out in the document.
4. The provision is also deficient in not requiring archaeological works to respect requirements for ecological works (especially in respect of protected species).
5. Overall, the approach is too formulaic and is not designed to require pro-active collaboration to maximise achievement of 'high environmental standards.' Experience of the previous A417 A419 scheme, and more particularly Terminal 5 (which was commissioned on a 'continuous improvement' basis with incentives for achieving excellence) suggests that a much more proactively collaborative approach needs to be embedded in the scheme. In the light of para 5.153 of

NSPNN the ExA might wish to consider recommending (if the scheme were to be approved) that this type of approach to procuring 'high environmental standards' should be applied.[1]

2.7. Heritage

2.7.1. (Applicant, HE, Joint Councils) Archaeological investigation

Is the current method to secure the DAMS/ OWSI sufficiently robust? Some parties have suggested changes to the DCO Requirement 9 to which the Applicant has responded by making changes to Requirement 9 in the latest draft of the DCO [REP4-014]. Do these changes address the previous concerns?

6. For the general issue in respect of DCO wording see comments above (ExA question 2.5.13), but there are much more fundamental problems with the DAMS/OWSI which mean that it falls far short of providing the 'high environmental standards' required to overturn the NSPNN policy presumption against infrastructure development in nationally protected landscapes.

7. This relates to the far-reaching substantial impact of the scheme on the archaeological heritage that is recognised in Chapter 6 of the ES, which states that:

> *Archaeological investigations carried out to inform the DCO have established that there are several areas of high value buried archaeological remains within the DCO Boundary which will be affected by the construction of the scheme.* (para 6.93)
>
> *The scheme would result in the total loss of any buried archaeological remains that lie entirely within its footprint, which would be a major magnitude of impact. This would result in a permanent slight adverse significance of effect once mitigation of preservation by record has been applied.* (6.10.15)
>
> *The scheme would result in the partial loss of any buried archaeological remains that extend beyond its footprint. This would be a major magnitude of impact, which due to the partial rather than total loss of the resource, would result in a*

[1] British Airways' approach to the procurement, contracting and management of all the specialist contracting skills required to deliver Terminal 5 as a world-class development within time and budget has been widely recognised (including by the National Audit Office's review - BAA Plc Terminal 5). It was based on an extremely robust and open approach deeply rooted in a basis of co-operation in which all players seek solutions on a partnership basis harnessing a very strong collaborative risk management strategy embracing a core philosophy of continuous improvement in which quality of outcomes at every level was the fundamental, project-wide objective.
It was based on incentivising quality and effective performance, not disincentivising contractors with undue responsibilities for risk or penalising delays or cutting corners to make up time. This well-known case study included a major archaeological investigation of an extremely extensive predominantly prehistoric archaeological landscape.
A report jointly commissioned, overseen and funded by Highways England and the Office of Rail and Road, reviewed the situation against standards set by the Chartered Institute for Procurement and Supply. This showed that significant improvements were then needed in several areas (Highways England Procurement Capability Review of 2017). Appendix 5 of the report details several top priority areas where a more pro-active, more collaborative, more innovative and more quality-focussed rather than damage-limitation based approach would be beneficial. A significant number of these reflect areas relevant to how the inherent risks presented by archaeology need to be managed.

permanent slight adverse significance of effect once mitigation has been applied (6.10.16).

8. The blanket conclusion that total or partial loss of any buried archaeological remains including several areas of high value, would result in a *slight adverse significance of effect* reflects the extent to which the scheme has not been designed to conserve the archaeological heritage. This is contrary to NPSNN para 5.129, which requires that the understanding gained about '*the particular nature of the significance of the heritage asset[s] and the value that they hold for this and future generations*' should be used *'to avoid or minimise conflict between their conservation and any aspect of the proposal.'*

9. No attempt has been made to analyse for each asset the extent to which impacts might be avoided or minimised, or identify or explain the nature of the conflicts between conservation and different aspects of the proposal (see also further comments in relation to cumulative effects ExA question 2.8.1).

10. There are several further facets to this problem

Conservation of archaeological remains topsoil handling and landscape

11. Neither the DAMS nor the EMP Register of Environmental Actions and Commitments include any requirement to minimise the area of landtake involving ground disturbance to conserve archaeological remains, heritage and landscape features (including historic character such as walls hedges and habitats).

12. The draft DAMS and OWSI contains a section on *Protection of remains retained within the DCO boundary* which includes references (3.4.7) to preservation *in situ* in areas of beneath temporary compounds (and presumably haul roads), soil stockpiles and landscape mounding, but this does not acknowledge that fundamental conflict inherent in the mitigation proposals arising from the unambiguous commitment in the Environmental Management Plan (para 4.3.8) to applying DEFRA's soil handling requirements (a *'high environmental standard'* which are also rooted in formal BS standards). The measures that this standard requires directly conflict with archaeological preservation *in situ*.

13. There are no provisos in the EMP to make exceptions for archaeological preservation in the requirement that *'Topsoil would be handled <u>only</u> in the appropriate conditions ... with suitable machinery in line with the Defra Construction Code of Practice'* [added emphasis]. This is a legally binding requirement because of the proposed status of the EMP as a certified document.

14. The draft EMP is also weak in not requiring stronger provisions regarding the interaction between different aspects of the environment[2] would be managed to minimise conflicts and maximise benefits. There are numerous ways in which such conflicts can arise, but in particular there is no explicit overarching requirement to ensure effective programming and sequencing of works through interaction between environmental managers and construction engineers *'to avoid or minimise conflict between their conservation and any aspect of the proposal.'* including for

[2] an required for Environmental Statements

example minimising temporary use of land outside areas of permanent ground disturbance.

15. As it stands, the only references to archaeology and heritage in the draft EMP is the inclusion of the DAMs and OWSI as an annex and a few 'actions' that only reiterate a very few of those provisions without any indication of how they interact with any other considerations. The revised DCO (requirement 3(1)(e)) now proposes deleting the inclusion of the DAMS/WSI within the EMP, entirely divorcing the archaeological and heritage management from overall environmental management except for the nine 'actions'.

16. More generally, the whole design reflects severe limitations on how far any physical conservation of heritage or landscape features could be secured within the broader context of whether or not the need for the scheme might be met through better basic design choices to conserve and enhance heritage and landscape (see NPSNN para 5.129, on heritage assets, *'to avoid or minimise conflict between their conservation and any aspect of the proposal'* and 5.151, test to identify *'any detrimental effect on the environment, the landscape .... and the extent to which that could be moderated.'*).

17. For example the choice to use surplus material to re-contour large areas either side of embankments entails reconfiguring instead of minimising landtake to conserve archaeology, topography and landscape features is a deliberate policy to reconfigure or recreate a new version of the area's character, not conserve those characteristics or enhance them by remedying past harm. Landscape planting and habitat creation does nothing to 'conserve' heritage or the existing landscape features (as listed in the landscape an visual chapter of the ES) and does not in any way moderate or diminish the total displacement of ploughzone archaeology or '*the total loss of any buried archaeological remains that lie entirely within its footprint, which would be a major magnitude of impact*.'

18. It would be possible to reduce such losses of archaeology, landform and landscape features (in NSPNN policy terms, to better moderate detrimental effects by meeting the need in some other way) by adopting a different approach to reusing surplus materials. This could also moderate other effects such as some of the substantial harm to the setting of designated heritage assets (see Appendix C). Such alternative approaches include use of cut-and-cover tunnelling through the scarp. The assumption that off-site disposal is entirely environmentally harmful overlooks the potential benefits of restoring quarries where extraction is complete or recycling material into the local economy.

Recording of Historic Structures and Archaeological Remains

19. As currently drafted the DAMS and OWLS document provides a broad structure and framework for mitigation by investigation, recording and publication, but is flawed by numerous omissions, problems and issues of fundamental uncertainty. As drafted, this should not be enshrined in a legally binding form (see above ExA question 2.5.13). These flaws raise basic questions of whether the stated research objectives can realistically even be addressed, let alone adequately fulfilled to the high potential that exists in the area.

Structures

20. As the CBA has noted, the proposal to record the Air Balloon public house (rather than adopt any form of preservation through full or partial relocation/rebuilding as would typically be appropriate for a listed building) has been made without any consideration of its historical function, character, survival or cultural associations – although *prima facie* it falls within the criteria for listing this type of building if it survives in anything like its original form (which seems very possible) – see Appendix B.

21. Level 3 recording is the minimum mitigation that could be considered acceptable, but the claim that this would reduce the severity of total loss to 'slight adverse' is absurd as compared with physical relocation to an appropriate position in the vicinity, which given its significance as a heritage asset and its contribution to the AONB's natural beauty and cultural capital, should at least be considered.

Areas and types of investigation of archaeological remains

22. Currently, the areas earmarked for investigation in the draft DAMS/OWSI (*Appendix D Applying the research agenda*) are stated as only being *'indicative,'* on the basis that

> *It will be revised and updated at detailed design (following the completion of all trial trenching) to include areas proposed for watching brief, retention within the scheme, or no further archaeological work.*

23. Leaving this till detailed design stage is wholly inadequate as the basis for accepting the draft DAMS/OWSI as an adequate basis to meet NSPNN requirements, nowhere near reflecting overall seriousness of the scale of impact as reported in the ES Chapter 6 paras 6.10.15 and 6.10.16 (quoted above).

24. This is especially serious given in respect of areas of likely or possible national significance (see below). Especially obvious is the absence of any provision for investigating the area of high potential for the identified well preserved Iron Age settlement at the E foot of Crickley Hill and other areas already identified as having high potential through trial trenching in areas subject to ground disturbance.

25. There are several other respects in which the draft DAMS falls well short of what is needed to ensure it is sufficiently robust.

- Because of the presence of major early prehistoric monuments and previously recorded Mesolithic artefacts and Neolithic to Bronze Age flint scatters, there is high potential for earlier prehistoric remains (eg activity areas, small pits and burials). These typically elude geophysics and low-level trial trenching, but no attempt has been made to predict by other means such as ploughzone sampling by surface collection on cultivated land or test pitting.

- No attempt has been made to map the archaeological potential of the ploughzone over the whole area of landtake, but the scheme involves the total displacement of ploughzone archaeology in all areas of groundworks, both for temporary compounds haul routes and storage areas as well as landscape mounding. The ploughzone is an especially important resource for understanding patterns of domestic and other activity in earlier prehistory (Mesolithic to Bronze Age) before substantial permanent farming settlements became the norm. This resource is a primary source of data that is highly

relevant to achieving key research earlier prehistoric objectives identified in the DAMS OWS para 2.4.19, most notably (though not exclusively) P1; identifying locations where P2 could be addressed and putting those locations into context; P11; and P12. This is especially important in the context of Crickley Hill, The Peak Camp Emma's Grove and other evidence of earlier prehistoric activity.

- The draft DAMS and OWSI only recognises the possible value of ploughzone archaeology as an add-on consideration for areas targeted for full *Archaeological Excavation and Recording* (DAMS 3.7). But these areas are predicated largely on geophysical results that have found features relevant to other research priorities than those for which ploughzone remains are most informative.
- Similarly, there has been a failure to survey and identify areas of geo-archaeological potential for palaeo-environmental evidence, notably colluvial deposits in down-slope locations and peat and tufa deposits in association with spring line locations and landslip deposits on the scarp. No provision is made for the investigation of such deposits in their own right as sources of evidence of past human interaction with the environment down the ages – which is an especially important research issue for this locality and for the Cotswolds in general.
- There is thus a significant mismatch between identified research objectives and the proposed range and methods of field investigation. Most notably, many of the earlier prehistoric research questions cannot be addressed properly without a thorough sampling of the plough zone and palaeo-environmental deposits (including peat, tufa and colluvial deposits not referred to in the archaeological assessment). These are fundamental to understanding patterns of activity away from major monuments such as the Neolithic enclosures on Crickley Hill and the Peak Camp, the Emma's Grove barrow complex and later prehistoric defensive and settlements and Roman settlement.
- As drafted the proposed DAMS and OWSI falls far short of standards applied to previous stages of the overall A419/A417 scheme – which for example included ploughzone artefact sampling that has since been cited in research publications concerning the archaeological context of Crickley Hill and the Peak Camp. More generally (in respect of meeting 'high environmental standards' there is no consideration of what is required to enable results to be obtained to be directly comparable with best practice standards applied elsewhere in the region (or nationally) to achieve outcomes of at least equivalent research value (see also below, ExA question 2.7.4).

Sampling

- There are serious shortcomings in the scope and range of sampling approaches for different kinds of excavation. A semi-flexible approach (subject to detailed definition in future site-specific WSIs) is predicated on the basis of a minimalistic baseline standard not the 'high environmental standard' expected for development in protected landscapes.
- Limited only to the currently very limited areas of full excavation (para 3.7.10*)* the baseline approach is that *'as a general rule ... all features relating to burial*

or other ritual activity' and *'all fills/layers with potential for detailed scientific analysis and/or dating'* would be investigated. But this is to an unspecified level – except that the norm would be *50% (minimum) fill of features such as pits or ring ditches; 20% of features associated with structural remains; and 10% of linear features not associated with structural remains to include terminals and relationships with other features.*

- No sampling standards are set for ploughzone investigations or palaeo-environmental investigations.
- In respect of human remains para 3.3.10 of the draft DAMs says only that *it is anticipated that 100% of all burial contexts will be excavated* []added emphasis]. Provision is made in para 3.3.4 to require the archaeological contractor to obtain a licence under Burial Act (as is normal practice), but in addition must follow DCO requirement 41. But there is no distinction between finding modern remains where relatives might be traced, which is a highly unlikely eventuality, and ancient burials (most typically prehistoric, Roman or Saxon) where discoveries are highly likely and for which most of the DCO 41 requirements are not only unnecessary, but would delay, hamper or prevent proper archaeological recording and analysis.
- The ExA should note that apart from human burials, the 50% 20% and 10% figures apply to all the remains specified in the first two bullet points in para 3.7.10, and that the 20% and 10% sample rates are not given as 'minimum' figures. The implications of this legally binding *'general rule'* are that as a baseline standard a very high proportion of the deposits in such features would be lost without any recovery of evidence – ie a maximum of 50% of *features such as pits and ring ditches*; 80% of *features associated with structural remains* and 90% of *linear features not associated with structural remains.*
- This baseline level of sampling belies the first two bullet points because it leaves a very high chance of not encountering or recovering relatively isolated deposits (including human burials or partial remains) in ditches or even in pits (which are not uncommon occurrences), let alone ensuring recovery of large enough samples of artefacts, animal bones and other biological remains for proper analysis of socio-economic activities and environmental change implicit in the research objectives. [3]
- The effect of making the DAMS and OWSI a certified document sets these figures in stone as a legal requirement, but without it being clear whether site-specific WSIs would have greater weight from a legal and contractual point of view, or on what grounds in-the-field sampling could be upgraded in the light of the need to recover sufficient evidence to achieve research objectives. Nor is it clear whether or how the level of response might be upgraded in the light of discoveries of greater significance than anticipated.
- This becomes an especially critical issue if (as is very possible given the risks of unforeseen discoveries discussed below) there are conflicting programme and

[3] For example such sampling often recovers evidence consumption of beef, mutton and pork and use of spelt wheat in the Iron Age and Roman period, which is already well-established, but not enough to reveal anything useful about animal or crop husbandry

timetable pressures between construction and archaeological needs (see below ExA question 2.7.2).

- In general, this very low base standard massively compromises the proper fulfilment of the stated research objectives. Instead of being couched in terms of arbitrary volumetric sampling, much more attention should be paid to ensuring that enough evidence is recovered to address research objectives meaningfully. For the overarching DAMS and OWSI it is far more appropriate to set high standards for fully achieving research objectives and allow the Site Specific WSIs to develop sampling methods to deliver high quality results with significant contingency to allow upgrading sampling where remains warrant it.

Effectiveness of DAMS Mitigation and Conservation

26. The conflict with soil handling requirements noted above and the absence of specific measures to remove sites from the development footprint – or alternatives schemes to reduce the landtake – means that the Applicant is relying almost entirely on their deeply misleading euphemistic concept of '*preservation by record*' to offset rather than avoid or minimise harm so as to conserve assets.

27. This is not consistent with policy requirements for conserving heritage assets and the presumption in favour of conservation that is inherent in the AONB tests for this scheme in respect of moderating 'environmental effects' and conserving natural beauty.

28. On the basis of PINS Advice Note 17 (on adopting the precautionary approach and worst case scenarios when considering cumulative effects) it is commendable that the ES recognises that *the scheme would result in the total loss of any buried archaeological remains that lie ... within its footprint, which would be a major magnitude of impact*; but EIA and NPSNN require more specific, objective forecasting based on reasonable efforts and scientific knowledge – which are readily available but not adequately applied.

Residual Effects

29. The blanket conclusion that the total destruction of *'several areas of high value remains'* would be reduced to a *'slight adverse effect'* by means of recording mitigation is not consistent with policy, formal heritage guidance and caselaw:

    - NPSNN para 5.129 requires that each asset must be considered in its own right, taking account of *'the particular nature of the significance of the heritage asset[s] and the value that they hold for this and future generations ... to avoid or minimise conflict between their conservation and any aspect of the proposal*. But despite the overarching policy presumption in favour of conservation for this scheme (by virtue of the AONB duties and tests) there has been no systematic consideration of how conflicts between conservation and different aspects of the proposal might be avoided or minimised.

    - Formal criteria for heritage designation accords *'group value'* which enhances the collective value of assets over the sum of their individual parts where their significance is inter-related adding to understanding. (Secretary of State non-statutory criteria for scheduling): conversely, group loss can be much more serious than the sum of individual losses, especially where *the scheme would*

result in the total loss of any buried archaeological remains that lie ... within its footprint.

- Buried archaeological remains as well as visible monuments can contribute to the setting of designated assets by virtue of adding to the appreciation and understanding of their significance. So where this applies (as is the case with several sites identified for this scheme) their loss is not just significant in their own right, but also adds to the harm to any assets whose settings are affected. (Historic England *Good Practice Advice Note 3*).
- In terms of policy for weighing heritage conservation with the need for development, NPSNN para 5.139 states that *the ability to record evidence of the asset should not be a factor in deciding whether consent should be given*. The most recent (2021) version of NPPF continues to embody this long-established principle, and in 2019 the Historic Environment section of the PPG (Paragraph:002 Reference ID: 18a-002-20190723 July 23rd 2019) was updated to clarify the decision-making process:

  > *Part of the public value of heritage assets is the contribution that they can make to understanding and interpreting our past. So where the complete or partial loss of a heritage asset is justified (noting that the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted), the aim then is to: [added emphasis]*
  >
  > - *capture and record the evidence of the asset's significance which is to be lost*
  > - *interpret its contribution to the understanding of our past; and*
  > - *make that publicly available*

- Caselaw in the Clifford's Tower case in York predating the latest restatements of this policy ([2017] EWHC 1374 (Admin)) questioned whether these provisions to exclude the ability to record as a benefit in the planning balance can be applied as a general principle. But this was in the context of the equivalent provision in NPPF, not the rather different circumstances of major infrastructure projects covered by NPSNN. The circumstances of the York case were totally different: it concerned a single major heritage asset where the proposed removal of a previous intervention not accompanied by recording provided an opportunity to record without causing additional harm to the monument's original fabric (in archaeological parlance, a 'free section'). However, even IF that judgment does have any wider ramifications beyond directly comparable circumstances (which the judgment did not explicitly consider, and about which some doubt was expressed), Mr Justice Kerr made it clear (para 85) that the relevant consideration is *'the extent to which the detriment is mitigated is a determinant of the quantum of the public benefit'*.

30. If this is to be done at all, the factors needing to be considered in trying to arrive at any realistic judgement of such a 'quantum' balance in a case such as the proposed scheme is fraught with complexities and imponderables:

- It is important to appreciate the fact that (unlike the circumstances in the Clifford's Tower case), all archaeological excavation or other intrusive

investigation is itself destructive of deposits, and that what is recorded or not is dictated by choices of method and techniques applied.

- What physical evidence (artefacts, human and animal bones, other ecofacts, soil samples etc) are recovered and retained is further shaped and limited by current research ideas, what available methods are used and how they are applied, and for future re-examination, what museum collection and retention policies select for storage to allow future re-examination.
- But the full nature and content of sites is at this stage largely unknown – and what turns out to be present may be very different from what is currently known. This especially applies for this case when such a small area has been trenched and key sources of evidence have not been included for assessment.
- This is even more uncertain in terms of what has not yet been identified at all – which could include major discoveries.
- These imponderables become even more unclear in respect of how a 'quantum' of public benefit is to be judged in terms of undefined provisions of public access to results that are not yet known.

31. The blanket claim in the ES that the total destruction of *'several areas of high value remains'* would be reduced to a *'slight adverse effect'* by means of recording mitigation is thus utterly unfounded, and makes no allowance for the principle that the more important the remains the more weighty the case for their conservation.

32. This unsubstantiated claim is exacerbated by repeated use of the euphemism referring to such mitigation as '*preservation by record*'. This a former policy term (from PPG 16) now over 10 years out-of-date and does not reflect modern policy or standards.[4] It never reflected the reality of archaeological procedures, and coupled with the unsubstantiated claim that all impacts would be reduced to '*slight adverse'* by recording only a very modest sample of what is destroyed conveys a highly misleading impression.

33. The ExA should therefore follow the policy and guidance given by NPSNN para 5.139 and PPG 2019, noting as the ES states, *the total loss of any buried archaeological remains that lie entirely within its footprint, which would be a major magnitude of impact,* but should give no weight to the wholly unsubstantiated claim that recording action would reduce detrimental effects to *'slight adverse'* when so much would be lost (with and without record) and NOT conserved for future generations.

[4] The term is 12 years out of date. It does not appear in NPSNN (2014), NPPF (2021), PPG Historic Environment (2019) or DMRB LA106 rev. 1 (2020). It was introduced into planning policy in 1990 (PPG 16 paras 13, 24-25) but its misleading connotations were already understood then and the term was dropped in PPS5 (2010) in favour of the formulation about 'the ability to record' that was taken forward into NPSNN and NPPF and the 2019 PPG on the historic environment. In 2005, Richard Morris (former Director of the CBA and Commissioner of the then English Heritage) had referred to 'preservation by record' as *'…a phrase founded in the notion … that a record may be sufficient proxy for a thing destroyed. Yet Darwin himself warned of the fallacy of value-free recording.*' Peter Hinton, Chief Executive the Chartered Institute for Field Archaeology was more scathing, remarking in 2013, *'Too often under PPG 16 preservation by record was presented as an exercise in heritage decontamination, with the archival by-products of the process presenting a costly storage problem in perpetuity reminiscent of low-grade nuclear waste.'*

34. This again raises serious questions about the design choice to physically re-landscape the surroundings of the scheme rather than conserve as much as possible (see para 16 above).

2.7.2. (Applicant, HE, CCB, Joint Councils) Archaeological investigation

If significant undiscovered remains are revealed, what are the consequences for the scheme and what are the remedies? Are they sufficiently clear and appropriately secured? Are all parties happy with these?

35. The scheme would be very exceptional if significant undiscovered remains are NOT revealed.

36. Such discoveries are typical of all large infrastructure projects (as illustrated for example by several widely publicised examples on HS2 and other recent major schemes). This is inherent in the nature of the challenges of finding and fully characterising archaeological remains through limited surveys and small-scale sampling: the more limited the range of methods applied and the level of sampling – as in this case – the more likely unexpected discoveries will be made, especially in locations of high potential such as the areas affected by this scheme.

37. The example of the discovery and investigation of the Cowley junction Roman site in the previous A417/A419 scheme is a very salutary example. In this instance a late (post-approval) change in the design of the junction changed its scale and location, affecting an unevaluated area of settlement that was particularly well-preserved. It was at the location in the scheme where construction work had been scheduled to begin and its discovery entailed a costly and time-consuming rejigging of the whole construction sequence to allow completion of excavations at what proved to be a major, very well-preserved Roman site taking many months – starting in very hard winter conditions.

38. Where such programme rearrangements or adjustments cannot be made, or if programming does not allow adequate time or other delays intrude squeezing the time available for archaeological work, significant delays can occur (as happened twice on HS1, both affecting significant human cemeteries) incurring far greater costs than just those of dealing with the archaeology.

39. The risk of is much higher than it should be for this scheme for two reasons discussed below:

    - Significant areas of very low or no evaluation sampling in the work done to date, together with significant gaps in the methodologies used, leaves substantial uncertainties as to the real content of the scheme's temporary and permanent groundworks footprint. This has been raised with the Applicant by several parties on numerous occasions during scheme development and consultation as well as a number of times through the Examination process to date, but remains unresolved.

    - Even in some substantial areas of known archaeology, no specific mitigation work is proposed, so as it stands this would rely on watching brief provisions

with a very high risk of additional detailed work being required in the midst of ongoing construction works.

40. In effect, as currently proposed in the draft DAMS/WSI, this amounts to an inbuilt approach to leave a great deal to chance even though extensive detailed work is clearly warranted – especially in the light of the very limited trial trenching to date. This in-built risk is reinforced rather than moderated by three further areas of uncertainty.

Potential for unidentified archaeology in known or potential areas of ground disturbance

41. For the Missing Link scheme, there is significant archaeological potential in areas with comparable topographical circumstances to the part of the Cowley Roman site investigated in 1996, especially in down-slope areas of soil accumulation and where waterlogged deposits, tufa and landslip deposits survive on the scarp. Several such locations exist within the scheme footprint and represent very high risks where ground disturbance works would occur (as applies in many of these areas). There should have been a proper geo-archaeological survey to model where such deposits exist or are likely to exist, and then test them by boreholes, test pits or trenches to establish whether such potential does occur, and if so in what forms and with what implications for research.

42. The risk of such problems arising for this scheme are exacerbated by the shortcomings in evaluation work (in terms of the limited survey methods used, sampling levels and areas covered).

43. Also relevant are some very large areas of temporary compounds and landscaping which have not yet been assessed. The scale of this risk is currently almost impossible to judge because there is no map that synthesises the extent of archaeological survey and proposed mitigation works relative to landtake for different purposes, or the extent of land over which design or locational changes in groundworks could occur.

44. This has left an especially large level of uncertainty in respect of earlier prehistory (Mesolithic to Bronze Age) in respect of which in this particular part of the Cotswolds has especially significant potential (as to some extent identified in research issues). Equally, substantial risks arise with later sites of potential national or regional importance of later periods which have not yet been fully evaluated or their levels of survival and palaeo-environmental potential have not been properly characterised.

45. While some procedural provisions for managing such risks are set out in the draft DAMS and OWSI, including the management and decision making and communications procedures proposed, these are quite formulaic and are not based on an approach to procurement or contractual procedures of the kind that positively incentivise a culture of collaborative problem-solving continuous improvement and facilitating high quality out comes, such as were adopted for T5 (see above).

46. The 'programme' for archaeological works as presented in the draft DAMS (section 3.16) is not a programme but an aspiration of how different kinds of archaeological

works would be fitted in. This is hardly adequate for the ExA to judge whether in fact the proposed overall timescale could be delivered or what would happen if not.

47. The EMP requires adherence to the DAMS OWSI as drafted but neither document includes a requirement that changes of design involving significant ground disturbance would be subjected to full archaeological evaluation prior to being adopted.

48. The DAMS/OWSI has not been drafted as a risk-based approach, and the proposals are far too complacent in assuming they would be adequate and not require upgrading during construction when a watching brief (monitoring) would be relied upon to deal with new discoveries.

49. Investigating archaeological remains to a level achieving 'high environmental standards' is a major, time-consuming undertaking that has to be done before topsoil stripping, and is therefore on the critical path for the whole scheme including all preliminary set-up works for temporary compounds etc.

50. The more that is left to chance discovery, the greater the risk to construction programme and loss of important archaeology without record or only cursory inadequate investigation. As it stands, there is an unnecessarily high risk of such risk is built into the proposals.

Known archaeology unanticipated impacts

51. This significant risk of unexpected discovery is exacerbated by a further major complication arising from the direct conflict between DEFRA/BS standards for soil handling and preservation of archaeological remains *in situ* already discussed which greatly adds to the risk of unidentified archaeology having to be identified. Because this problem is not recognised in the EMP or the DAMS/WSI, some large areas where significant archaeological remains have been identified (but not evaluated by trenching) would be subject to disturbance and compression of construction vehicles, but currently no mitigation other than reliance on 'watching brief' provisions during construction works. Examples include extensive remains that appear to be part of the Cowley junction Roman complex and a large site at Shab Hill.

52. In the absence of any mapping of the location and extent of all types of temporary and permanent works correlated with archaeological remains, it is currently not possible to identify the full extent of this problem; but the two examples given above are in themselves substantial issues.

53. The DCO boundary involves significant areas that are not currently earmarked for earthmoving activity, but there is no explicit requirement to conserve archaeological remains within those areas – only a general aspiration to do so within a catch-all safeguard of archaeological recording.

Risk of undesignated and/or unidentified heritage assets proving to be of national importance on further investigation

54. If previously unrecorded archaeological remains of potentially schedulable significance be identified, the draft DAMS/OWSI (para3.3.2) provides for consultation with Historic England about their preservation if practicable (or

recording). But there is no consideration (or legal provision) for this in respect of where it would be practicable to retain such remains – or remains of lesser but nonetheless significant value – beneath earthworks by disapplying the DEFRA soil handling requirements.

55. Nor is it clear what provision might be made to alter the location/ design/ footprint of earthworks and attenuation ponds etc where these coincide with important remains.

56. This already applies to several identified remains to a greater or lesser extent:

- Late prehistoric settlement affected by attenuation ponds at E foot of Crickley Hill
- Potential burials and shrine associated with Iron Age and Roman cemetery Barrow Wake
- Suggestions of possible temple site at Cowley junction Roman site
- Indications of early prehistoric settlement activity in valley SW of Crickley Hill
- Air Balloon public house.

57. These are areas of definite or likely substantial (or in the case of Barrow Wake possibly less than substantial) harm to potential nationally important remains, and ought to have been clarified already by more intensive survey and evaluations.

58. As currently drafted the DAMS/OWSI and EMP provide very little if any leeway for achieving any significant degree of preservation *in situ* of such remains.

2.7.3.(Applicant, HE, Joint Councils) Archaeological investigation

It has been suggested that ongoing geophysical and geotechnical surveys would be fed into consultees; has any further work been done and are there any results to update? At the hearings it was suggested this may happen, potentially, after the Examination is concluded; are there any further details on when these are to take place? Are the parties happy with this approach?

59. The scope of these works – which also includes further trenching, but not it seems either ploughzone sampling or geoarchaeological investigations – is not defined except in so far as they as they are mentioned in passing in the draft DAMS and OWSI paragraph 3.1.1 and Appendix D. Paragraph D.1.1.1 of the Appendix states

> *This appendix gives indicative details of the archaeological potential for each site proposed for detailed excavation or strip, map and sample. It will be revised and updated at detailed design (following the completion of all trial trenching) to include areas proposed for watching brief, retention within the scheme, or no further archaeological work.*

60. It therefore appears that it is intended that the only areas subject to *detailed excavation* will be those already defined, even though the results of further work seem likely to identify more where this would be justified.

61. The need for further geophysical and geotechnical surveys (and according to Appendix D, trenching) – let alone ploughzone and palaeo-environmental assessment – is a clear acknowledgement that there is currently insufficient

information for the ExA to reach a fully informed judgment about *'the particular nature of the significance of the heritage asset[s] and the value that they hold for this and future generations*' on an individual basis as required by NPSNN para 5.129, which explicitly refers to *'any heritage assets'*, not just designated ones.

62. The limitations of the approach to finding archaeological remains and deposits and forecasting the overall baseline archaeological resource has been far from comprehensive, falling well short of meeting 'high environmental standards' that are part of the tests for infrastructure development in an AONB. This significantly hampers making a fully informed judgement about the total potential archaeological resource affected by the scheme and means that much of the proposed mitigation is only very provisional and highly likely to be altered as work progresses.

63. With respect to the judgment required of decision makers by NPSNN para 5.129, the following issues and problems arise:

- The approach adopted has not been developed to be consistent with research objectives of demonstrable value building on the published research using ploughzone evidence from pre-development assessments of previous sections of the A417 improvements.
- No attempt to map or characterise ploughzone archaeology, despite this being a key issue for some research objectives, especially pre-Iron Age periods – despite proposals entailing 100% disturbance and relocation of soils for all areas of construction activity (both temporary and permanent).
- No systematic consideration of geoarchaeology and palaeo-environmental deposits.
- No objective scientific correlation of geophysics with trenching results to establish variations in the reliability of geophysics for identifying different types and ages of remains. In fact, inspection of the trial trench plans that have been overlaid on geophysics results suggests that while (as would be expected) linear anomalies generally suggest a good degree of correlation with ground-truthing (and therefore useful for picking out areas of potential for later Iron Age, Roman and medieval or later remains), there is very little close correlation with small-scale features such as small pits and post holes and larger discrete features (eg inhumation burials) of especially high potential for Neolithic Bronze Age and early medieval archaeology.
- There has been no co-ordination with geotechnical studies or targeted investigation of areas of palaeo-environmental potential, in particular dry valley deposits (notably below Crickley Hill and Emma's Grove, Shab Hill); areas of landslip and scarp-foot deposits; known spring-line peat deposits; known tufa deposits; buried soils in the upper fills of natural hollows and periglacial features. All of these deposits have especially high potential in relation to understanding how the environment developed in early prehistoric (palaeolithic to Bronze Age) periods and later, and how communities interacted with and exploited natural resources.

- No consideration has been given to the full extent and potential archaeological value of natural features such as tree-throw holes as repositories of archaeological material (both *in situ* and redeposited).
- Comparable problems arise in terms of the potential for good preservation of archaeological remains within or under colluvial deposits as well as their value for palaeo-environmental evidence
- The claim that 90% of the areas affected have been trial-trenched, is highly misleading when a substantially sub-standard rate of trial trench sampling was actually undertaken: based on the area of the scheme given as 198.2ha at p.2 of the Application Form, and the c. 2.4ha examined by trial trenching (322 trenches, typically 30m x 2.5m) only 1.2% of the scheme land-take area has been revealed. Much of this was focussed in areas of geophysical anomalies, and so some areas (notably north of Cowley junction) have been sampled much more densely, which means much thinner coverage of other areas within the scheme footprint. Given the problems of geophysics detecting small features typical of early prehistoric settlement activity, burials etc., and the lack of any ploughzone sampling this leaves very substantial uncertainties as to the real archaeological content of the area.
- The limitations of the approach cannot be fully judged because no objective analysis has been carried out to compare the results of the geophysics with what was found trial trenching in terms of different types of feature/deposit and their period.
- Nor has any attempt been made to extrapolate or characterise (quantitatively or otherwise) the total archaeological resource within the area based on results of the systematic sample surveys and trenching carried out to date – although they are meant to provide a representative sample from which such extrapolations can be made.
- This is part of a wider absence of a risk-based approach to defining full archaeological potential, including failure to use scientific knowledge arising from previous work on major infrastructure projects as relevant previous case studies (notably previous upgrades of the A417 and other major linear projects such as the Wormington to Saperton gas pipeline).

64. As noted above, there are several areas of potential national importance that in particular warrant better definition of their potential, as well as other areas so far not evaluated.

65. Overall, there is currently not enough evidence for the ExA to reach a fully informed view of the effects needing to be weighed in the planning balance as required by NPSNN para 5.129. This explicitly involves three steps to form judgement:

- the need to consider *'any heritage assets'* affected, and in relation to them –
- *'the particular nature of [their] significance... and the value that they hold for this and future generations',* and in the light of both those considerations –

- what is proposed to *'avoid or minimise conflict between their conservation and any aspect of the proposal*.' For each of these considerations the current evidence is deficient.

2.7.4. (Applicant, HE, Joint Councils) Archaeological investigation

In respect of the Roman settlement at Cowley Junction, have parties agreed the appropriate mitigation measures, recording, etc? Is this adequately addressed/ secured in the appropriate Requirement (3 or 9) and details of the DAMS/ OWSI, or do these need further amending?

66. This site is a prime example of a cumulative effect with an existing development (see below ExA question 2.8.1). Substantial remains that are part of or at the very least contiguous with the site investigated in the previous (A419/A417) scheme.

67. The cumulative effect arising from this scheme, given the very extensive landtake required for the proposed junction and its landscape mounding, would be to remove or at least disturb and/or compress all that remains of the site – ie more or less 100% having been lost through the completed upgrading of the Swindon-Gloucester strategic route. This is not recognised in the ES.

68. Only a minority of the remains of this complex that would be affected are earmarked for controlled investigation. The remainder, affected at least by topsoil stripping and vehicle compaction is not currently allocated for any controlled mitigation, and presumptively would be left to a watching brief – although much more thorough investigation is warranted.

69. The ES makes only the most fleeting reference to the results of the 1996 excavations and there is no proposal – as obviously should be the case – to adopt at least the same standard of investigation for the remainder of the affected by these proposals to ensure consistency of results. The very low level (but legally to be enshrined) baseline provision for sampling represented by DAMS/WSI section 3 (see comments above) and the limited area of investigation in Appendix D (pages xlv) omitting a very large area subject to mounding are a wholly inadequate response.

2.7.5. (Applicant) Emma's Grove

What does 'selective vegetation clearance' mean in the Environmental Management Plan and how is such clearance dependent upon landowner agreement when Historic England require full clearance to preserve the heritage asset?

2.7.6. (Applicant, HE) Emma's Grove

Emma's Grove ancient monument is subject to Temporary Possession to enable selective vegetation clearance. HE has suggested this should be more extensive and is concerned about long-term maintenance. How would ongoing maintenance of the cleared area be secured? Is this being progressed? Will any necessary agreement be completed by the close of the Examination?

70. The DAMS/WSI provides no clear indication of either the extent or method of vegetation clearance to ensure that the monument was not damaged. As the ExA

indicates, the issue of securing long term maintenance is also unclear, and this should also address future risks of damage by burrowing animals.

71. Currently there is very little if any archaeological evidence about the nature of the barrows, the survival of palaeo-environmental deposits with evidence of the original landuse setting of the monument or the possibility of 'flat graves' or other remains between the earthworks. A proper management plan for the monument, including a review of whether the boundaries of scheduling are appropriate is needed and should be developed on a much better informed basis.

72. However, the main issue for Emma's Grove is the effect of the scheme on the setting of the monument, based on a full appreciation of how the key physical attributes of the monument's surroundings that contribute to understanding and appreciating its significance would be changed (See CBA submission p.3).

73. Without going into the full details of Historic England's Advice Note 3 on setting issues should be assessed, Appendix C below provides a summary showing how the scheme would massively exacerbate the damage to its topographical setting already caused by previous road upgrades in the creation of the Air Balloon roundabout.

74. In addition, the setting of the barrows would be harmed by loss of archaeological remains of contemporary activity in the vicinity.

2.7.8. (Applicant) Effect on Crickley Hill Camp

The NT remains concerned about the visual and noise impacts resultant from the Proposed Development. NT notes that the Proposed Development would result in the removal of the entire tree line and habitat along the line of the Barrow Wake. Can the Applicant provide detailed plans and illustrations to clearly demonstrate the effect of this section of the Proposed Development on Crickley Hill and consider whether additional planting would be appropriate having regard to the landscape, SSSI and heritage significance in the locality, and if not, explain why not?

75. The issues raised above are very valid concerns, but again in terms of how the physical setting of the Neolithic enclosure, long mound and Iron Age fort would be affected, as the CBA noted (p.3) the transformation of the valley form curving round the S side of Crickley Hill and the loss of archaeological sites contemporary with the monuments have been overlooked in the ES (see Appendix C for more detail).

76. The changes of tree cover at Barrow Wake would not only affect the setting of Crickley Hill, but also the Peak Camp and the Iron Age and Roman cemetery at Barrow Wake itself (see Appendix C).

77. The extent to which the major physical changes to topography could be moderated is not discussed in the ES but is a very valid issue in relation to the possible use of a cut and cover tunnel (or at least a wide green bridge) to help recreate the natural land form over the new road (see below, ExA question 2.8.1).

2.8. Landscape and Visual

2.8.1. (Applicant, CCB) Cumulative effects

It is reported in the Statement of Commonality that an outstanding issue is: "The Board considers that further assessments with regards to cumulative effects should be undertaken."

Outline the extent to which this matter is still in dispute between the parties and which cumulative effects, if any, are perceived to be outstanding.

Background

78. The Applicant's response to the PINS Scoping Opinion, records that PINS observed that no issues concerning cumulative effects had been scoped out (ES Appendix 4.2 p. xiv).

79. Other comments drew attention to the need to consider cumulative effects in relation to multiple issues contributing to natural beauty and heritage with the Cotswold Conservation Board in particular commenting on the need to for the assessment of cumulative effects to include in-combination impacts of the scheme with previous stages of the Swindon-Gloucester strategic road development that the Missing Link scheme would complete. They observed that this was all the more relevant in the absence of any SEA of higher levels plans and programmes (ES Appendix 4.2 pp. cxiii to cxviii).

80. The Applicant's response referred to the approach having being framed by the list of types of other projects listed in DMRB LA 104 (section 3.21.2) but without noting that LA 104 p.7 E/1.5 states that

> *All NSIPs must demonstrate that the environmental assessment requirements of the national networks national policy statement (NN NPS) [Ref 5.N] have been addressed*

NPSNN paragraph 4.16 requires consideration of *'how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects ... already in existence).'*

High level strategic considerations

81. Because of the strong presumption of against infrastructure development in nationally protected landscapes, the cumulative effects of this and other schemes on nationally (or internationally) protected landscapes is a relevant consideration. This arises from –

- the role of the NPSNN policies setting the framework both for the RIS and regional-level plans and programmes for upgrading specific routes;
- the absence of any other SEA, which means that high level cumulative effects of identified schemes in the RIS are only assessed at the level of individual schemes;
- the implications of particular statutory duties of regard in respect of nationally protected landscapes which apply across all functions (including the setting of the RIS and budgets), not just decision-making.

82. There are only a handful of RIS schemes that affect national and internationally designated landscapes, and the assessment should consider the main effects on these and how the NPSNN tests apply in terms of environmental impacts, including how far needs could be met by developing outside the designated areas, and where that is not possible, how effects might best be moderated – including where best value for money could be obtained in terms of major mitigation measures such as tunnels.

Strategic route level considerations

83. There is a significant disconnect in how the Applicant seeks to balance the public need for the scheme and the environmental impacts. The need is given in terms of completing the whole strategic highway from Swindon to Gloucester to an expressway experience[5], but the balancing environmental effects are only examined for the Missing Link section.

84. For the AONB this issue is important for consideration of the 'exceptional circumstances' criteria, because it creates an in-built bias in the balancing exercise, underplaying the environmental issues and not putting them into proper perspective.

85. The cumulative (additive) contribution of the proposed scheme to the overall effects of the whole route on relevant aspects of the environment are not considered despite the requirements of NPSNN paragraph 4.16 and guidance in PINS Infrastructure Advice Note 17 noted above.

86. The strategic route from Swindon to Gloucester has been upgraded over a long period and at substantial costs to the public purse – always on the grounds of improving capacity journey times and safety as a significant strategic route. But the previous upgrades have never delivered the full benefit because the route was not completed, but nonetheless had significant environmental effects.

87. The 'Missing Link' was left till last because it is much the most challenging section in terms of trying to fit a major highway into one of the most sensitive locations in the Cotswolds National Landscape, and in the context of the whole route warrants and an exceptional response if it is to be upgraded to the same standard rather than relieving the traffic congestion in other ways (eg a combination of local traffic management and reconfiguration and using prospective rail upgrades to reduce demand)[6].

88. But although the completed route is seen as a core plank in the case of need for the scheme, this is not seen in the perspective of what is needed to complete the job in terms of the its overall effect on the environment and in particular the 'exceptional circumstances' tests under NPSNN para 6.161. or the overall public investment that has been expended so far.

[5] As encapsulated in the project being named the 'Missing Link'

[6] Note proposed doubling of services on the W Cotswold line: This is a far less damaging solution and there has been no assessment of whether the Missing Link would render that proposal unviable given that 'lack of a motorway' and 'road congestion' are recognised as the drivers of need for the rail improvement in a recent stury of Gloucestershire's rail needs.

89. If the route were looked at as a single scheme, the overall cost would have been far higher and the justification for exceptional measures to address major environmental challenges would have been far more clear-cut. This is illustrated by other schemes built, or developed or being contemplated under RIS 1 and 2 that involve by far the longest road tunnels in Britain to avoid substantial harm to nationally and internationally landscapes, or other past solutions to road building in challenging landscape sensitivities.

90. Looking at the overall cumulative effects of the whole route is a means by which large scale effects of the proposed scheme could be put into perspective, not at a detailed site-by-site level, but more generically – for example its contribution to overall effects such as:

- scale of impact in terms of the length to land-take ratio (ie a broad measure of conservation related to effects on landscape, historic character, archaeology, ecology and agriculture)
- the scale and extent of the area of the AONB remodelled rather than conserved by permanent earthworks
- the number of designated heritage assets per km whose settings have been significantly compromised, or SSSIs subject to disturbance
- the area over which some form of archaeological recording is required to mitigate effects, or for which ecological compensation is required
- the number and extent of national and regional trails and visitor sites affected

91. From this perspective it seems clear that as proposed the proposals make a disproportionate contribution to the cumulative detrimental effects of the overall route improvements.

Considerations arising from specific effects

92. In the case of completing a major highway development, considering effects in-combination with previously completed sections is not only logically obvious from a general environmental point of view, but also demonstrably very relevant to several particular significant effects of this scheme.

93. Many of the effects of the Missing Link scheme would exacerbate or perpetuate significant effects on aspects of the environment which have already been harmed by previous stages of development (including the previous 1980s route section). Some beneficial effects of the previous schemes would be reversed. Very few detrimental effects would be remedied.

94. These are far more obvious examples of cumulative effects than those considered in the ES.

95. For example, paragraph 15.5.8 of the chapter on cumulative effects states:

> *No other development is present within the ZoI for Cultural heritage, and therefore no cumulative effects are expected on heritage assets.*

But the major Roman site at Cowley Junction was one of the most substantial impacts of the previous A419/A417 scheme (as described above). There could not

be a more glaringly obvious example of what a *'cumulative effect ... with a project already in existence'* means.

96. Just taking heritage issues as an example, it is clear more generally that significant numbers of archaeological sites of varying types and ages were affected by the previous schemes, and that the Missing Link proposals would add significantly to those losses, especially in respect of Neolithic, Bronze Age, Iron Age and Roman remains.

97. Almost as obvious is the cumulative harm to the setting of the barrows at Emma's Grove where, in combination with the 1980s remodelling of the adjacent landform for the Air Balloon roundabout and Birdlip Hill cutting to the SW and W, the enormous new cuttings for A417 and A436 wrapping round the N and E sides would make it almost impossible to appreciate the shape of the valley and the hillside bluff on which the barrows were set, and why that location on sloping ground was chosen.

98. Previous schemes also altered the form of the narrow valley through the scarp which forms the S side of Crickley Hill as it curves round the E north of Ullen Wood. The effect of the new proposals would be of a far greater scale and far more significant in further altering the topography that defines where the various nationally important monuments on Crickley Hill were set. The combination of the proposed scheme and the Brockworth by pass would increase the intrusiveness of modern infrastructure (including moving lights of vehicles).

99. At Crickley Hill Farm, its severance from the historic line of the road (which still exists) by previous schemes would be exacerbated.

100. With regard to historic landscape effects, there are further examples of such cumulative effects, especially in respect of the 1980s scheme which carved a highly uncharacteristic curving swathe through the High Wold field pattern while also removing traffic from the old road along the scarp edge, with beneficial effects of substantially reducing modern traffic intrusion along the old road running north from Birdlip. The cumulative effect of the current proposals would do nothing to restore the former field pattern severed by the present single carriageway A417, and would reverse the benefits of having removed traffic intrusion from the old road.

101. Applicant's current approach ignores all the detrimental effects where the proposals would greatly exacerbate past harm, but seeks to highlight benefits arising from remedying past harm.

Implications for the AONB 'exceptional circumstances' tests

102. When cumulative effects are seen within the context of the whole route within the AONB, the case for more effective measures to moderate detrimental effects is greatly strengthened – both on environmental grounds and the wider context of need.

103. In its response to the scoping consultation the Conservation Board put forward a broad-brush 'vision' for a different more holistic approach to achieving this which has been rejected by the Applicant but without the full benefits being recognised.

104. Various organisations have suggested that tunnel options should have been considered more carefully, including much shorter ones than those considered by Highways England. The Applicant's latest review of a cut-and-cover option (dated June 2021, which is not part of the ES consideration of alternatives) persists in only considering a long tunnel, not considering the tangible benefits that might arise from more modest versions. Rather than adopting assumptions that would make it unviable, the approach should be to see how such an option might be developed (and at what cost) to make a significant contribution to moderating detrimental effects of the proposals, better conserve natural beauty and all the factors that contribute to it, and to remedy rather than exacerbate past harm.

105. The assumptions adopted by the Applicant about length and gradient in particular present problems:

- Length: The latest DMRB guidance on tunnels (CD 352 para 4.3) requires a separation of 10 seconds-worth of design speed between a tunnel portal and any different geometrical layout – which would include slip roads for junctions. At 60mph (100kph) this equates to 280m; at 50mph (80.5kph) it is 224m. As the Applicant's review notes, this has implications for the Shab Hill junction which would have to be c. 700m to 1km further S if their 1,300m length of tunnel were adopted. If the proposed junction position were retained, it would set the easternmost end of the putative tunnel at approximately Ch 2+580 less 280 – ie Ch 2+300. This is 700m less than the Applicant's Review version.

- Gradient: A further consideration of length relates to gradient. The Applicant's assumption of a 5% gradient is based on the maximum allowable under the European Directive retained in UK tunnel safety regulations cited by the Applicant, but is only applicable to tunnels over 500m long. For tunnels less than 500m, DMRB standards apply for which CD352 (March 2020) para 4.8 states '*Gradients shall be limited to the open road desirable maximum gradients in CD 109'* which at para 5.1 gives these as 4% desirable and 8% permitted relaxation. This replaces a previous DMRB requirement for tunnel gradients to be no more than 6%.

- CD352 para 4.1.2 also states that *The initial geometric design of tunnels should be based on the design criteria and hourly traffic flows for comparable sections and classes of open road.*

106. These considerations together with many of the issues that arise from choosing a long tunnel show how the assumptions adopted by the Applicant are the wrong starting point from which to consider how a cut and cover tunnel could reduce harm to the AONB. The assumed method of construction is also questionable, potentially involving unnecessarily high costs and environmental problems.

107. A more realistic starting point for considering benefits that a cut and cover option might bring would be to assume a *maximum* 500m length from Ch 1+700 to a point just N of Emma's Grove. This would be at a much shallower depth and rather steeper gradient, and depending on retaining sufficient depth for covering, this could extend potentially allowing a significant degree of the pre-1980s natural landform which is a key feature of the setting of Crickley Hill and Emma's Grove. It

would also provide a far greater degree of connectivity and public access, with no need to encroach onto NT inalienable land.

108. This could still go a significant way to reducing harm to the setting of heritage assets (see NPSNN para 5.137) and improving recreational and ecological connectivity, while also reducing the landtake required for disposal of surplus materials. The cost would be far less than the unrealistic assumptions adopted by the Applicant. (The ExA may wish to compare the Applicant's assumptions with what was achieved for the 6.3km A505 Baldock bypass scheme. This is not within a protected landscape but is of similar scale to the Missing Link scheme in terms of length type of road and number of junctions and crossings, which included a 240m cut and cover tunnel using shell construction method at a total scheme cost of £43m in 2006.[7] Although a longer curved tunnel would clearly cost more, and construction cost inflation has been substantial, this figure suggests a more modest tunnel could be provided at orders of magnitude less than the £1.3bn given for the Applicant's review version).

[7] [redacted]

Appendix A G Lambrick relevant experience

George Lambrick MA FSA MIFA is a retired archaeologist who chairs the Rollright Trust which owns and manages the Rollright Stones and in addition to researching the archaeology of that Neolithic and Bronze Age megalithic complex, he is author of the *Thames Through Time* volume 2 (1500BC to 50AD), a synthesis of later prehistory in the Thames basin. He worked for Oxford Archaeology (1974-99) before becoming Director of the CBA (1999-2004) and subsequently a freelance consultant.

GL has wide experience of cultural heritage issues for major roads schemes, including input to the environmental design guidelines set out in volume 10 of the Design Manual for Roads and Bridges DMRB ('The Good Roads Guide'). He led cultural heritage EIA studies on major linear transport schemes (including HS1, M6 Toll, A27 Worthing to Lancing) and was overall project director for Oxford Archaeology's investigations of the previous A419/A417 Swindon to Gloucester DBFO road scheme which terminated at Cowley junction. As a member of the Cotswolds Conservation Board (2014-2021) he had detailed engagement with the Missing Link scheme. He recently helped draft CBA's submissions to the examination (2021).

GL helped to develop approaches to historic landscape assessment for Historic England and over the last 15 years he has run professional heritage training courses for Oxford University covering amongst other issues, best practice for EIA and SEA, and approaches to the 'setting' of heritage assets and places.

Appendix B Possible Heritage significance of the Air Balloon Public House

B 1. The 18th century and later Air Balloon pub barely gets a mention in the ES. It is included in the summary table of impacts and effects on p53 of ES Chapter 6, where its 'assessment number' is given as 'N/A', identity only its name, importance 'medium,' impact 'major adverse' (total demolition), and residual effect after recording 'slight adverse'. But the evidential basis for these points are entirely absent and the informed decision-making requirements of NPSNN para 5.129 are clearly not met. What follows is only a very superficial assessment of its potential significance.

B 2. The Air Balloon is a pub of 18th century origins located at the top of Crickley Hill at the junction of the A436 and A417, both of which follow historic routes (albeit modified by past road improvements). According to the website Visit Gloucestershire,

> *The Air Balloon was originally two ale houses and provided for the needs of the travellers before the days of licensing. Many Balloon ascents were made from about 1784 onwards, and one Walter Powell ascended from Malmesbury and disappeared without trace about that time. No evidence is recorded, however that he landed here! The Inn was next known as The Balloon in 1796 and recorded as the Air Balloon in 1802. It was owned as a part of Cowley Manor Estate until the early 20th Century.*

B 3. Other accounts recount an historical association with Edward Jenner, best known for development of smallpox vaccination, who was also a balloon enthusiast and having flown a test hydrogen balloon from Bath to Kingscote, met and fell in love with his future wife and was persuaded to carry out a second flight from Kingscote, landing in a field near Birdlip – reputedly, but not demonstrably, close to the Air Balloon.

B 4. These strong historical associations with very early balloon flights in the UK (only 1 year after the Mongolfier Brothers pioneering flight in 1783, with Jenner's being second and third flights of a hydrogen balloon in the UK in 1784) are reflected in the name of the pub and its signs, and in information displayed to its clientele. This is part of the building's significance, which is substantially enhanced by its setting on the edge of the Cotswold scarp, with very extensive westerly views which may be directly related to its suitability for witnessing if not initiating balloon flights from a convenient roadside hostelry.

B 5. Although extended at various times, the fabric of the pub appears to retain significant elements that appear to be authentic 18th century fabric, but it requires detailed examination by a building archaeologist to establish whether it retains evidence of being two ale houses knocked together and how far subsequent alterations have added to or removed its late eighteenth and earlier 19th century fabric and features. Outwardly it has the clear appearance of a building retaining much fabric of that period, with appropriate though possibly not original fenestration, but a replaced tile roof.

Internally, the survival of original features as opposed to inauthentic character enhancements also requires examination relative to how the building has evolved.

B 6. With regard to its potential architectural and historical significance, the basis for assessment is the relevant Historic England Guide to listing criteria (for commercial buildings which includes pubs) which cover physical fabric but not historical association for which DCMS has published general guidance. Clearly, a significantly better understanding of the details of the building on all criteria is needed to reach a proper assessment to meet NSPNN requirements, and this is only a preliminary assessment to establish whether or not *prima facie* it might meet listing criteria.

Date: Most buildings prior to about 1850 surviving in anything like their original form will be listable; intact contemporary details and fittings, both internal and external (like shop fronts, tiled decoration, counters and back-fittings) may justify a high grade.

- Comment: Meets this requirement, apparently pre-dating 1784, so the issue is if 'survival in anything like their original form', allowing for alterations (see below) is met - as seems likely. It is very unlikely to meet test for high grade

Alterations: Commercial premises are intrinsically prone to change and alteration, and cannot be expected to survive in their original configuration. Careful assessment is needed as to whether enough survives of the special interest for designation to be warranted

- Comment: As noted above, survival of early fabric and alterations is somewhat uncertain but the exterior suggests potential and it is relevant that alterations have been for continued original use, including the record that two alehouses were merged. It is not clear that the criterion is NOT met, so careful assessment is needed in the context of 'survival in anything like their original form' and whether there is evidence of early alterations as well as more recent ones.

Authenticity Care needs to be taken as a fair number of shop fronts that look original often turn out to be modern reproduction, and attention is needed in confirming authenticity when assessing for designation. This applies to banks, pubs and hotels as well.

- Comment: Externally most of the masonry of the older parts of the building look authentic, but other features (fenestration doors etc) may be replacements and the roof is modern tiles, and would need checking for authenticity of supporting framing. Internally there is some pastiche, but its extent and relationship to the more historic parts of the building need checking, including how much was lost or retained in modern additions. It is not obvious that the criterion is NOT met, so careful assessment is needed.

Interiors: Commercial architecture is sometimes skin-deep, and many cases of buildings being listed for their facades only can be cited. Particularly for more recent buildings, special interior interest may be present only in key areas such as entrances and directors' suites; office floors tend to be plain and prone to alteration. Due allowance should be made for this.

- Comment: This criterion does not pose a high test, and unless the interior had been substantially ripped out and replaced with inappropriate features and decor in the oldest parts, it seems likely that would it would not make the building unlistable.

Signage Where historic signage or advertisements survive, these can contribute to the case for listing. Exceptionally this will include painted signage or advertising on blind end walls. Surviving signage with especially interesting lettering, unusual illustrations, or advertising a distinctive product or company may warrant listing in its own right, even if the building to which it is attached is of negligible interest. It should be remembered that the development of corporate identity is part of the interest of commercial buildings.

- Comment: The historic origin of the signage (both free standing and on the walls) is uncertain, but could be checked from historic photographs and perhaps prints if any exist. *Prima facie* it is very unlikely that the exceptional conditions for listing on the grounds of signage alone would be met. But in terms of the signage having historic origins, even if not in terms of fabric of the signs themselves, it is relevant that the signage even if relatively recent in origin still conveys the long-term name of the pub based on its significant historical association of the pub with early ballooning. On balance this criterion would if anything favour listing rather than detract from it.

Community: Commercial premises, as prominent places of public gathering, have sometimes played leading parts in the story of a community and their claims to note should be considered accordingly. Some commercial buildings tell of the establishment of minority communities through their signage as well.

- Comment: As an isolated rural pub well outside any settlement, this criterion might warrant some consideration in relation to historic association with ballooning, and modern use by long distance walkers, but this criterion seems unlikely to be very significant either for or against.

Historic Interest (DCMS guidance): To be able to justify special historic interest a building must illustrate important aspects of the nation's history and / or have closely substantiated historical associations with nationally important individuals, groups or events; and the building itself in its current form will afford a strong connection with the valued aspect of history

- Comment: This guidance is particularly for the listing of buildings just on grounds of their historic interest. There are many references to aspects of historic interest encapsulated in the HE advice, but the DCMS guidance adds some points to consider about national importance. In this case, the Air Balloon does illustrate (by long established association) a significant aspect of the national history; this includes possible associations with nationally important individuals, groups or events related to early ballooning; and there is a direct link back in terms of the building's function and surviving fabric to its role at that time. The associations are strong and might be more closely substantiated by detailed research, but may well not be fully authenticated as fact rather than tradition. While it is unlikely to justify listing on these grounds alone, they do contribute positively to the building's value.

Setting contribution to significance

The setting of the pub has several key elements that contribute positively and substantively to its significance, and they are fairly obvious when considered separately from the negative effects of the current road. The following are especially relevant:

Positive

- At an historic road junction location
- Relationship to row of historic cottages opposite side of road (very small community)
- At the top of a steep hill where rest and refreshment is needed
- Has a prominent scarp-top location with views (possibly now part spoiled by nearby vegetation) as an extra reward to weary travellers, and probably originally observing balloons (see below)
- Retains those functions for users of converging Cotswold/ Gustav Holst/ Gloucestershire ways
- Additional direct functional link to excavations on Crickley Hill scheduled monument
- Location has significant associations with pioneering ballooning in UK (whether launching or landing or observing flights)

Negative

- Significantly harmed by previous road improvement schemes because change of landform, increased severance for cottages, air pollution, noise and visual intrusion (including long views to west)
- Indirect intrusion effects related to safety fears and potential economic impact (risk of pub closure)

Natural Beauty and cultural capital

- All the above positive attributes also form part of the asset's role as a contribution to scenic beauty even though much marred by the current A417. In addition, it has economic, social and recreational values that contribute positively to its significance for cultural capital attributes of natural beauty.

Appendix C Setting Issues for prehistoric monuments of national importance

Emma's Grove

C 1. The group of three large Bronze Age barrows located within a small patch of woodland at Emma's Grove are large mounds and if not surrounded by woodland would be prominent features in the landscape – as they would have been designed to be.

C 2. Topography is the vital aspect of the surroundings for appreciating where they were set in the landscape. The immediately local topography has been significantly modified already by the 1980s improvements which created the cutting on Birdlip Hill and the large flat cut-and-fill platform for the Air Balloon junction. This has the detrimental effect of disguising the original topographical location of the barrows on a rounded hillside bluff overlooking the long valley sweeping round the S and E side of Crickley Hill before it gently descending towards Coberley (ES figure 7.6 sheet 1). This location has not been analysed by the Applicant, but it appears that the barrows are located on a slight spur in the hillside, possibly in a false horizon position as experienced by anyone reaching the highest point in the valley pass. This may be significant as the watershed between the Thames and the Severn basins as well as being a natural routeway.

C 3. As noted above, the significance of the topographical location of these barrows has already been significantly compromised to the W by the 1980s road improvements, and the effect of the new proposals would add to this in an even more devastating way, in effect destroying any realistic chance of understanding the subtlety and likely precision of the choice of location or its significance. The large-scale planting E of the barrows – to connect Emma's Grove to Ullen Wood via a very narrow green bridge – would further obscure and detract from an appreciation of the topographical siting of the barrows. If the proposals were approved, only the arguably least significant S and SE aspects of the barrows' location would be retained unaltered. The remaining aspects would be entirely transformed by the deep new cuttings for both the A436 and A437 and the attenuation ponds on the valley floor. Removal of vegetation from the monument itself is of uncertain extent, but would not alter the harm to the barrows' topographical setting.

C 4. With regard to other characteristics and features of the barrow group's surroundings that contribute to their setting, the value of dark skies as one of the few aspects of prehistoric monuments' settings that have not changed much would be altered by the removal of the Air Balloon roundabout and pub, replaced by traffic intrusion.

C 5. There is significant potential for archaeological remains that could contribute to appreciating the significance of the barrows that might reveal the non-funerary and ceremonial context of daily life in the Bronze Age. The potential for palaeo-environmnetal evidence that might elucidate the contemporary environment (both within and beyond the site of the barrows themselves) would rely on colluvial deposits having accumulated in ditches and any other features or natural hollows, tree holes or colluvial deposits, with additional potential for such evidence at the base of the valley sides. It has not been established whether such deposits exist, but if they do, the proposals are likely to have a significant impact.

C 6. A further aspect of the setting of the Emma's Grove barrows is the origin, status and effect of the 'grove' of trees, and how far they detract from the setting of the monument and to what extent they have some historic interest. The placename would suggest a post medieval origin, and the ecology does not suggest that it is ancient. If it was planted to mark the barrows (as was often done in the 19th century) that is not obvious, either in the shape of the grove or its composition – it is not recognisable as designed landscape feature in any meaningful sense. Because of the topographical aspects of their setting, it seems highly unlikely that they would have been set within woodland, and the trees further detract from any appreciation of the topographical siting of the barrows. The trees are also potentially harmful in terms of tree roots, potential windthrows and burrowing animals, any of which could cause serious damage, not only to the barrows but also any other unmarked graves that (as in other cases) may have been part of the cemetery.

C 7. On this basis the grove of trees can be seen as a detrimental aspect of the setting of the barrows, that might be slightly moderated but not rectified by proposals for unspecified vegetation clearance.

C 8. Landform topography is a 'key element' that influenced the specific siting of the Emma's Grove barrows, that the proposals would very 'seriously affect,' significantly affecting their particular significance for present and future generations. As such the effects amount to substantial harm, especially when added to the harm cause by the 1980s works.

Crickley Hill

C 9. The Neolithic and Iron Age defensive enclosures on Crickley Hill make use of its distinctive 'promontory' form which is especially (and rather unusually) defined by the long valley curving round the S side of the hill from its W end to E side N of Ullen Wood, descending towards Coberley and ultimately the Thames valley near Cirencester. This is fundamental to the naturally defensive location of the site, but may also have been highly important for communication, representing a natural route through the scarp linking the Severn and Thames valleys. Controlling this route is likely to have been a further consideration in the siting of the defensive enclosures location.

C 10. The proposals for major cuttings and embankments and attenuation ponds would very substantially transform the natural landform that defines the topographical setting of the Neolithic and Iron Age defensive monuments, substantially altering the base of the hill to the SW, entirely reshaping the whole valley that defines its S side and a significant part of the base of the more gently eastern side of the hill. This represents very large-scale impacts (both in area and volume of landform alterations), affecting a key aspect of the surroundings of two major designated monuments.

C 11. For the Neolithic long mound, its hilltop location on a western-facing spur of high ground also seems an important topographical attribute. It is not clear whether or how significantly it may be oriented astronomically, but its location and orientation close to and parallel with the southern edge of the hilltop is likely to have been a deliberate and significant choice. While the valley below is less obviously critical to its topographical siting, the changes proposed would nonetheless be a significant change.

C 12. For all these monuments extensive views out over the landscape seem likely – for a variety of reasons - to have been an important aspect of why they were located on the hill. In this respect, the potential for palaeo-environmental evidence (such as peat deposits recorded in historic geotechnical boreholes, together with evidence of tufa deposits and landslip and any surviving colluvial deposits represent a further aspect of the surroundings that could contribute significantly to understanding the contemporary landuse and vegetation. The extent and location of such deposits has not been adequately defined by the evaluation work, but hardly any mitigation is proposed and given the scale of proposed construction and landscaping works, significant loss of any such deposits is likely.

C 13. The archaeological evaluation work has identified some significant sites with significant potential to contribute to understanding the significance of these assets in their surroundings.

- This particularly applies to the evidence of Neolithic settlement below Crickley Hill to the SW, which if proved to be of greater extent with both pits and structures (as suggested) would be highly significant in understanding better the significance and roles of the Neolithic enclosure and long mound on the hill.
- The evidence of a significant Iron Age settlement in the area of attenuation ponds at the foot of the E side of Crickley Hill is in a location which, although not immediately adjacent to the hillfort, is a well-sheltered and possibly on a natural routeway between river basins, suggesting that it was a significant extra-mural settlement. In recent decades increasing numbers of large extramural settlements adjacent to hillforts have been identified, adding a whole new dimension to their understanding. Because of their association with major communal earthworks of the period, they are more important than ordinary farming settlements. The loss of a substantial areas of this site is not only a large-scale impact in its own right, but also a further source of significant harm to the setting of the Hillfort.
- Considering surroundings of the Crickley Hill group of monuments at a larger scale, the other Neolithic and Iron Age sites and monuments and contemporary paleao-environmental deposits and ploughzone artefact scatters also contribute positively to their setting – as clearly demonstrated by the published reports on the Peak Camp investigations and academic papers making use of results from previous studies of ploughzone archaeology. The archaeological assessment accepts that all those remains within the footprint of the scheme would be lost and so a major impact – it does not acknowledge that their loss would also be a detriment to the setting of Crickley Hill.

C 14. With regard to diurnal and aspect issues, Crickley Hill is in a zone of intermediate dark skies, and the insidious cumulative impact of light pollution – only serious in the last century – has gradually eroded the quality of experiencing the heavens as part of the surroundings of these monuments. The scheme will not add much permanent lighting (except potentially from large illuminated signs required for safety reasons) but the removal of vegetation and the much larger footprint of the road, far less well-screened and not so well tucked into the base of the hill, would greatly increase intrusion of light from vehicles – which because it would be moving rather than static, would be especially noticeable. This would further erode the quality of diurnal experiences, effectively creating a much more obvious link with the existing light pollution of Gloucester and its surroundings.

C 15. As explained above, the radical transformation of the landform topography can reasonably be judged to 'seriously affect' a fundamentally 'key element' in how the surroundings of Crickley Hill contribute to the 'particular significance and value for future generations' of the three

monuments of national importance that exploit its elevated position. The impacts on the Neolithic enclosure should be considered substantial, especially given how rare it is for such enclosures to have been demonstrated not only to have been for defence, but actually attacked. For very much the same reason, the harm to the Late Bronze Age and Iron Age hillfort can also be considered substantial. Although it is well established that public access and interpretation is not necessary for settings to be 'experienced,' this can add significantly to the sensitivity of the issue, and that is certainly the case for the Crickley Hill monuments, their location within a country park owned and managed by leading national and local charities being on a par with formal guardianship properties (the highest form of heritage protection).

The Peak Camp

C 16. Although not actually scheduled, the Neolithic enclosure and Iron Age hillfort with late Iron Age occupation are both of clear national importance, easily fitting within the national scheduling criteria for these types of monument.

C 17. The scheme is at some distance from the Peak, and effects on the setting of these two monuments derive substantially from spatial and potentially original visual interrelationships, and the kinetic experience of travelling between the Peak and the other key monuments at Barrow Wake, Emma's Grove and Crickley Hill – which is facilitated by the Cotswold Way national trail, which in this section is also the Gustav Holst Way. The experience of how the physical surroundings contribute to these monuments would be harmed by the reuse of the old road from Birdlip to Barrow Wake and the intrusiveness of the much-enlarged new road and moving lights on it on Crickley Hill. As with the Crickley Hill monuments, the loss of archaeological remains that contribute or have the potential to contribute to better understanding (as explicitly cited in the report on research excavations at the Peak) would also be a significant issue given the scale and extent of such loss.

C 18. Overall, the harm would be significantly less than for Emma's Grove and Crickley Hill, but not negligible and should be weighed in the balance.

Barrow Wake

C 19. Although not scheduled, what is known of the Iron Age – and possibly Roman – cemetery at Barrow Wake is of clear national importance, easily fitting within the national scheduling criteria for late prehistoric cemeteries (especially if there is continuity into the Roman period). However, the original remarkable mirror burial and its two satellite burials recovered in the 19th century are no longer in situ, their precise location is uncertain, and the quarrying activity that led to the discovery was quite extensive.

C 20. In these circumstances it might be supposed that setting is not relevant (although known subsurface sites can have very sensitive settings); but the results of the geophysical survey suggested the existence of a cemetery very nearby, with one Roman cremation burial in a small square enclosure located in very limited trial trenching. This leaves considerable uncertainty, but opens the possibility that the Birdlip Mirror burial group was part of a larger, possibly multi-period burial ground, which might well be nationally important if confirmed.

C 21. Once again, the key setting issue in terms of how the surroundings of the burials contribute to their significance is obviously the very prominent position on the scarp with extensive views out, and originally perhaps if the 'barrow' was prominent, views towards the site.

C 22. Currently the site is a quiet carpark in a cul-de-sac that both has social management problems, and because it is not well hidden (unlike the Crickley Hill quarry car parks) vehicles on can be very prominent in views of the scarp (especially when glinting in sunlight).

C 23. The effects of the proposals would be to bring moving traffic back to the old road, while also enlarging land take to allow for a roundabout. There is a very clear, and as yet not resolved risk that significant remains forming part of the cemetery or its surroundings would be disturbed. The actual impacts cannot be predicted with confidence but the potential for negative effects on experiencing the site in its surroundings, by way of –

- sustaining existing harm (visual intrusion of car parking interfering with the natural scarp edge),
- reversing previous benefits of closing the old road between Barrow Wake and Birdlip (reintroducing moving traffic intrusion on a surfaced route that had remained useful for cyclists and walkers, wheelchair users and buggies)
- or adding extra harm (disturbance in an area of established archaeological potential related to the nature of the asset.

C 24. Overall, while the scale and likelihood of harm cannot be closely defined, it does represent a significant risk, which under the current proposals that does not have currently have any clear-cut contingency means of being avoided or substantively moderated, and this also needs to be weighed in the balance.