



51m
Response to
HS2 EIA Draft Scope
and Methodology
Report Consultation



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1. Introduction

1.1. General

- 1.1.1. This is the 51M response to the consultation on the HS2 London to West Midlands EIA Scope and Methodology report (Arup/URS, 30 March 2012).
- 1.1.2. 51M is a consortium of Local Authorities opposed to the HS2 proposals. This response has been prepared by the London Borough of Hillingdon with input from other officers from other Local Authorities that make up 51M.
- 1.1.3. The report has been structured to address detailed matters, as well as points of principles. It starts with the principle concerns regarding the decision making process, and then sets out the general comments. These general matters relate to the overarching matters related to the project, e.g. the project description, but they also relate to concerns that are relevant to all the topic areas. Specific examples have been used where appropriate, but generally the comments in this section relate to all the topic areas and the general approach adopted. Finally, the report provides a detailed series of comments relevant to specific topic areas.

1.2. Legal Statement

- 1.2.1. A number of local authorities who are members of 51M are also Claimants in a judicial review of the Government's decision to proceed with HS2. Anything contained in this consultation response is without prejudice to the view of the Claimants and 51M that the decision is unlawful, inter alia because the approach taken to the obligations under the environmental impact assessment regulations and its parent directive is wrong.
- 1.2.2. For example, it is 51M's case that the environmental impact assessment should consider the cumulative impacts of the whole network, Phase 1 to Birmingham and Phase 2 to Leeds and Manchester.
- 1.2.3. 51M also believes that the work on the Environmental Impact Assessment should be delayed until after the outcome of the judicial review is known.



2. Decision Making Principles

2.1. Initial Decision Making

2.1.1. Paragraph 1.6.2 of the draft Scoping Report reiterates the objectives of the Appraisal of Sustainability (AoS) that informed the original consultation document in February 2011. This paragraph states:

Four sustainable development priorities were used for the assessment:

- *Reducing greenhouse gas emissions and combating climate change;*
- *Protecting natural and cultural resources and providing environmental enhancement;*
- *Creating sustainable communities; and*
- *Enabling sustainable consumption and production.*

2.1.2. The AoS provided a broad assessment based on minimal desk top research. Nonetheless, it found the scheme to score unsupportive, or highly unsupportive of all these objectives, yet the decision was made to progress with the scheme.

2.1.3. For example, the AoS was critical of HS2's potential impact on carbon emissions. The most positive take on HS2 from the then Transport Minister Philip Hammond described the scheme as 'broadly carbon neutral'. Even this rather unimpressive standard was highly questionable, resulting in the Transport Select Committee claiming that "*given the scale of the expenditure and the official assessment, HS2 should not be promoted as a carbon-reduction scheme*".

2.1.4. Despite overarching legal requirements (Climate Change Act) to reduce greenhouse gas emissions and combat climate change, it was clear from the AoS that HS2 would not contribute to this. 51M therefore has concerns surrounding the weight attributed to negative environmental performance when making the decision.

2.1.5. In addition, the AoS also failed to set a policy framework as to how to mitigate or avoid the significant effects that were identified. Planning decisions are normally taken in the context of a number of detailed development control

policies. Strategic planning decisions are accompanied by high level policies. In each case, decision makers can be confident that harmful impacts can be controlled, and the environment protected by these policies. HS2 Ltd made no policy commitments to control the harm, despite the AoS revealing that there were a number of significant environmental concerns.

2.2. Open and Transparent Decision Making

2.2.1. Since the original decision to proceed with HS2 despite the poor environmental performance, the National Planning Policy Framework (NPPF) has been published. This represents the only policy framework for the decision on HS2. The NPPF sets out a need to deliver sustainable development. Development has to satisfy three roles to be considered sustainable:

***an economic role** – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;*

***a social role** – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and*

***an environmental role** – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.*

2.2.2. Importantly, the NPPF requires equality to the consideration of these roles:

These roles should not be undertaken in isolation, because they are mutually dependent. Economic growth can secure higher social and environmental standards, and well-designed buildings and places can improve the lives of people and communities. Therefore, to achieve sustainable development, economic, social and environmental gains should be sought jointly and simultaneously through the planning



system. The planning system should play an active role in guiding development to sustainable solutions.

- 2.2.3. The AoS revealed poor performance against the environmental objectives set out by HS2 Ltd. There were also significant questions over the social and economic performance. Accordingly, it would not be possible to argue that HS2 presented a sustainable development.
- 2.2.4. EIA is a tool, similar to the AoS, to inform a decision; it does not make it. The Government chose to proceed with HS2 despite the AoS revealing the scheme fell short of the above environmental objectives, and with no commitment to high quality mitigation. The evidence available from this initial decision suggests that the scheme's environmental performance had minimal impact on the decision making process and that the environmental objectives set for the project were not relevant.
- 2.2.5. The decision making principles should be developed and clearly set out before scoping exercise and any environmental assessment is completed. This will make it is obvious that a subsequent decision suitably considers the environmental performance and allows methodologies for the EIA to be set against an agreed environmental framework.



3. General Comments

3.1. Purpose of and Environmental Statement

3.1.1. An Environmental Statement (ES) is the final stage of carrying out an Environmental Impact Assessment (EIA). It does not provide a conclusion on whether development will or will not be approved, instead it is a tool to help inform a decision. It is important to understand the purpose of an ES and its role in the decision making process. Often, an author of an ES will set out with the aim of ensuring that the assessment will not reflect badly on a project, with the misunderstanding that if a significant effect is discovered that it will result in a refusal. This results in a misleading assessment with methodologies being ambiguous enough so that technical surveys can be interpreted as not having a significant effect.

3.2. Purpose of Scoping

3.2.1. The scoping stage for an ES is a valuable tool in helping form an agreement on how environmental data will be collected and assessed. It helps to remove possible conflict at the consultation stages of the ES. The main purpose is to establish what will be the likely significant effects of a development and therefore what needs to be assessed in the ES.

3.2.2. An effect is generally considered to be the result of an impact on a receptor. There are many variables in assessing magnitudes of impacts and sensitivity of receptors and the role of the Scoping Report is to determine the criteria for assessing both.

3.2.3. The Scoping Report should therefore be informed by a considerable amount of work and an agreed project description. The submitted draft Scoping Report is not supported by evidence based assessments which makes it difficult to fully agree the approach to the ES. The Institute of Environmental Management and Assessment (IEMA) has produced guidelines on EIA and their comments regarding scoping state:

In practice, some baseline work is likely to be undertaken before or parallel to the scoping of the EIA. For example, in almost every case, some initial baseline studies (e.g. desktop research) will be required before or as part of the scoping exercise, in order to highlight the main or



likely significant effects (the prime purpose of scoping). These findings are important, not least because they will then have a major influence on the next phase of the baseline studies. Where there is the potential for significant effects, this will usually point to the need for fairly detailed baselines studies. Conversely, where there is a finding of no significant impact, the requirement for baseline studies will usually be lower (or potentially zero).

- 3.2.4. The more information submitted with a Scoping Report, the more meaningful the discussions on the subsequent assessment can be. The Scoping Report should therefore include a significant amount of information which clearly demonstrates the likely impacts (e.g. extent of noise, likely traffic movements, height of structures etc...) and allows agreement to be reached on which receptors are likely to be effected by these impacts. This is informed by technical understanding of the existing environmental baseline.

3.3. Approach taken on HS2 Ltd Scoping Report

- 3.3.1. The draft Scoping Report submitted by HS2 Ltd is not adequate enough for 51M to enter into meaningful discussions about how the subsequent ES should be undertaken. 51M considers the information too broad and there is a distinct lack of information relating to the project. The Scoping Report and subsequent consultation questions use inconsistent language regarding impacts and effects. One of the consultation questions asks:

What impacts should and should not be included in the assessment

- 3.3.2. 51M cannot advise on what the likely impacts of a High Speed Rail project will be. If HS2 Ltd had provided information on the likely impacts then 51M could help with identifying the receptors within a suitable geographical area. The question then could have been more aligned to the true purpose of EIA Scoping and asked:

What effects should and should not be included in the assessment

- 3.3.3. It would be inappropriate for 51M to provide guidance on the receptors at risk from HS2 or the approach taken to assess effects without any information from the project designers on the impacts. For example:

- There is no information on how spoil will be removed from cuttings or tunnelling. Nor is there any information on the location of work



stations or where large amounts of workers will be situated. It is therefore not possible for 51M to comment on the likely transport issues.

- There is no detailed information on the height of viaducts; therefore 51M cannot provide advice on the likely landscape effects and therefore where to determine location points for landscape visual assessment.
- There are no noise contour profiles or baseline assessments which makes it difficult to understand the geographical extent of the areas to be impacted. It would be inappropriate for 51M to comment on the possible noise impacts of a High Speed Train or make an assumption as to the extent of the effects.
- There are no details about construction or operation; no timetables, no site plans showing main construction areas, no details of spoil removal. Without detailed information on the project, 51M is unable to fully understand what they are being asked to advise on. It is also makes it very difficult, and potentially contradictory when information becomes available in the future, to make recommendations on the amount, sensitivity and location of receptors to be impacted by HS2.

3.3.4. The Scoping stage should be a two way process. But as there is insufficient detailed information from HS2 Ltd, 51M are unable to provide a response to the first consultation question:

What impacts should and should not be included in the assessment

3.4. Compliance with EIA Directive

3.4.1. The EIA Directive sets out relatively broad requirements for conducting Scoping Reports which allows for some interpretation of the information presented. However, section 13 states:

A person who is minded to make an EIA application may ask the relevant planning authority to state in writing their opinion as to the information to be provided in the environmental statement (a “scoping opinion”).

(2) A request under paragraph (1) shall include—

(a) in relation to an application for planning permission—

(i) a plan sufficient to identify the land;

(ii) a brief description of the nature and purpose of the development and of its possible effects on the environment;

- 3.4.2. There is no clear plan sufficient to identify the land required for the development. The 6 plans attached to the draft Scoping Report are each smaller than A4 and cover the entire HS2 route at an inappropriate scale to make clear observations about impacts. In addition, there is no information regarding ancillary uses, such as depots, sub stations, or areas required for construction.
- 3.4.3. It is also not possible to understand the scope of the project to be assessed in the Environmental Statement. There is no information on the number of trains, timetables, location of new stations amongst many other matters that would be required to understand the extent of impacts of a project.
- 3.4.4. The EU has produced guidelines for scoping stages and has produced a simple checklist of the details that should be provided. These include.
- *Brief description of the proposed project.*
 - *Reasons for proposing the project.*
 - *A plan showing the boundary of the development including any land required temporarily during construction.*
 - *The physical form of the development (layout, buildings, other structures, construction materials, etc).*
 - *Description of the main processes including size, capacity, throughput, input and output.*
 - *Any new access arrangements or changes to existing road layout.*
 - *A work programme for construction, operation and commissioning phases, and restoration and after-use where appropriate.*
 - *Construction methods.*
 - *Resources used in construction and operation (materials, waste, energy, etc.)*
 - *The relationship with other existing/planned projects.*



- *Information about alternatives which are being considered.*
- *Information about mitigating measures which are being considered*
- *Other activities which may be required as a consequence of the project (e.g. new roads, extraction of aggregate, provision of new water supply, generation or transmission of power, increased housing and sewage disposal).*
- *Details of any other permits required for the project.*

3.4.5. The principle of scoping is that a developer should be sufficiently advanced in the design stage to start actively engaging interested parties. It means those being consulted for their input have a much clearer understanding of what they are being asked to consider. None of the above information has been provided, thus making it exceptionally difficult for consultees to fully understand how they can assist in helping to identify the impacts, receptors and effects of a High Speed Rail project.

3.5. Reconsultation

3.5.1. It is noted in the statement accompanying the Consultation that:

The responses [to the consultation] will be reviewed and analysed and the scoping document refined, finalised and published. We intend to have the finalised report ready to view online in summer 2012.

3.5.2. It is assumed that this published Scoping Report will contain much more information and be more aligned to the EU Scoping checklist and the EIA Regulations. It should be informed by baseline studies and give a much clearer indication of what the project involves. This would then satisfy the main objective of including a scoping stage in the EIA process which ensures there is meaningful dialogue between consultees and project assessors.

3.5.3. 51M would expect that the published Scoping Report will be subject to further consultation and aligned with the approach taken for the Crossrail development. The Crossrail Environmental Statement describes the approach taken to Scoping:

3.3.1 Establishing the scope of the assessment in a rigorous and transparent manner was a key step in the assessment process. Statutory bodies and a range of other bodies with a potential interest in



the project were consulted on the scope and methodology of the assessment. An Environmental Scoping Report was produced in September 2002 which set out, in broad terms, the general methodologies that were to be used to assess the environmental impacts of the project. The Environmental Scoping Report was sent to the 95 external bodies listed in Table 1.1 in Appendix A3. Appendix A3 also indicates the general nature of the responses from consultees.

3.3.2 Following the comments received, a subsequent Scoping and Methodology Report was issued in March 2003 to the 118 external bodies listed in Table 1.2 in Appendix A3. This report set out the detail of the methodologies to be used in assessing the environmental impacts of the project. A total of 29 comments were received and these were taken into consideration when the methodologies were being finalised.

- 3.5.4. 51M appreciates being included in the early stages of the development of the scoping process but feel the questions asked as part of the consultation are not commensurate with the level of detail being provided on the project. It is important to note that Crossrail was keen to establish the scope of the assessment in a *rigorous and transparent nature*. Attention is drawn to the underlined section of the above extract which shows that the Crossrail team was keen to finalise the Scoping Report prior to the assessment work being completed. HS2 Ltd needs to be equally open to engagement and agreement.
- 3.5.5. Accordingly, the published Scoping Report should not just be 'ready to view online' but should be consulted upon in the same way the draft report has been. The consultation on the published Scoping Report would be more productive and more compliant with the regulations and the objectives of the scoping stage and more aligned to the EU guidelines. Importantly, it would be part of a more rigorous and transparent process.

3.6. Details Provided

- 3.6.1. This draft Scoping Report is of a particularly low standard and provides very little information. This flagship high speed rail line will have a lasting effect on the environment. It will fundamentally alter the landscape, change transportation patterns, increase traffic in areas of worsening air quality (Birmingham and Euston for example), increase noise, not to mention the years of construction impacts.



- 3.6.2. The short, medium and long term effects of HS2 will be managed by the Local Authorities and not HS2 Ltd. Local Authorities are the principle environmental regulators at a local level and will always be the first point of contact for residents feeling the negative effects of HS2.
- 3.6.3. It is therefore fundamental to improve the quality and quantity of information coming out of HS2 Ltd to ensure the delivery of the project is open, transparent and acceptable to those who will manage the lasting effects.
- 3.6.4. The project description set out in the draft Scoping Report is not sufficient enough to inform readers of what HS2 Ltd is seeking permission for. The route maps are at such a large scale it is impossible to understand the geographical significance, and there is no detailed information on the ancillary works required to facilitate construction or the operational processes. The level of information being provided by HS2 Ltd is not sufficient for Local Authorities to understand the implications of the scheme.
- 3.6.5. The information outlined in paragraph 3.4 (above) is necessary to ensure that readers can properly understand the proposals being put forward by HS2 Ltd.
- 3.6.6. A detailed project description is the starting point for any EIA Scoping exercise. It sets the parameters of the development and focuses the work of the consultees. Without a detailed project description, consultees then have to make assumptions about the location of environmental receptors, and the extent of possible impacts.
- 3.6.7. The level of detail provided in the Draft Scoping Report has heavily restricted the level of meaningful input of consultees. This must be rectified in the published Scoping Report which should form the basis for another consultation stage.

3.7. Assessment of Significance and Methodologies

- 3.7.1. Detailed comments will be provided for each topic area of the Scoping Report in the following chapter of this response. However, in general, the approach to the assessment of significance is highly confusing and very unclear.
- 3.7.2. Ideally, an ES should use a consistent approach to assessing significance. The approach taken in the draft Report is highly inconsistent and each topic area has used different terminology which will result in a confusing assessment.



3.7.3. 'Section 2.5: Defining significant effects' sets out a methodology that results in effects being described as major, moderate or minor. It does not state what a significant effect is. It is highly important to set out a methodology that is clear for a reader to understand. A consistent approach to measuring significance should be adopted. The lack of consistency is highlighted in the Water Resources and Flood Risk Chapter where table 36 describes the significance of effects and defines impacts within the range:

- *Neutral*
- *Moderate*
- *Large*
- *Very Large*
- *Significant*

3.7.4. Paragraph 9.6.9 of the Ecological chapter does not define significance instead it states:

It is important that there is a consistent approach to the definition of significance across the different topics reported in the ES. There is therefore likely to be a need to define an approach to relating significant ecological effects on receptors at different geographical scales to the overall significance categories used by other topic areas. This is usually achieved by identifying significant effects on sites of International or National value as being of "greater significance" than significant effects on sites of County or District value. This process will also ensure that the overall assessment focuses on the key significant ecological issues.

3.7.5. In addition, the Sound and Vibration chapter fails to clearly define how significance will be measured and provides no criteria. The Land Quality chapter uses a range of 3 for defining sensitivity of receptors (**high, moderate, low**) yet the Ecology and landscape chapters use 6 (**international, national, regional, borough, local, limited**). The water resources chapter uses 4 (**moderate, large, very large, and significant**).

3.7.6. It is highly important that the criterion used for determining significance is defined prior to the assessment work. Attached in appendix one to this 51M response is a clearer more accessible methodology that provides a framework that each topic area should comply with. The subsequent Final Scoping Report should clearly set out how impacts and receptors are classified in accordance



with a **consistent** methodology prior to any assessment being undertaken. This reduces the conflict in interpretation as consultees would have been able to comment on the detailed methodology prior to its use.

- 3.7.7. It is also necessary to set out the methodologies in a much clearer manner. Consultees at 51M found that the Landscape Chapter provided a more suitable presentation of the methodology. Figure 3 of this chapter provided a flow chart clearly mapping out the process of the assessment. **It is also the only chapter that uses the phrase ‘significant effect’ to categorise the results of the assessment.** The published Scoping Report should include something similar for each chapter.

3.8. Ambiguity of Assessment Methodologies

- 3.8.1. The methodologies set out in the topic areas have not been developed specifically for the project. Instead, a highly generic approach has been adopted that puts too much emphasis on an assessor’s opinion. This is likely to result in a misrepresentation of the actual effects of a new high speed rail line. No baseline information has been provided which means that consultees are unable to agree the starting position from which an assessment will be taken. The lack of agreement of the starting baseline position combined with highly ambiguous assessor judgement of effects is likely to result in a misleading assessment.

- 3.8.2. The socio-economic chapter provides a clear example of an assessment that will be based solely on officer opinion. Table 28, ‘socio-economic impact magnitude criteria’ defines a high impact as being: (note that the ambiguous terminology is underlined)

An impact that will be very severe/beneficial, and/or very likely to affect large numbers of businesses and/or people (with number depending on the local context), and that will usually continue and effectively constitute a permanent, long-term impact on the base case conditions.

- 3.8.3. Table 29 defines a **high** sensitivity of a receptor as being:

Businesses, workforces or economies that are at risk and that have little or no capacity to experience the impact without incurring a significant Socio-economic loss (or gain) of an economic resource, or employment.



- 3.8.4. Without any baseline surveys, or acknowledgement of how existing receptors fit into this methodology, the assessment becomes meaningless and is likely to result in a misleading outcome, with decisions on **‘very severe’** and **‘experience of impact’** taken after the assessment. It is also difficult to see how the assessors are going to clearly set out which businesses will be vulnerable to significant Socio-economic loss.
- 3.8.5. It is acknowledged that officer opinion will be required to assign sensitivity to certain receptors where there are no widely adopted criteria. However, in these instances, it is important that the assessment does not rely solely on the interpretation of one assessor; particularly for a project of this size where the assessor is unlikely to have a suitable level of knowledge for the entire length of the route. The reliance on one person’s opinion can be removed or reduced if agreement is reached on what level of sensitivity will be attributed to each receptor. For example, there will be landscapes along the route that Local Authorities consider to be highly important or very sensitive to change. The landscape assessor may not share this view, and if they continue with the assessment without agreement about how sensitivity is attributed, then it will lead to conflict with the Local Authority and potentially a misleading assessment.
- 3.8.6. The baseline studies should reveal what receptors are within the geographical scope of HS2 impacts. The scoping report should then assign a magnitude rating to each one of these. This information would allow consultees to advise on the appropriateness of the selection of specific receptors and to suggest others. The methodology should then be accompanied by a clearer approach to assessing the magnitude of change to the baseline.
- 3.8.7. It is therefore highly important that not only receptors are identified prior to the assessment, but how levels of sensitivity will be attributed to each one.

3.9. Assessment Standards

- 3.9.1. There must be a greater commitment from the HS2 Ltd team about the standards used to measure the effects of this high profile scheme. Although the assessment methodologies set out in the topic areas are highly ambiguous, it is clear that the principle of the assessors is to only consider effects that breach upper limits of statutory requirements as being significant. These limits



are generally considered worst case scenarios, and HS2 Ltd should not be designing a scheme that 'only just' falls within these parameters.

- 3.9.2. For example: Table 3 in Annex D on air quality suggests that a **medium** scale effect will occur if there is a **moderate adverse** change in concentration in an area already exceeding EU Limit levels (greater than 40ugm³). This is wholly unacceptable. The EU limit level is an absolute minimum level and reflects areas where health problems are likely to be more common and more severe. Any increase in an area already acknowledged as being over minimum limits should be considered significant.
- 3.9.3. A similar approach was used by Crossrail to assess their new rail scheme. They assessed that additional traffic and construction would, on average, increase emissions by 1-2% and was therefore acceptable. This is a wholly inadequate approach. Any new development assessed against the baseline of large urban areas such as London is unlikely to make much of an impact; the existing baseline takes into account millions of road movements a year amongst other variables. Any negative air quality impacts in urban areas with levels exceeding 35ugm³ must be considered significant. A 1-2% increase is still an increase, and locally, the cumulation of these 'smaller' increases may result in air quality management areas being designated and risks to health.
- 3.9.4. Generic approaches to methodology provide a starting point, but ultimately should be influenced by baseline environmental positions. These baseline assessments should define the existing sensitivity of a receptor. For example, a particular road may already be exceptionally congested. A 1%-2% increase in traffic in these areas would be significant; in turn a rural road with substantial capacity maybe able to accommodate a 10% increase in traffic with negligible effects. The sensitivity of each receptor is therefore dependent on a number of variables which need to be established through baseline research.
- 3.9.5. Furthermore, an EIA informs a decision on a project and should be considered an independent assessment. If an ES tries to support a decision by establishing methodologies that limit the likelihood of identifying significant effects, then the decision making process becomes flawed.
- 3.9.6. The approach to the methodologies outlined in the draft Scoping Report appear to be designed to ensure that the development is unlikely to be considered to have a significant effect. This is highly misleading. It should be acknowledged that the construction and operation of a new High Speed Rail Line will have



significant effects on the environment, i.e. a fundamental negative change to the environmental baseline. The methodologies need to reflect this. This is why Scoping Reports should be accompanied by existing baseline assessments so that there is a starting point on which to measure changes.

- 3.9.7. It does not follow that a development proposed should be refused if an ES finds a particular environmental effect to be significant. The ES becomes a part of the decision making process along with a number of other factors. However, it must adequately reflect the environmental effects. The methodologies should therefore be informed by the existing baseline and tailored accordingly. A generic approach as set out in the draft Scoping Report will result in a misleading assessment.
- 3.9.8. 51M is of the view that HS2 Ltd should commit this flagship scheme to much higher standards, and the assessment should provide decision makers with a clear understanding of the effects. It should be designed to reflect the purpose of EIA and not be tailored so as to give the impression that the scheme will have negligible effects.

3.10. Baseline Assessment

- 3.10.1. Establishing the baseline is an important part of the EIA process. It provides the starting point to identify receptors specific to the development and therefore which impacts need assessing. As stated in paragraph 3.2.3 above, EU Guidance suggests that some baseline work is normally required at the scoping stage.
- 3.10.2. Not only has no detailed project information been provided, but there is no baseline information either. This makes confirming the presence of relevant receptors impossible, and makes it difficult in refining the methodologies to this specific project. Baseline information is highly important in establishing the type, quantity, location and sensitivity of receptors that will be impacted. This draft Scoping Report reverts to broad assumptions and criteria without this detailed information.
- 3.10.3. In addition, it is noted that assumptions will need to be made about the future environmental conditions without HS2. However, 51M has concerns over the use of some assumptions used in the methodology report, particularly since they are not informed by existing evidence based studies.



3.10.4. Paragraph 17.7.1 is of particular concern:

It has been assumed that with the WFD [water framework directive] in force the baseline conditions for the quality of all water courses will be at least “good” status, as that is the aim of the WFD over the lifetime of this Proposed Scheme.

3.10.5. It is not acceptable to make assumptions about the performance of environmental features against legislative parameters. The extrapolation of future baseline quality needs to be informed by current baseline research and historical performances.

3.10.6. For example, it would not be appropriate to assume that the UK’s National Grid would have been decarbonised to the levels required, or for air quality limits to have been reduced below EU minimum standards in certain places.

3.10.7. Local Authorities must be able to comment on the details of baseline conditions and how they will be used prior to the assessment taking place. The baseline position sets the starting point for future assessment. If Local Authorities cannot agree to the starting point for the subsequent assessment, then the conclusions within the ES could be inappropriate.

3.11. Appraisal of Sustainability

3.11.1. Section 1.6 of the report attempts to set out the relationship between the EIA and the Appraisal of Sustainability (AoS) that accompanied the original consultation on HS2. The AoS effectively found the scheme to be unsustainable by scoring the scheme ‘unsupportive’ or ‘highly unsupportive’ against the sustainability objectives. This was a fairly crude strategic assessment based on minimal desk top research and should not be used to form the basis for more detailed assessment.

3.11.2. It is noted that in many of the chapters, that the AoS has established the baseline assessment. This is inappropriate. The work undertaken for the AoS was not of a sufficient standard to be used as a baseline position in a more detailed assessment.

3.11.3. Responses to the AoS were based on the minimal information provided at the time by HS2 Ltd and should not be considered to be the only issues. The AoS and the issues raised in the consultation should part inform the EIA, but it would be highly inappropriate to rely solely, or heavily on the findings and comments

made during the consultation. The proposals accompanying the AoS were of a questionable standard, and certainly not detailed enough. They lacked specific detail relevant to the project and therefore constrained the involvement of a number of groups and bodies who would have been more interested in the details. It is highly probable that some consultees did not respond in full to the AoS, and followed the instructions to wait to the detailed EIA stage to provide comments. For example, a number of residents were concerned about noise, but were informed that the EIA would address the noise issues in more detail. Some residents may not have responded in detail to the AoS. Each topic area sets out the main comments on the AoS as if this satisfies some form of initial consultation on the detailed stages. It is therefore highly inappropriate to rely on these comments alone. The list of responses to the AoS would likely to have been considerably longer had HS2 Ltd provided more detailed proposals, or a better informed AoS.

- 3.11.4. There is limited overlap between the AoS and this more detailed stage of the EIA process. More overlap would have been achieved had more technical work gone into the AoS and issues treated with more meaningful consideration.

3.12. Environmental Design Aims

- 3.12.1. Paragraph 1.8.1 of the draft Scoping Report sets out the process for identifying standards to reduce significant effects: It states:

During the EIA process the potential significant effects identified in the AoS will be monitored and the ES will report on how the predicted effects may have changed as a result of scheme development. To facilitate the reduction of such effects HS2 Ltd is preparing Environmental Design Aims (EDAs) to guide the project development teams. These EDAs will draw upon the knowledge gained through the AoS.

- 3.12.2. Schedule 4, Part 1[5] of the EIA Regulations requires an ES to include:

A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

- 3.12.3. The EDAs referred to in Paragraph 1.8.1 would appear to fulfil the requirements of the EIA Regulations if set out appropriately. The AoS found that the scheme failed to meet many of the sustainability objectives but provided only generic statements about how the poor performance of the scheme could be overturned. These EDAs would be vital in assuring that environmental



objectives can be achieved, but should be developed in consultation with Local Authorities. The process for determining standards and subsequent mitigation should be an open process which forms part of a second round of consultation on the published Scoping Report.

3.13. Use of the term Temporary

3.13.1. Throughout the topic areas, the phrase 'temporary' is referred to in relation to construction impacts. No timetable for construction has been provided, although the whole project (phase 1) will be delivered in 8 years based on the current timetable. The use of the phrase 'temporary' needs to be clearly set out and adequately defined. In some instances, residents could experience construction impacts that go on for the full 8 years.

3.13.2. 51M considers that the term temporary should refer to 2 years.

3.14. Recommendations for final Scoping Report

3.14.1. The final Scoping Report should be aligned with the EU Scoping Guidelines to ensure that it complies with the Regulations and the objectives of the EU Directive. Importantly, HS2 Ltd needs to give consultees the maximum opportunity to participate in the assessment process and to follow the Crossrail approach of being open and transparent. The draft Scoping Report that is now being consulted forms a very early part of the Scoping Process and does not allow the questions posed in the consultation to be answered. Consultation on a much more detailed Scoping Report, complete with baseline information will allow Local Authorities and other interested parties to be engaged in the process at the right times. This will avoid future conflict about how baselines have been used, the identification of receptors, and what impacts are being assessed. Ultimately, it will help provide a better assessment to inform a decision.



4. Conclusion

4.1. The draft Scope and Methodology report is ill conceived and totally inadequate. It neither provides sufficient detailed information to allow an understanding of impacts and receptors, nor does it provide suitable outline methodologies on which to base comments. 51M understand the purpose of carrying out early consultation and supports the approach; however, the level of information provided by HS2 Ltd needs to be commensurate with the questions being asked of consultees. This is far from the case for this consultation. Instead, detailed project information is not provided, and the quality of some of the methodologies is far from adequate even at an outline stage.

4.2. Approach to Scoping Consultation

4.2.1. 51M is very disappointed in the approach that HS2 Ltd has taken to the scoping stage. This stage is a vital part of ensuring a suitable assessment is carried out and one that allows for a properly informed decision. 51M considers that the Secretary of State for Transport has asked the wrong questions in the consultation and not provided sufficient information. This makes it inappropriate or not possible for consultees to comment effectively. There is no commitment to consult on the published version of the Scoping Report and therefore it is considered the approach taken is contrary to the objectives of the EIA Directive and the EIA Regulations.

4.2.2. The level of information within the report is far from adequate and does not allow for any meaningful engagement between consultee and assessor. The lack of a proper project description does not allow consultees to understand what HS2 Ltd is seeking permissions for and the route has been presented on inappropriately scaled plan with no supporting details.

4.2.3. It does not appear that HS2 Ltd has sufficient information yet, or not prepared to share the information it does have, to undertake a proper engagement. The approach taken has constrained the level of input for consultees.

4.2.4. 51M is concerned that HS2 Ltd will finalise methodologies as the assessment is taking place with no further opportunity for consultees to be involved. A lack of response from some consultees at this stage should not be a sign that the approach taken is suitable.



4.3. Quality of Report

- 4.3.1. The lack of any baseline work and adequate project description has reduced the quality of the report and rendered it highly generic. It has restricted the ability to put forward clear methodologies tailored to the development and reduced the ability for consultees to understand the geographical scope of impacts.
- 4.3.2. The lack of commitment to high environmental standards is also disappointing for such a high profile and costly scheme.

4.4. Further Consultation

- 4.4.1. HS2 Ltd has acknowledged that a final scoping report will be published which will be able to be 'viewed online'. Given the inadequacy of this draft report and the lack of opportunity for consultees to actively participate, it is imperative that a further consultation exercise is carried out on the published Scoping Report and that it is not just put online to be 'viewed'.



Detailed Comments

5. Air Quality

5.1. General Comments

5.1.1. The scoping report rightly identifies air quality as a significant issue to the project and includes proposals, some indication as to the proposed methodology and a number of observations for this stage of the EIA process. The air quality limit values originate from European legislation and are based on the protection of health, but it needs to be recognised that in terms of air quality management these are very much minimum standards. It is, therefore, critical that this section addresses the full range of potential impacts to air quality and in a manner consistent with not only the latest guidelines but also the emerging and developing frameworks that will take effect over the next few years.

5.1.2. **For example:** There is a greater emphasis being placed on the direct health impacts of PM2.5. The Department of Health has published its new framework which includes a mortality indicator for life years lost as a result of PM2.5 pollution. This will be collected nationally and calculated at local level and should not be undermined locally by large infrastructure developments such as HS2. DEFRA at a national level is also in support for concentrations based metrics that link to health drivers. This approach to the assessment of the impacts of local air quality needs to be incorporated within the HS2 EIA.

5.1.3. Air pollution also causes significant damage to the environment. The House of Commons Environmental Audit Committee recently reported that:

“ozone reduces the yield of wheat grown in southern Britain by 5-15%. Sixty percent of sensitive habitats exceed the critical load for nitrogen, of which atmospheric pollution is a major cause. The Joint Nature Conservation Committee, Countryside Council for Wales, Natural England and Scottish Natural Heritage told us that oxides of nitrogen (NOX) harms UK biodiversity and is compromising our ability to deliver current conservation commitments such as the objective to achieve favourable conservation status under the Habitats Directive”.

5.1.4. The Government’s steer on the continuing importance of improving and maintaining good air quality is therefore clear in relation to the general



environment and to human health, both of which are likely (at the local levels) to be impacted by the proposed HS2 development.

5.2. Technical Aspects

- 5.2.1. The existence of Air Quality Management Areas (AQMA) is a means of identifying where air quality levels are currently not acceptable, in this regard the AQMA in the London Borough of Hillingdon should be added for completeness. The report should acknowledge that the number of AQMAs is actually increasing rather than decreasing as currently indicated in the report. In a number of Council areas along the proposed route, measurements for NO₂ indicate levels just below the threshold, but nevertheless, remain significant. The baseline studies must ensure they include the consideration of those locations just below current designation thresholds that may be tipped into becoming a new AQMA with the addition of HS2 works either during and/or in the construction and full operational scenarios.
- 5.2.2. The UK Government Local Air Quality Management (LAQM) guidance has developed an approach of ensuring that 'local' foci remain the key to identifying smaller air pollution hotspots. Wider studies such as those proposed by HS2 can become reliant on much less detailed information as a result of scale and therefore have the potential to miss important issues until too late in the process. This must be addressed as there is considerable potential for the development, in both the construction phase and the operational phase, to create both localised sources and therefore localised impacts. It remains critical that these local impacts should not be understated or missed at the expense of the apparent wider macro approach for baseline assessment that is being proposed within this scoping report.
- 5.2.3. It is necessary to identify potential pollutants as well as those groups that are most likely to be affected by them in order to determine the potential impact of the proposed development on local air quality. There is insufficient information provided on the details of the route to give advice as to the location of sensitive receptors.
- 5.2.4. There is a high risk that additional monitoring will be required in order to inform the baseline assessment and proposed modelling work. This may pose serious risks to the timescale of the development of the EIA in regards to the collation



of baseline data, for example, a full year of monitoring may be required in order to establish a robust baseline.

5.3. Assessment Methodology

- 5.3.1. Assumptions and uncertainties used in air quality modelling need to be addressed robustly to ensure confidence in the results of the assessment. These details have not been provided which means appropriate advice and comments cannot be given at this consultation stage. For example, the use of background maps is referred although no acknowledgement is given to the advice from DEFRA that caution should be used due to the over-optimism of forecast reductions in background NO_x and NO₂ from the road traffic component. The methodology adopted must be sufficiently robust to ensure the final results provide reasonable certainty in assessing the potential impacts and provide confidence in the results of the assessment.

5.4. Examples of inadequacy

- 5.4.1. No details have been provided in regard to the incorporation of the impacts of Phase 2. It is highly probable that a Heathrow spur and interchange would bring about significant impacts on air quality by bringing additional traffic movements into an area already suffering from levels of air pollution above the acceptable health limits. The implementation of Phase 2 could also be very significant for the Phase 1 interchanges at Birmingham and Central London and there may be other issues along the proposed route as yet unidentified which will need to be taken into account. The air quality assessment should consider these cumulative impacts at this stage.
- 5.4.2. No details have been provided in regard to the transport inputs that will inform the air quality assessment and how the accuracy of these data will be validated and verified. The suggested use of the DMRB (Design Manual for Roads and Bridges) criteria for identifying when the assessment of emissions will be carried out is inadequate. In areas where air quality is already above health standards, and, road networks are already at capacity, full assessment will be required.
- 5.4.3. Methodologies to be used in regard to assumptions such as modal shift from car to rail have not been provided. Details of how the proposal will ensure locking in any benefits of the modal shift on the surrounding road network have



not been provided. In the absence of additional management measures the impact on air quality from modal shift will be negligible if the road networks are simply allowed to use any freed-up capacity. This needs to be addressed and appropriate methodologies detailed.

- 5.4.4. The methodology suggests that issues such as model verification and sensitivity analysis will only be carried out where detailed air dispersion modelling is required. This is not an acceptable approach. The LAQM guidance indicates that even more simple DMRB assessments can be compared with monitoring data to ensure the accuracy of the results. The assessment of this proposed scheme should provide appropriate information to allow confidence in the accuracy of the final results.
- 5.4.5. There are insufficient details provided to comment on the construction phase. The potential for adverse impacts from this stage of the proposal are very high and the need for appropriate monitoring together with appropriate mitigation and control measures should not be underestimated.
- 5.4.6. For air quality to be adequately assessed, information on the route itself and the implications of the construction phase and full operational phase, including interchanges, buildings, road diversions and fully implemented Phase 2, needs to be built into the process within appropriate timescales. There is inadequate information provided as to how HS2 will interact with the relevant local authorities and other bodies to ensure the local information is incorporated into the development of the EIA.

5.5. Significance

- 5.5.1. The Environmental Protection UK (EPUK) criteria for assessing significance is referred to within the document, however, these are not adequate for a situation where levels of air quality are above, or will be pushed above, the UK and EU air quality standards.
- 5.5.2. The limit values are set by legislation at a level to protect human health and must be met at defined relevant locations regardless of the magnitude of the increase or the number of people exposed. EPUK criteria in regard to number of people exposed or the magnitude of the increase are also, therefore, not relevant.



- 5.5.3. The UK government is currently seeking permission for an extension to this deadline and have submitted plans to Europe to meet the limit by 2015 in named areas. Any exceedences beyond these dates could potentially be unlawful under European legislation. In urban areas, such as London, the Government has admitted that limits are not expected to reach compliance until 2020-2025, it is currently unclear as to whether Europe will be issuing immediate infringement proceedings or expecting the UK to put in place more detailed plans to bring this date forward sooner. The significance criteria should be amended to ensure that any exceedence above the limit values is regarded as significant and substantial. This is relevant for the operational phase as well as the construction phase where there are limits that should be complied with for daily means for PM10 and hourly means for NO₂, as well as limits for annual means.
- 5.5.4. For particulate matter, and especially fractions such as PM2.5, the Government is moving towards an exposure reduction approach and the EIA should ensure this is incorporated. The available health evidence suggests there is no safe level for fine particulate matter exposure. Residential receptors should be given the highest level of sensitivity, and any uplift in PM2.5 should be considered to be a 'high' magnitude impact.

Detailed Comments on Paragraphs	
Introduction	
4.1.1	<ul style="list-style-type: none">• The proposed scheme is identified as having potential impacts on local air quality during both the construction phase and the operational phase. It is not possible at this stage, given the limited information provided, to identify the full impacts of the precise route or the implications of construction methodology such as the removal of any natural boundaries between the proposed route and any current receptors, any specific bespoke impacts arising from tunnelling techniques etc.• The air quality assessment should consider the full implementation of Phase 2 as this may put further pressure on aspects such as road access to interchanges in Phase 1, and in the Heathrow area from the addition of the Heathrow Spur. All of these aspects may have air quality implications

	<ul style="list-style-type: none"> • A reduction in the number of trees and the impact on both background air quality and as a point particulate reduction mechanism has not been considered. This should be fully quantified as part of both the national and local assessments. • In relation to traffic volume and potential movement of existing traffic flows – contribution to ozone formation and its links with pollution episodes, especially in rural areas along the proposed route appear to be absent from consideration.
Establishment of baseline and definition of survey requirements	
<p>4.2.1</p>	<ul style="list-style-type: none"> • Although it may not pass directly through AQMAs it does pass in close proximity to a number of locations that are just under the Air Quality Standards. It is these areas that as a result of construction and additional development traffic that may risk becoming AQMAs as a result of the HS2 line development. • It would also appear that HS2 consider that because air quality is generally better in rural areas than urban areas that an increase in pollutants is acceptable. These areas should not be seen as having ‘capacity’ to becoming more polluted
<p>4.2.2</p>	<ul style="list-style-type: none"> • Data from DEFRA indicate that the number of AQMAs is generally increasing rather than decreasing. It is therefore highly unlikely that either Birmingham or Camden would be revoking their AQMAs during the life of the construction phase. • The AQMA in London Borough of Hillingdon for nitrogen dioxide should be added for completeness and further checks made directly with each LA to identify pending declarations.
<p>4.2.3</p>	<ul style="list-style-type: none"> • It should be noted that local authorities do not have a duty to monitor or model PM2.5. • The data for PM2.5 is not readily available from Local Authorities as it has not been economically viable to measure it. In some cases PM10 is measured and this is used as a proxy indicator for PM2.5. As PM2.5 is so closely associated with health impacts this data will need to be collected using continuous particulate PM2.5 monitors and associated at the local level.
<p>4.2.4</p>	<ul style="list-style-type: none"> • The national network includes only a very small number of monitoring

	<p>stations near to the proposed route. Of these, most are not in close enough proximity to offer localised relevant data.</p> <ul style="list-style-type: none"> Local authorities may have established local monitoring networks, run to the appropriate QA/QC standards, which could add valuable local information to the baseline assessment. This potential resource should be acknowledged and used where appropriate
<p>4.2.5</p>	<ul style="list-style-type: none"> If background maps are to be utilised, 2010 maps should be referenced (or newer when released) rather than the 2008 background data. Precise NO₂ and PM10 are not available for specific sites in the development area. Previous screening has only shown that the area is not likely to exceed objectives. Detailed pre-development monitoring should be undertaken (at the expense of the developer) as the background maps are not sufficiently reliable / scientifically robust. It is acknowledged by Defra that the projected yearly improvements expected in regards to NO_x and NO₂ are not being borne out by monitoring data which is showing little evidence of a consistent downward trend. It is thought this is due to forecast reductions in background NO_x and NO₂ concentrations associated with the road traffic component being too optimistic (FAQ LAQM Helpdesk 2010). This will need to be accounted for in the air quality assessment in regards to the appropriateness of using the air quality projections for future years.
<p>4.2.6</p>	<ul style="list-style-type: none"> This mentions that information about critical loads for pollutant deposition and critical levels of gaseous pollutant concentrations for the UK network of protected sites is available from the UK Air Pollution Information System without any indication of what needs to be done in connection with the data and whether the scope of the available data is wide enough. The Board considers that it is vital that other bodies are consulted in connection with this issue, in particular the Environment Agency, Forestry Commission and Natural England as well as local authorities along the route, and that proper account is taken of any advice and other information gathered. It will also be necessary to consider lower levels of concentrations than 'critical' levels because in some instances small concentrations will have disastrous impacts, particularly in connection with Ancient Woodland for example.
<p>4.2.7</p>	<ul style="list-style-type: none"> No detail is provided on the source of this information. It is necessary to agree the sources of data for the baseline prior to collecting it.

<p>4.2.8</p>	<ul style="list-style-type: none"> It is not likely that data will be available from existing resources along the length of the proposed line as indicated in this paragraph. Further specific monitoring is highly likely to be required. There are specific requirements for the types of monitors to be used and the length of the monitoring time period needed to ensure the data is valid. This will need to be accounted for in the preparation of the EIA.
<p>Consultation</p>	
<p>4.3.1</p>	<ul style="list-style-type: none"> HS2 cannot assume that just because no response was made, that there are not significant concerns regarding air pollution. This is not because Councils do not have issues, but more likely due to the deficiencies in the AoS consultation itself. However, both Hillingdon and Camden’s points relating to air quality do remain valid for the wider route. It is also not clear from the information provided that the concerns raised, as detailed, have been covered e.g. accurate quantification of modal shift, inclusion of the implications of Phase 2 e.g. spur to Heathrow and its potential implications for air quality.
<p>4.3.2</p>	<ul style="list-style-type: none"> A number of authorities have expertise in this field in addition to those in the environmental health departments such as transport authorities and environmental protection teams. It should be acknowledged that road traffic volumes, speeds, and composition are all important inputs to any air quality assessment. A process will need to be put in place to ensure agreement with transport practitioners in relevant authorities to these inputs into the air quality methodology It is also not apparent at what time key consultees will be consulted in relation to stations, interchanges and maintenance depots. It is surely more appropriate to consider these elements at this stage to inform the monitoring/ modelling schedules.
<p>4.3.3</p>	<ul style="list-style-type: none"> Consultation with the GLA is obviously an important step. However, in addition, consultation with other regional air quality/ pollution groups along the entire route should also be undertaken. The GLA will also be consulting on new mandatory Construction and Demolition Guidance, linked to the London Plan and this should be considered as soon as available.
<p>Key Aspects of the Scheme for the Topics</p>	

<p>4.4.1</p>	<ul style="list-style-type: none"> The tunnelling element itself is absent from this list and is obviously very significant in dust emissions, bespoke tunnelling impacts need to be accounted for.
<p>4.4.2</p>	<ul style="list-style-type: none"> This would not just be a problem just for those sensitive locations; the potential for general dust nuisance is also a very real potential issue. Dust of this type on private property and vehicles is very difficult to address under nuisance legislation.
<p>4.4.3</p>	<ul style="list-style-type: none"> There is no mention of minimum standards for buildings. This should be considered at the earliest opportunity. It is a common procedure in other countries to set a maximum action level for PM10 concentrations at the boundary of a work site. For example, the London Borough of Greenwich enforced a site action level of 125µg/m³, as a 15 minutes average, during the construction of the New Millennium Experience and the Greenwich Millennium Village.
<p>4.4.4</p>	<ul style="list-style-type: none"> Robust input from transport experts will be needed to substantiate this statement. Car to rail modal shift may be able to be quantified but it will only have a positive impact, in local air quality improvement terms, if the resulting reductions in traffic levels on the road networks are maintained.
<p>Scope of Assessment</p>	
<p>4.5.1</p>	<ul style="list-style-type: none"> We are concerned that using this minimum criterion does not negate those areas. Assessments do not appear to include the impact of movement of waste by rail.
<p>4.5.2</p>	<ul style="list-style-type: none"> Worksites have not been defined and therefore it is not possible to see if the proposals are adequate. IAQM Guidance - although suitable for construction, is it still appropriate for such a significant project e.g. volume of material from tunnelling etc. will be enormous. These criteria may not be appropriate in areas where the surrounding areas are already over the EU limit values and the local road networks are already at capacity. In such cases full assessment will be required and aspects such as the time period of the construction work will need to be factored in appropriately.
<p>4.5.4</p>	<ul style="list-style-type: none"> It is not clear how the findings of emissions from construction traffic, would be 'added' to emissions from construction activity. (For clarity, is

	there current baseline traffic emissions published, and how does this compare to modelled current emissions?)
Assessment Methodology	
4.6.1	<ul style="list-style-type: none"> • The Air Quality Standards Regulations 2010 transpose the European Directive 2008/50/EC into English law. It would be expected that these important regulations are included in the list. • There is no mention of nuisance guidance or prevention. Part IV of the Environment Act 1995 is 'stricter' and HS2 Ltd should be committing to using higher standards and best practice.
4.6.2	<ul style="list-style-type: none"> • The new version of DMRB will be released in May 2012 and should be used in place of the older version (or newer following this). • London Councils Air Quality and Planning Guidance, 2007 should be referenced and included. • These guidance documents are not necessarily compatible, i.e. different standards. The most stringent should therefore always be used.
4.6.3	<ul style="list-style-type: none"> • It is appropriate that HS2 refer to the limit values and national objectives; however these only provide the upper limits rather than optimal levels for air quality. That withstanding, the ability to achieve some of the objectives should be matched to detailed and at times sophisticated mitigation. Past developments have shown that the level of mitigation required has often not been sufficiently considered, and HS2 should be prepared to submit detailed mitigation methods. • This paragraph refers to air quality limit values and objectives set for "clean air". The air quality limit values are standards set to ensure the protection of human health, this fact should be incorporated into this statement.
4.6.4	<ul style="list-style-type: none"> • This will not ensure the levels in table 1 are met, particularly 1 hour mean for NO₂ and daily mean for PM10. • The EPUK significance criteria, as detailed in Annex D, need careful interpretation. The air quality limit values are set standards that must be met at defined relevant locations regardless of the magnitude of the increase above the limit or the number of people exposed.

<p>4.6.6</p>	<ul style="list-style-type: none"> • The need for appropriate mitigation and control measures should not be underestimated. They will also be highly variable and change from day to day. Appropriate mitigation must be planned in advance and agreed by local authorities prior to activities taking place. The suitable management and supervision of the effectiveness of mitigation obviously remains critical. • Consideration should be given to movement of waste material by rail and road and the impact of tunnelling. • Both air quality and dust monitoring data should be disseminated to the relevant local authorities via a secure website.
<p>4.6.7</p>	<ul style="list-style-type: none"> • There is insufficient information provided on the details of the route to give advice as the location of sensitive receptors. • “The methodology will take into account the distance from the scheme to the receptors that may experience these effects”. This document sets out the draft methodology, but does not meet the objective set out in the sentence. • It is not always the nearest receptor that is affected by the most pollutant and receptors will also be impacted differently depending on the prevailing weather conditions.
<p>4.6.8</p>	<ul style="list-style-type: none"> • There is insufficient detail provided in regard to the air quality assessment methodology. (See comments above in regard to the use of future years predictions, the need to ensure the assessment has taken into account the uncertainties and assumptions appropriately into account) The methodology must be sufficiently robust to ensure that the final results provide reasonable certainty of whether exceedence of an air quality limit value is likely or not and should include the impact on the nearest sensitive receptors in a defined worst case scenario.
<p>4.6.9</p>	<ul style="list-style-type: none"> • “This will only be considered in relation to areas where detailed air dispersion modelling is required and it will not be necessary elsewhere on the route of the Proposed Scheme”. These locations have not been identified, It appears that there is no mention of monitoring throughout the construction phase, and that the mitigation will be based on the modelling. We would expect a monitoring programme for the length of the construction phase. • The LAQM Technical Guidance 09 (A3.28) indicates that DMRB

	<p>modelling can be compared against monitoring data to assess the accuracy of the assessment. It is recommended that this is established as a best practice approach for the proposed route.</p>
4.6.10	<ul style="list-style-type: none"> There is insufficient information provided in order to provide detailed advice. For example, it is unclear how aspects such as car parks associated with main interchanges will be accounted for. There is no information provided as to how emissions from buildings will be modelled if “a significant impact is expected”. In areas already over the EU limit values, any increases in emissions could be deemed significant. This needs to be clarified.
4.6.13	<ul style="list-style-type: none"> Cumulative impacts including rat running and other developments within range of the HS2 proposed line should be identified and considered at the earliest opportunity. This process should remain dynamic and responsive to new information over the potential HS2 development programme.
Assumptions	
4.7.1	<ul style="list-style-type: none"> It should not be assumed that air quality management monitoring has taken place at locations along the route. This is not known as construction sites have not been identified as part of this scoping report. There may be significant risks involved to the timescale of the collation of the EIA if these assumptions are not correct, e.g. a year’s worth of additional air quality monitoring data may be needed in order to establish a baseline.

6. Agriculture and Soils

6.1. General Comments

- 6.1.1. This section does not adequately address the range of issues relating to agriculture and soils and risks the continued loss of quality land as demonstrated by DCLG:

The total area of rural land lost to urban use between 1945 and 1990 was 705,000 hectares - an area the size of Greater London, Berkshire, Herefordshire and Oxfordshire combined. The loss of agricultural land to development is continuing with about 11,000 hectares developed from 2001 – 2009 (Department for Communities and Local Government, 2011)

- 6.1.2. This loss of rural land may reduce the long-term capacity to produce food in an environmentally sustainable way and compromise the ability of the countryside to produce environmental goods, such as landscapes, natural habitats and tranquil areas. It may also have a cumulative effect on the attractiveness of the rural landscape for uses such as tourism and rural enterprise.
- 6.1.3. Basing this section almost wholly on a forty-year old Agricultural Land Classification does not address significant change in the agricultural and rural landscape since the 1960s and the diminishing role of 'traditional' crop-based agriculture that relies on quality soil. For example, just 0.2% of UK farmland is used for 'permanent crops'.
- 6.1.4. Using a proxy 'predictive' estimate of land quality where land access is unavailable (5.2.7) is similarly unacceptable and runs the risk of missing very significant factors affecting the environmental impact on the rural landscape.
- 6.1.5. A lot more work needs to be done on this methodology prior to the assessment taking place. Basing findings on the outline methodology set out would result in a misleading representation of the impacts on agriculture and soil.

Detailed Comments on Paragraphs	
Introduction	
5.1.1	<ul style="list-style-type: none"> This paragraph refers to ‘farm-based enterprises’, but there is no specific treatment of the anticipated impact on them or methods to mitigate the potential impact.
5.1.2	<ul style="list-style-type: none"> This claims the use of ‘best practice planning policy’, but supports this statement with a vague reference to ‘various guides’. All sources of guidance and information should be clearly outlined to allow consultees an open and transparent understanding of the assessment.
5.1.5	<ul style="list-style-type: none"> This suggests that HS2 could ‘provide stimulus to rural economic activity, for example renewable energy’. There is no further explanation or evidence for this, although the risk of increasing urbanisation of the countryside should be fully considered.
Establishment of baseline and definition of survey requirements	
5.2.6	<ul style="list-style-type: none"> This states that ‘an ALC survey will be undertaken for ALL land to be acquired or used’, however 5.2.7 states that ‘where access is unavailable, a predictive ALC (estimate) will be undertaken’. This is unacceptable. All land to be used for access and or construction must be fully accessed.
Establishment of baseline and definition of survey requirements	
5.3.3	<ul style="list-style-type: none"> Whilst appreciating that the consultees listed are only those that have previously made representations, there is a distinct lack of those that represent the interests of rural businesses and those that rely on the tranquillity of a rural environment to offer services outside those traditionally associated with agriculture. These include tourism, corporate hospitality and venues such as for conferencing and weddings. The list of consultees will not adequately address any of these non-farming activities in rural locations.
Establishment of baseline and definition of survey requirements	
5.4.1	<ul style="list-style-type: none"> This states that the ‘key aspects of the proposed scheme’ all relate to ‘land-take’. Again there is no recognition that the cumulative effects that areas such as disruption, noise and urbanisation of the countryside will

	have on rural businesses outside the traditional agricultural classifications.
Establishment of baseline and definition of survey requirements	
5.5.1	<ul style="list-style-type: none"> This states that ‘for most of the key issues identified, the study area is likely to be restricted to the limits of the land acquired or used for construction and operation’. Again this is unacceptable and the environmental impacts could spread over wide areas in the cases of noise, visual intrusion, disruption to wildlife etc.
5.5.3	<ul style="list-style-type: none"> The stated ceasing of assessment in the year of opening is too soon. The impact assessment period should commence from 2012 to 2031 (initial land access to five years after opening) and not 2017-2026 as stated.
Assumptions	
5.7.2	<ul style="list-style-type: none"> This claims that ‘other rural enterprises are assessed in Section 7’. An initial read of Section 7, refers the reader to Section 5 and 17 where references are similarly vague and illusory.



7. Climate

7.1. General

- 7.1.1. The Climate Change methodology is particularly lacking and does not provide any outline of how significance will be assessed. Instead it provides just a broad overview of the type of matters to be considered in the assessment. The purpose of this draft Scoping Report is to establish the methodology for how significance is assessed. One of the prime objectives of this scheme was to deliver a low carbon transport solution; a claim that did not stand up to close scrutiny and was founded on an inadequate report that accompanied the original consultation.
- 7.1.2. Climate change is relatively new to EIA and there is a limited amount of case studies on which to base assessments. It is therefore particularly important to set out the methodology for making the assessment early in the process to provide a transparent and robust approach. It is therefore highly disappointing that the methodology included within this draft Scoping Report fails to provide any assurances that the decision making process will adequately consider climate change impacts. The methodology runs to 4 pages and provides no information on how significance will be measured. This was a prime opportunity to set out the assessment methodology and engage interested parties on this difficult topic.
- 7.1.3. Instead, it is apparent that there is still a lot of uncertainty about what the assessment will reveal and therefore a reluctance to clearly set out how significance will be measured. The purpose of setting out the methodology now is to ensure that determination of significance is not influenced by the results of detailed modelling.
- 7.1.4. The lack of transparency about how significance will be measured suggests that the methodology will be tailored to the findings of the assessment and demonstrate that there are few significant effects. This is inappropriate and will mislead the decision makers.
- 7.1.5. The published scoping report must contain a clearer and more robust methodology that clearly demonstrates how significance will be measured.



This is particularly important given the objective of delivering a low carbon scheme.

7.2. Assessment of Significance

7.2.1. The Institute of Environmental Management and Assessment (IEMA) has published guidelines on how climate change mitigation and adaptation needs to be considered in EIA. In particular they note that:

GHG [greenhouse gas] have a combined environmental effect that is approaching a scientifically defined environmental limit, as such any GHG emissions or reductions from a project might be considered to be significant.

7.2.2. The latest projections from the Department for Energy and Climate Change carry a lot of uncertainty but suggest that the UK will not meet its targets set for the fourth carbon budget (2023 – 2027), although it will meet the previous 3.

7.2.3. Given the level of importance of reducing greenhouse gas emissions, any increase above the baseline should be considered significant and reported to decision makers accordingly. This is a flagship scheme with objectives for significant carbon reductions. The methodology for assessing the effects should therefore be commensurate with the scale of the project, and should be aligned with the objectives to reduce carbon. If the project fails to adequately reduce emissions in line with the objectives then it should be considered to have an adverse effect. The following methodology should be used in relation to total aviation emissions and separate total transport emissions, as well as for total UK emissions.

Impact on total emissions	Receptor – Total Greenhouse Gas Emissions
0% + increase	Significant Adverse Effect
0.1 - 1% Decrease	Moderately Adverse Effect
1.1 - 2% Decrease	Slightly Adverse Effect
2.1 - 4% Decrease	Slightly Beneficial Effect
4.1 - 6% Decrease	Moderately Beneficial Effect
6.1% + Decrease	Significant Beneficial Effect



7.3. Baseline and Assessment

- 7.3.1. Setting the baseline against which the assessment is made is exceptionally important; it needs to be presented to consultees prior to undertaking the assessment and therefore should form part of the published Scoping Report which must form part of another round of consultation.
- 7.3.2. The draft Scoping Report refers to the baseline being set out in the AoS. This is not an accurate representation of the information in the AoS. There were no technical details in AoS and no publication of the modelling work meaning the assessment was not transparent and did not present consultees with a clear understanding of the 'inputs' that went into the carbon modelling.
- 7.3.3. The published Scoping Report must clearly set out the current baseline for the years identified in 6.1.4 of the draft Scoping Report. **A further time period should be added to the list to reflect the operation of HS2 after opening and prior to Phase 2 coming on line. This should therefore be set at 2032.**
- 7.3.4. The baseline must include clear information on the number of journeys before HS2 between London and Birmingham over the stated time periods and relate to aviation, rail and road.
- 7.3.5. Clear indication of the sources of information will need to be included.
- 7.3.6. The original Greenhouse Gas report accompanying the AoS suggested that the main competitor for HS2 is domestic aviation and it would generate a significant modal shift from air travel. The baseline position must clearly set out the existing domestic aviation markets that Phase 1 of HS2 is competing with. There are currently no flights between London and Birmingham and few from Manchester. The baseline must identify the existing and projected passengers between all the Cities served by HS2, Phase 1 and 2. The assessment must then differentiate between the impacts of Phase 1 HS2 on the domestic aviation market (i.e. will a train from Birmingham to London reduce the number of flights from Manchester and Scotland to London) and Phase 2 of HS2.
- 7.3.7. The baseline should also present information on the latent demand for journeys between Birmingham and London i.e. those that would make the journey if there were more suitable transport infrastructure (HS2).
- 7.3.8. The assessment must clearly show the impact of HS2 on these receptors. This should be in a tabular form using percentages, as well as total figures.



- 7.3.9. The assessment must also include a breakdown of the modal shift of passengers using 1 HS2 train i.e. who would have travelled by road, other forms of rail, and by air. This needs to be set out for different times of the day to be reflective of the peak and off peak times – i.e. modal shift from road will be different at times during the day.
- 7.3.10. The broad approach taken in the greenhouse gas report that accompanied the AoS should be followed; however, there was a lack of credibility in the outputs and conclusions because of the lack of data made available. The published Scoping Report must set out clearly the baseline from which the assessment will be made, and the subsequent Environmental Statement must include clear details of the inputs used. This must be done in a transparent manner to ensure consultees are able to scrutinise the report and decision makers are in clear possession of the relevant information.

7.4. HS2 Phases 1 and 2

- 7.4.1. One of the main areas of concern for the original AoS Report was that it did not adequately present the impacts of Phases 1 and 2. This is particularly an issue when consideration is given to the modal shift from domestic aviation to HS2. Currently there are no flights between London and Birmingham and therefore the competition between HS2 and aviation travel is zero. Commentary must be provided, supported by evidence
- 7.4.2. It is important that the findings are extrapolated for Phase 1 in the EIA as well making a cumulative assessment with Phase 2.

7.5. Freed Up Domestic Slots

- 7.5.1. The AoS suggested HS2 could have a highly unsupportive impact on the low carbon objective. This was largely due to the possibility that any freed up domestic flights would then be switched to long haul flights i.e. a flight from London to Manchester could then become London to New York.
- 7.5.2. It is well documented that major London Airports would welcome a reduction in domestic flights in favour of more profit generating long haul flights. The switch from domestic to long haul flights has the potential to have the greatest indirect impact from HS2 and needs to be properly assessed in the ES.



7.5.3. In particular the ES needs to set out the assumptions to be used for assessing the impacts on long haul flights. It is not suitable or appropriate to simply suggest that any additional long haul flights will be subjected to the EU Emission Trading Scheme and therefore exclude further work from the assessment. The ES must comply with the EU Directive and fully explain the effects of the development on the climate as well as the cumulative impacts.

7.6. Decarbonisation of the Grid

7.6.1. The AoS found that the broad modal shift from **domestic** aviation and road to HS2 would offset the electricity used in the operation. The main carbon gains were likely to be realised when there is sufficient decarbonisation of the grid. The baseline to be set out in the published Scoping Report must clearly show the projected decarbonisation of the grid to be used in the assessment and the source of the information.

7.7. What Greenhouse Gasses to be measured?

7.7.1. The AoS referred to greenhouse gasses without expanding on what was being assessed. The methodology in the draft Scoping Report is also inadequate and must clearly present what is meant by greenhouse gasses and how each one is considered in the subsequent ES.

7.8. Carbon Timeline

7.8.1. Another concern of the AoS was the lack of information on the timeline of greenhouse gas emissions i.e. when do benefits (if any) outweigh the negatives. There will be a considerable amount of emissions associated with construction, and limited impact on domestic flights in Phase 1. HS2 will therefore have a considerable carbon impact whilst the grid has not been subjected to much decarbonisation, construction impacts have created a carbon deficit, and there is minimal competition from domestic aviation.

7.8.2. The ES must therefore clearly set out a carbon timeline in graphical form against the baseline projections.

7.9. Additional Impacts

7.9.1. The AoS failed to consider a number of other impacts in the assessment of greenhouse gas emissions. In particular:



- *The construction of new train stations*
- *The impact of additional road journeys created by people driving to HS2 stations (park and ride sites at Birmingham Interchange for example)*
- *The car journeys increased as a result of lost classic line services*
- *The management of spoil*
- *The construction of rolling stock and its journey from its location of construction*
- *The loss of carbon sinks*

7.10. Mitigation

7.10.1. HS2 will be a significant consumer of grid electricity as a result of train operations as well as the ancillary uses, such as stations, depots, park and ride lighting. The scheme must be able to minimise the impacts on the grid by contributing to producing renewable energy. No commitments have been made by HS2 Ltd, yet a clear objective must be set regarding the extent of contribution the scheme will make to renewable energy. This should be considered in this climate chapter.

8. Community

8.1. General Comments

- 8.1.1. A distinct lack of detailed work has gone into this chapter. It is highly disconcerting that the assessment methodology has not been set in the context of the development and is only a generic commentary on what methodology 'may' be used and not what 'will' be used.
- 8.1.2. The community effects of HS2 will be very much a question of professional judgement. This type of subjective based assessment is the hardest to complete in an open and transparent way. The first step to making sure consultees can comment on the approach is to clearly set out the methodology specific to the development. If it is only the assessor who understands the methodology then it is unlikely that a fair assessment will be presented to the decision makers. The subjectivity of this assessment could be compensated for by clearly setting out the thought process before the assessment is done.
- 8.1.3. The methodology presented in the draft Scoping Report is very vague and it is obvious there is no clear understanding of the baseline community situation around the line of the route. Paragraphs 7.2.4 to 7.2.7 suggest what could be included, but does not define a complete list of what will be included. This highlights the level of subjectivity with what the assessor will consider, as well as how the assessment will take place.
- 8.1.4. It is fundamentally important that a full and detailed methodology is provided to the consultees prior to the assessment taking place. This will allow consultees to provide information on the types of receptors that fall within the relevant categories. In turn, this will allow the assessor who is unlikely to know all the areas sufficiently, to understand sensitivity of the receptors being assessed.

8.2. Interlinked Impacts and Effects

- 8.2.1. A large number of the community impacts and effects of the development will be generated from other topic areas. It is therefore necessary to have a clear understanding of how other assessments will be linked to the community assessment. This chapter appears to be written in isolation with limited consideration of wider impacts on community. For example, air quality could



have considerable adverse community impacts whereas any positive flood improvements could have a beneficial impact on the community.

8.3. Baseline

- 8.3.1. It is imperative that the baseline environmental position and how the assessor assigns sensitivity to receptors be established before the assessment begins. A failure to understand the baseline position or the sensitivity of receptors will lead to the misrepresentation of the effects.

8.4. Scope of Assessment

- 8.4.1. The scope of assessment for those impacted will be dependent on the scale of the works which have yet to be fully set out. It is therefore not possible to rule out certain receptors. For example, Table 3 states that only residential properties within areas needed as part of the direct impacts on land will be assessed. This is not sufficient. There will be a considerable amount of houses impacted to varying degrees. For example, adverse impacts could come from increased noise, poor air quality, loss of visual amenity, and disruption from construction vehicles.
- 8.4.2. The scope of the assessment needs to be agreed prior to the undertaking of the assessment. The published Scoping Report should clearly delineate the scope of assessment on plans and then be sent to consultees for comments. Local Authorities and community groups will then be able to have a meaningful input into what receptors need assessing.
- 8.4.3. In addition, the published Scoping Report must clearly set out what is meant by 'severance' used in Table 3. This introduces yet more subjectivity into an already highly subjective assessment. The methodology should define clear criteria wherever possible to minimise the reliance on an author's expert opinion.

8.5. Assessment of Significance

- 8.5.1. The Community Impact Magnitude Criteria (Table 4) and the Community Receptor Value/Sensitivity Criteria (Table 5) include non-descript definitions. These criteria need to be assigned to existing receptors along the route and in the scope of assessment, so that consultees know how the assessor has allocated significance to each receptor prior to the assessor.

8.5.2. As it stands, this chapter relies too much on the opinion of one assessor about local areas they are unlikely to have sufficient knowledge to understand. This chapter in particular, needs to have the benefit of local input and the methodology should be tailored to this knowledge prior the assessment.

Detailed Comments on Paragraphs	
Introduction	
7.1.5	<ul style="list-style-type: none"> This needs to recognise that part of the infrastructure is access to a sustainable travel network in the form of Rights of Way which often links the community to education, health, places of worship, sports and recreational facilities and open spaces.
7.1.7	<ul style="list-style-type: none"> This fails to recognise the other impacts such as material and soils displaced during construction and the dust and air pollution that will have an impact on the community during the construction phase.
7.1.8	<ul style="list-style-type: none"> This needs to recognise that this needs to be widened to take account of the effect on the natural environment and the effective severance as residents and visitors may be discourage from using the areas rights of way which may not be a physical severance but severance due to changes in tranquillity and landscape character, which discourages their use. The rights of way network provides the community with a choice of sustainable travel modes and this aspect requires special consideration in any design.
7.1.10	<ul style="list-style-type: none"> It is proposed by the scoping and methodology that Environmental Impact Assessment (EIA) and the Equalities Impact Assessment (EqIA) and a Health Impact Assessment (HIA), although not part of the EIA itself, there is concern that these are only to be presented at the hybrid bill stage and that there needs to be more consideration of these in the EIA and as a whole in order to establish what the cumulative impacts or benefits may be in the wider context of the Community Impact Assessment.
Establishment of baseline and definition of survey requirements	

7.2.3	<ul style="list-style-type: none"> The key community characteristics need to be clearly defined and quantified
7.2.4	<ul style="list-style-type: none"> Whilst the baseline will include collecting information on both resources and receptors consideration also needs to be given to the criteria and context of intensity.
7.2.5	<ul style="list-style-type: none"> Open spaces need to be more defined according to use and ownership
7.2.6	<ul style="list-style-type: none"> Receptors also need to include tourism related visitors.
Consultation	
7.3.2	<ul style="list-style-type: none"> The wider consultation process as part of the EIA process needs to be more defined, and there needs to be a methodology for the way in which information will be used to influence the Community Impact Assessment
7.3.3	<ul style="list-style-type: none"> This needs to include the health sector and the developing Local Nature Partnerships
7.3.4	<ul style="list-style-type: none"> This should include the opportunities where there could be environmental benefits or improvements that could be achieved through innovative design, such as improved access to green infrastructure or sustainable travel modes.
Scope of Assessment	
7.5.1	<ul style="list-style-type: none"> There is no evidence provided of where the “experience or good practice from similar infrastructure projects elsewhere” has been obtained and it makes no reference to before and after studies of similar schemes such as HS1 or those in mainland Europe.
Assessment Methodology	
7.6.1	<ul style="list-style-type: none"> This is a unique transportation scheme for the UK. Similar railway methodologies may not be appropriate. More detailed information is required as to where the evidence is being obtained from and how robust it is, before developing the assessment methodology for the HS2 scheme.
7.6.14	<ul style="list-style-type: none"> Whilst “other effects, equating to minor adverse /beneficial and negligible effects, are generally not considered to be significant” It needs to be recognised that where there are a number of what are termed

	<p>“minor adverse effects” these when combined could be considered as significant and it needs to be clarified as to how the proposed methodology would address this concern.</p>
7.6.17	<ul style="list-style-type: none"> This needs to recognise and make reference to the East West Rail project, which is an existing and operational (albeit for freight) rail network.
<p>Assumptions</p>	
7.7.2	<ul style="list-style-type: none"> No methodology is suggested as to how the assessment will take into account how uncertainty and variability of impacts could generate different effects on the community enjoyment of amenity.

9. Cultural Heritage

9.1. General comments

9.1.1. The 51M authorities' own environmental baseline assessments confirm that there will be significant effects on cultural heritage but there is insufficient information in the scoping report on the nature of the development to establish all the likely significant effects. The scoping report is confusingly structured and much information (e.g. on construction methods and requirements, noise, structures, ancillary works of various kinds, cumulative effects and options for mitigation) is wholly inadequate or entirely absent. Nevertheless, given the large-scale of the scheme and general character of the route significant effects would include (but are not restricted to):

- Harm to historic landscapes through destruction of historic landscape features (hedges, ancient woodland, historic lanes etc), severance and loss of character. Significant historic landscapes include but are not restricted to designated areas such as conservation areas, registered historic parks or Areas of Outstanding Natural Beauty.
- Destruction of archaeological sites, most of them undesignated and many yet to be discovered. Archaeological significance is not restricted to scheduled monuments as illustrated by the large number of sites recorded on historic environment records, numerous new discoveries from survey in advance of development in the localities through which the route passes, and the experience of HS1.
- Loss or alteration of historic buildings (both listed and undesignated), and/or loss of viability due to a compromised setting (see below) or damage from vibrations during construction or operation.
- Visual and noise intrusion and changes to landscape character affecting the settings of all heritage assets, designated or otherwise. The NPPF makes it clear that the significance of a heritage asset derives not only from its physical presence but from the surroundings within which it is experienced. Harm to an asset's setting could affect the viability of appropriate uses.
- A variety of effects on historic assets of value to local communities and/or for tourism or recreation. Heritage assets with communal

and/or economic significance will range from major heritage attractions such as Waddesdon Manor to local pubs and walks.

9.2. Scope of Assessment

9.2.1. Paragraph 8.8.1 states:

All heritage assets, designated and undesignated within the defined study areas that may be affected by the proposals will be identified and assessed.

Firstly, no defined study area has been presented making it difficult to provide comments on the types of receptors likely to be impacted. Secondly, there is no reason that this report could not have identified the relevant heritage assets. This would have provided something meaningful for consultees to comment on.

9.3. Assessment Methodology

9.3.1. The Methodology presented would not adequately present the effects of the development. For example:

- Table 7 defines **Historic Townscapes with Historic Integrity** as being a **low** level receptor.
- Table 8 defines a **high** level impact as being:

Change such that the significance of the asset is totally altered or destroyed. Comprehensive change to setting affecting significance, resulting in changes in our ability to understand and appreciate the resource and its historical context and setting.

A **high** level impact on a **low** level receptor is only defined as a **moderate** effect (Table 9). Historic townscapes are a vital part of local, regional and national heritage and should be considered much more important.

9.3.2. The baseline environmental position needs to be set out before the assessment takes place. This will allow consultees to comment on the relevant receptors and how the assessor has classified them.

9.3.3. It is not considered that the methodology presented will allow for an accurate representation of the heritage impacts.

9.4. National Planning Policy Framework (NPPF)

- 9.4.1. There is a need to improve consistency with national planning policy (NPPF) as set out below.
- 9.4.2. The final sentence of paragraph 8.2.1 should be revised to conform to the NPPF definition of a heritage asset as 'A building monument site of place area or landscape meriting consideration in planning decisions ... etc'. Whilst Historic Environment Records (HER) hold much information on recorded heritage assets, many heritage assets have not yet been recorded or even discovered (e.g. buried archaeological remains). On the other hand, some records on HERs are not in themselves heritage assets (e.g. isolated finds, destroyed sites).
- 9.4.3. With reference to NPPF paragraph 115, the contribution of cultural heritage to AONB should be recognised in assessment of significance criteria (paragraph 8.9.6 and table 7). This has not been taken into account in any respect.
- 9.4.4. Table 7 needs further consideration/consultation as it covers a wide range of designated and undesignated assets in a not entirely consistent or clear way. Arguably some assets are afforded the wrong significance value but we appreciate these attributions need to be moderated with those of other topics.
- 9.4.5. With reference to NPPF paragraphs 132 to 135, the assessment of magnitude of impact (table 8) should be explicitly linked to the criteria of 'substantial' and 'less than substantial' harm. It must not be assumed that a less than substantial harm is not a significant harm in EIA terms.
- 9.4.6. With reference to NPPF paragraph 169, information from historic environment records should be used to inform assessments of significance and the potential for new discoveries (see below) – such sources would include for example reference to regional research frameworks for archaeological interest or historic landscape character studies.
- 9.4.7. With reference to NPPF paragraph 170, historic landscape or townscape character studies should inform assessment of landscape under chapter 12.
- 9.4.8. The effect of HS2 on the viability of heritage assets should be considered (cf. NPPF paragraph 126). This would be particularly important for historic buildings and functional land units affected by severance.



9.4.9. Reference to the revoked PPS5 in 8.8.2 ought to be corrected.

9.5. Setting issues

9.5.1. The lack of scheme information will be problematic for assessing setting impacts (paragraph 8.8.5), which should include both noise and visual impact (including lighting) and effects on viability of appropriate uses. The interaction between setting, landscape/visual and noise assessments needs to be clarified and key viewpoints or noise monitoring locations selected with reference to heritage considerations, and in consultation with heritage experts. Mitigation measures for one impact, such as landscaping or sound barriers, may be harmful to other interests and it is not at all clear how these conflicts will be addressed. The proposed criteria for excluding consideration of the setting of certain undesignated heritage assets (paragraph 8.8.6) is overly restrictive and needs to be revised to scope in all significant effects.

9.6. Hartwell House and park

9.6.1. We disagree that the generic approach outlined will be adequate at Hartwell House and gardens (paragraph 8.6.5) and instead contend that there is a need for a bespoke specialist study of the designed landscape and of alternative construction options, including tunnelling.

9.7. Palaeolithic Archaeology omitted

9.7.1. We note that the overlap of archaeological and geological interest in the Pleistocene deposits along the route has not been recognised and propose that a bespoke specialist study should be commissioned to establish the potential and strategies for mitigation.

9.8. Baseline data

9.8.1. Baseline data sources (paragraph 8.4.4) should also include National Trust records for their properties, geotechnical investigations conducted for HS2 Ltd, regional and local archaeological research frameworks, historic landscape and townscape character reports (not just mapping).

9.9. Local community value

- 9.9.1. Consultation (paragraph 8.6.9) should include establishing the value of heritage to local communities through, for example, the community forums.

9.10. Surveys

- 9.10.1. Information on the strategy, scope and extent of proposed cultural heritage survey and the justification for it is sparse and poorly presented leading to concern that a hurried, mechanistic and unfocussed approach may be adopted. It is essential that a survey strategy and methodology is agreed with English Heritage, local authority archaeologists/conservation officers and others where appropriate (paragraphs 8.6.7 to 8.6.10).
- 9.10.2. Desk-based study and field visits (paragraph 8.5.9) should include consideration of the historic character of undesignated buildings, farms, roads and rights of way etc, and contact with owners to address issues of viability.
- 9.10.3. The quality and potential of existing information to formulate predictive models and frameworks for archaeological assessment and mitigation ought to be recognised and explored.
- 9.10.4. Commitment to expert survey and assessment of historic buildings along the route as both designated and undesignated buildings may be of greater significance than is readily apparent from scant records and external observation – in our view all historic structures should be subject to a staged level of survey sufficient to reach informed judgments as defined in English Heritage’s ‘Understanding Historic Buildings: A guide to good recording practice’. Curtilage structures should be assessed alongside the principal listed building. Local authority conservation officers should be consulted.
- 9.10.5. Concern over the lack of clarity over extent of coverage and short timescale for survey, especially archaeological geophysics (paragraph 8.4.4), and ‘intrusive survey’ (paragraph 8.4.5). It would not be acceptable for most archaeological survey to be left until after the parliamentary hearings as it would not then be possible for parliament or petitioners to take informed positions on actual impacts. We object to the implied exclusion of local authority archaeologists from consultation on intrusive survey (paragraph 8.4.5) as these officers have the best local knowledge and experience of such decision-making.

- 9.10.6. Recognition that reliable assessment of an asset cut through by the route may require survey beyond the HS2 construction corridor; for example where it is necessary to establish if an archaeological site meets scheduling criteria.

9.11. Mitigation

- 9.11.1. There is very little indication of the range of mitigation measures which are being considered for cultural heritage (e.g. paragraph 8.9.5); a significant shortcoming in relation to EU best-practice on EIA Scoping which must be rectified. In recognition that it will not be possible to adequately mitigate all harms to heritage, consideration should also be given to off-site compensation measures. Mitigation by archaeological investigation for a scheme of this scale will inevitably generate a very substantial archaeological archive which will require analysis and publication, museum storage in perpetuity and display for public benefit – all with implications for costs and facilities which should be planned into the project at an early stage. Local authority archaeologists and conservation officers should be consulted over mitigation measures.

9.12. Cumulative effects

- 9.12.1. Paragraph 8.9.17 completely fails to recognise the many significant interrelationships between cultural heritage and other aspects covered by the EIA. For example there are relationships between setting and landscape/visual assessment and noise impacts/mitigation measures; with the community value of heritage assets; with geological interest covered under land quality; or with biodiversity in relation to 'living heritage' such as ancient woodlands or hedgerows. Consideration of such interrelationships is a requirement of EIA.

9.13. Quality

- 9.13.1. The cultural heritage assessment and proposed mitigation must be considered against 'best in class' standards, and not simply aim to achieve standard minimum requirements. Studies need to be undertaken by properly resourced and appropriately accredited experts in their fields complying with industry standards and best practice guides, e.g. Institute for Archaeologists or Institute for Historic Buildings Conservation or English Heritage as appropriate. Contracts should include quality standards and require appropriate and innovative approaches rather than mechanistic 'minimum standard' methods. For archaeological interventions, a research framework should be defined,



agreed and updated throughout the project to ensure best practice. A high quality public dimension should be built into the project, for example with exemplar sites open to public view or participation and use of new technology.



10. Ecology

10.1. General Comments

- 10.1.1. The draft Scoping Report provides a very general outline of the ecological surveys proposed to establish the baseline ecological conditions. More detail should be provided on what surveys will be undertaken, giving an indication of the geographic extent for each proposed survey technique and the survey effort to be employed.
- 10.1.2. A particular area of concern for the Ecology assessment is how and when information will be presented. Sufficient information has to be presented to be able to inform the decision but also needs to be relevant to construction timeframes. Timetables of proposed ecological surveys should be provided to demonstrate how sufficient ecological information will be gathered to enable an accurate assessment of baseline ecological conditions at decision and construction stage. For major infrastructure projects this may require more than one year's data (especially for certain taxonomic groups). Given the relatively short period between the present and the anticipated depositing of the ES (October 2013), this is a concern.
- 10.1.3. There is a lack of commitment as to how mitigation will be carried out, or when offsite compensation works will be required. The draft Scoping Report makes little reference to *'the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse [ecological] effects'*. Such measures should be elaborated upon and should also demonstrate a clear commitment to the enhancement of the environment in line with local and national planning policies (i.e. NPPF 2012 paragraph 109).

10.2. Natural Environment and Rural Communities (NERC) Act

- 10.2.1. Local Authorities have a duty under the NERC Act to protect and enhance ecological value of their areas. It is assumed that this responsibility will be taken on by HS2 Ltd on behalf of Local Authorities and suitable measures will be set out in the Environmental Statement.

10.3. Establishment of Baseline and Definition of Survey

10.3.1. Paragraph 9.2.6 states:

Phase 1 habitat surveys will be carried out. On the basis of the habitats present, and on the basis of professional judgement as to the potential for the presence of protected or otherwise notable species, and where land access is permitted, further detailed specialist surveys will be undertaken.

The assessors need to set out clear procedures for surveying areas that cannot be accessed.

10.4. Consultation on AoS

10.4.1. It is disappointing to see that Local Authorities have been left off the list of those providing concerns through the consultation on the AoS. Local Authorities are duty bound under the Natural Environment and Communities Act to protect and enhance the environment. The comments raised by the Local Authorities should be considered equally important as other designated nature bodies. It is also important that Local Authorities are not disregarded in the establishment of the ecological baseline or the subsequent assessment.

10.5. Assessment of Significance

10.5.1. The information set out in 9.6.4 – 9.6.9 is essentially a repetition of the methodology overview set out in Section 2.5 of the report. There has been no attempt to align the overall methodology with ecological receptors or impacts which makes it difficult for consultees to provide comments.

10.5.2. This report therefore fails to set out a methodology to be used for assessing ecological impacts, which undermines the purpose of this scoping stage.

10.5.3. If there is no further consultation on the scoping stage, then an assessor will approach the assessment without consultees knowing what 'scoring' system will be used. This could result in a highly misleading assessment. Local Authorities must have an input into the final criteria to be used prior to the assessment.

Detailed Comments on Paragraphs

Establishment of baseline and definition of survey

9.2.3	<ul style="list-style-type: none"> The geographical extent of the assessment needs to be refined more clearly, particularly the use of the term 'route'. Areas of significant ecological interest do not necessarily restrict themselves to efficient buffer zones. The baseline evidence collection and assessment need to be able to consider the implications of much wider impacts as required by EIA.
9.2.4	<ul style="list-style-type: none"> The timeframe mentioned in this paragraph is not outlined. The 'timeframe' for the study is highly crucial to the methodology and should be set out in an open and transparent manner.
9.2.6	<ul style="list-style-type: none"> There is no objection to the proposal to conduct Phase 1 Habitat Surveys and use the results of those surveys to inform the need for specialist surveys for various taxonomic groups. There is concern over the time scale required to conduct, evaluate and report the Phase 1 Survey data as this may leave insufficient time to conduct the survey required at the specialist level for some species (i.e. some species may require more than one years study to establish baseline ecological conditions (e.g. Bechstein's Bat). This would potentially lead to poorly informed decision-making and inappropriate or inadequate mitigation and compensation measures being applied.
9.2.7	<ul style="list-style-type: none"> Whilst there is no issue with regard to the scope of the proposed specialist survey areas (e.g. bats, terrestrial invertebrates etc), no detail is given about proposed survey methods, timings and effort to be employed (i.e. the number or proportion of each potential receptor to be surveyed). For each taxonomic group subject to specialist survey, a scope of proposed survey methods and effort should be provided (in line with relevant published best practice guidance) giving the criteria used to determine whether such surveys are required and if so, the number of surveys, the methods to be employed and any other relevant information. Any special requirements for baseline studies regarding geographical extent or timing (e.g. because of seasonal changes in flora and fauna)

	<p>must be provided.</p> <ul style="list-style-type: none"> For each taxonomic group and habitat type, the types of mitigation measures to be considered must be provided. Where Habitats Directive Annex II species are thought to be present, survey effort will be agreed with Natural England. They should also be agreed with relevant local authorities and local interest groups who may already hold information on such species and who may be undertaking their own surveys as part of long-term research projects.
Consultation	
9.3.3	<ul style="list-style-type: none"> The Wildlife Trusts emphasised the importance of looking at the large-scale ecological networks, as promoted within the Government's White Paper on the natural environment (2011). It should clearly be stated in Section 9.6.3 that the assessment will take this document into account and that the Proposed Scheme will help to deliver improved large-scale ecological networks that will be maintained as such in perpetuity.
9.3.4	<ul style="list-style-type: none"> An engagement plan needs to be set out to define the involvement of statutory consultees (including Local Authorities)
Key Aspects of the Scheme for the Topics	
9.4.1	<ul style="list-style-type: none"> Consideration needs to be given to the loss of 'irreplaceable habitats' or 'slow recovering' ecological receptors.
9.4.3	<ul style="list-style-type: none"> It is stated 'there is potential for the Proposed Scheme to have beneficial effects when compared with a 'do nothing' scenario'. This must be interpreted carefully and based on sound baseline ecological data. In addition, the Proposed Scheme must deliver beneficial effects that take into account the significant barrier it will pose to the movement of species and provide newly created habitats along both sides of the route. Such habitat creation should be used to promote the success of large-scale ecological networks and must be secured and managed for that purpose in perpetuity.
Assessment Methodology	
9.6.3	<ul style="list-style-type: none"> It should be stated to what extent the assessment will consider Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network (2010; the 'Lawton Report'). The EIA should commit the

	<p>Proposed Scheme to helping deliver a Natural Environment where ‘Compared to the situation in 2000, biodiversity is enhanced and the diversity, functioning and resilience of ecosystems re-established in a network of spaces for nature that can sustain these levels into the future, even given continuing environmental change and human pressures’ (Lawton 2010)</p>
<p>9.6.10</p>	<ul style="list-style-type: none"> • Potential impacts resulting from construction activities may also include: <ul style="list-style-type: none"> • displacement effects (e.g. from breeding or foraging habitats, or displacement of Otters resulting in increased American Mink and consequent local extinction of Water Vole colonies); • genetic isolation and impoverishment; • habitat degradation (and consequent loss of foraging resources); and • introduction and spread of non-native and invasive species of plant and animal
<p>9.6.12</p>	<ul style="list-style-type: none"> • Potential operational activities that could give rise to ecological effects should be amended to include: displacement effects (from breeding or foraging habitat); <ul style="list-style-type: none"> • genetic isolation and impoverishment; • collision risk (for example on bat, bird and butterfly species); • habitat degradation; and • introduction and spread of non-native and invasive species of plant and animal.



11. Electromagnetic Interference

11.1. General Comments

- 11.1.1. This is not a topic where Local Authorities will normally hold expertise. It is recognised that electromagnetic interference could have significant effects on areas around the new train line.
- 11.1.2. EIA needs scrutiny from independent bodies to ensure it meets the objectives of the Directive. It is also important that the decision makers are presented with a clear understanding of the effects of the development.
- 11.1.3. Therefore, in order to ensure that independent technical scrutiny can be achieved of this topic, and so that decision makers are fully aware of the implications, HS2 Ltd should fund an independently appointed third party to verify the methodology and the findings of any subsequent report.



12. Land Quality

12.1. General Comments

12.1.1. In terms of land quality the general risk based approach appears to broadly cover most of the expected elements. However, HS2 is potentially a much more complex project due to its sheer size, long construction duration and its added potential to introduce new contaminant pathways across a variable geology. It is also difficult to provide feedback on this section solely because significant detail is not provided.

12.2. Establishment of Baseline and Definition of Survey

12.2.1. It is stated that the temporal scope will be limited to the construction period only. However, the migration or transport of contaminants can far outlive this relatively short timeframe if unpredicted pathways are created as a result of the construction activities.

12.2.2. It is therefore suggested that the scope is extended to include the option of longer term monitoring (at sensitive locations) post construction to monitor for any unintended pollution issues. This is particularly important when considering the nature of the geology in the area and impact to groundwater protection zones. Indeed, it is fairly common for Local Authorities to place long term water monitoring conditions on sites that are contaminated, for example in Buckinghamshire monitoring has been in some cases required for up to 10 years from initial site works. Comments such as, "Once remediated, there should be no residual effects with respect to land contamination issues" require a method to identify and help ensure that this really is the case.

12.2.3. 250 metres is being suggested as a suitable buffer distance. In most cases this would indeed be adequate, however it is recommended that this distance is presented as a guide rather than a rule. Potential 'major problem sites' could be dealt with on a case by case basis so that if evidence suggests a wider impact this can then be addressed.

12.2.4. The presence and need for consideration of naturally occurring Radon in many of the Districts along the proposed route appears to be absent from both this and the air quality sections and therefore should be addressed.



12.2.5. In addition, construction of this line presents a considerable geological research opportunity and a strategy for recording informative exposures during construction should be put in place. For areas which lack recent exposures, as is the case for much of the proposed route, existing Geological maps are often inadequate. In central Buckinghamshire, for example, the Uppermost Jurassic and its boundary with the Lower Cretaceous are poorly known and of particular interest on the western flank of Aylesbury. The junction of the Purbeck with the Portlandian is also a highly important research area. Exposures in the Upper Greensand are almost unheard of, particularly the downward passage into Gault Clay.

12.3. Assessment of Significance

12.3.1. The criteria for assessing receptor sensitivity are very basic, with for example phrases such as, “Nearby water bodies of moderate quality”. This of course will lead to interpretation as moderate quality is not clearly defined or elaborated upon.

12.3.2. Although it is proposed that workers will not be included on the list of receptors, it is of course essential that they are aware of the site specific risks and site specific contaminants in addition to the more general health & safety policies as appears to be described.

12.3.3. The broad approach to the assessment of significance appears in principle to be suitable. However, it should be stressed that it needs to be informed by the baseline assessment and set out in detail in the published Scoping Report. For example the following are considered to be **moderate value** receptors:

Nearby water bodies of moderate quality, and/or route of Secondary Aquifer.

12.3.4. The detailed baseline assessment needs to inform the methodology. For example, it needs to define which water bodies are considered to be ‘moderate’ quality and why. It also needs to consider the wider water environment outside the scope of the study. For example, the flow for a secondary aquifer into a principal aquifer could be highly contiguous which could make it a more sensitively defined receptor.



12.4. Lack of Interaction with other Topics

12.4.1. The matter of waste contaminated materials is referred to as being dealt with in section 16. However, on inspection of section 16 it states:

Waste will also arise from the interaction with operational and closed landfill sites, removal of fly tipped waste and management of contaminated land where present along the route corridor, which will be addressed as part of the land quality assessment.

12.4.2. It is not clear that there has been much coordination between the issues or that there is a clear understanding of where issues will be covered. This needs to be rectified within the published Scoping Report.

12.4.3. The confusion is also highlighted in Paragraph 11.7.3 which states:

Land contamination has the potential to affect groundwater resources. Wider issues of groundwater and surface water resources are contained within Section 17 of this report

12.4.4. The consideration of groundwater as one of the main contaminated land receptors is essential and should be detailed in this section in relation to contaminated sites. Despite the paragraph above, it appears that the link between land contamination and risks to water bodies is not fully evaluated.

12.5. Impact on existing Waste Facilities

12.5.1. The impact of disposing of contaminated materials could be significant. Existing facilities will have a set framework for managing waste for Local Authorities and other bodies. HS2 Ltd must assess the subsequent impacts of intervening in this framework, particularly if it means existing waste streams are altered.

12.5.2. For each District, the contractor should identify which Licensed Waste company / companies will be used for unforeseen hazardous waste that is identified and in need of immediate attention. The destination of such waste should also be identified, and a mechanism for immediate reporting to the Local Authority in question should be put into place.



12.6. Engagement

12.6.1. The Scope and Methodology Report should have clarified the extent and frequency with which Local Authority officers (amongst others) in relation to land quality will be consulted to ensure continuous input into the decision-making process. This should obviously include dialogue relating to how this scoping document will inform the next stage and how HS2 will undertake shared responsive dialogue during the EIA development. It is imperative that this process is agreed as soon as possible.

Detailed Comments on Paragraphs	
Introduction	
11.1.1	<ul style="list-style-type: none"> • 'Where the route crosses or lies close to existing sources of contamination, these activities could result in the disturbance of the contamination, which needs to be assessed so that it can be mitigated'. No guidance is provided as what 'close to' actually means. The Main focus of this chapter is on the introduction of new pathways between existing contamination sources and sensitive receptors. Much greater focus needs to be on the potential for the scheme to generate new risks of contamination.
Establishment of baseline and definition of survey	
11.2.2	<ul style="list-style-type: none"> • 'Immediate area' requires explanation. This should also include locations of ground water resources. The categories also appear to exclude potential radioactive contaminated sites.
Consultation	
11.2.5	<ul style="list-style-type: none"> • 250 metres is being suggested as an area for extending surveys beyond the 'route'. The actual extent of surveys will be influenced by the type and location of contamination as well as geological conditions.
Key Aspects of the Scheme for the Topics	
11.3.1	<ul style="list-style-type: none"> • Once HS2 Ltd has prepared enough information to understand what and where the development will be sited, they should contact Local Authority contaminated land officers to discuss areas of contamination.

Assessment Methodology**11.5.3**

- “The temporal scope will therefore be limited to the construction period”. It would be prudent to include post construction monitoring as the effects on groundwater may not be immediate.



13. Landscape, Townscape and Visual Assessment

13.1. General Comments

13.1.1. The broad approach to the landscape assessment is considered to be adequate. However, it must be noted that the assessment will be dependent on how the baseline will be defined, the level of sensitivity attributed to receptors and the location of viewpoints.

13.2. Proposed Method of Assessment

13.2.1. The method takes into account the Guidelines for Landscape and Visual Impact Assessment (GLVIA) Landscape Institute and the Institute for Environmental Management and Assessment (Currently 2nd Edition, 2002)58; and Design Manual for Roads and Bridges (DMRB), Volume 11 Section 3 Part 5 'Landscape Effects' (1993). These are the relevant guidance documents.

13.2.2. The definition of landscape encompassing rural landscape and townscape is appropriate.

13.3. Establishment of Baseline and Definition of Survey

13.3.1. The baseline landscape views must consider winter and summertime coverage of vegetation.

13.3.2. The scoping stage should set out the proposed methodology for preparing the Zone of Theoretical Visibility (ZTV) and proposed series of mapping. Baseline data should include woodland cover as topography as a minimum. It would be useful for 51m to review the parameters for this ZTV, recognising that the route has many different elements including embankments, fill, earth bunding, viaducts, land bridges, overhead gantries etc. and the ZTV will need to take these into account appropriately and not 'at grade'.

13.3.3. All visual receptors must be identified, not just key viewpoints. These may be grouped but must be comprehensive taking into the range of elements that make up landscape, such as ecology and cultural heritage.

13.3.4. Paragraph 12.2.7 states that the baseline will be based on information available at the time of producing the ES, including existing landscape and townscape



character assessments, but it does not state which landscape character assessments (LCA) will be used. It refers to information set out in the Appraisal of Sustainability (AoS), February 2011, Main Report. The AOS report, however, does not specifically refer to county or district landscape character assessments or the associated HS2, landscape sensitivity study carried out by local authorities. The AoS methodology for landscape townscape makes reference to the national and, where available, regional landscape character context. It will be important to define the landscape and townscape baseline for the EIA more precisely and in closer consultation with Local Authorities. It will also need to use detailed LCAs available for Local Authorities.

- 13.3.5. The method notes (para.12.2.8) that the landscape and townscape baseline elements will be used to prepare a character area assessment covering the full extent of the study areas. From this, we understand that a new baseline LCA will be prepared for the purpose of this study. 51m will wish to know the scale of this assessment and how the existing LCAs baseline will be incorporated.
- 13.3.6. The definition of the meaning of the word 'tranquillity' must be agreed and how it is to be measured under each factor listed in paragraph 12.2.11.
- 13.3.7. The AONB status has international recognition as a Category V Protected Landscape by the International Union for the Conservation of Nature. The international importance of protected landscapes must be included in the EIA.

13.4. Defining Sensitivity

- 13.4.1. Definitions of sensitivity (as set out in Table 14) are very generic and do not consider sensitivity to a specific development of this type. It should be tailored to relate to the particular development proposed by HS2. Methodologies for landscape character assessments should be able to provide assistance in understanding sensitivity.
- 13.4.2. It should also be agreed prior to the assessment taking place what each receptor will be classed as. For example, officers in Buckinghamshire and Hillingdon may attribute a different level of sensitivity to the Colne Valley than the assessor.
- 13.4.3. With reference to the 'high' category in Table 14 it is unlikely that any character area will be predominantly characterised by rare elements, or listed elements,



or that the whole character area will be designated as a conservation area, registered park or garden or public open space (ref. 2nd and 3rd points). It is also important to note that some locally designated or non-designated landscapes may have a high sensitivity to a proposed development (depending on the type of development and the characteristics of the receiving landscape) – this should be allowed for in the method. Using this methodology in relation to sensitivity may lead to an underestimation of sensitivity and impacts.

- 13.4.4. Table 15 is overly simple and does not fully reflect the Landscape Institute guidelines and should be changed accordingly. The categories should reflect other receptors in the landscape that have setting issues.

13.5. Viewpoint selection

- 13.5.1. The viewpoint selection process includes provision for agreeing viewpoints with local planning authorities and ‘other relevant stakeholders’. 51m would want to have involvement in this aspect and will advise on appropriate views.

In some locations, to be agreed with statutory consultees, the assessment of visual effects would be supported by the production of verifiable photomontages.

- 13.5.2. The purpose of the scoping stage is to establish such factors as viewpoints, which should be informed by baseline studies. Instead this scoping stage effectively states that the scope of the visual impact assessment will be agreed later. It does not set out when this would be, or how this is integrated into the timeline for the assessment.
- 13.5.3. The viewpoint selection should be agreed before the final Scoping Report is published.

13.6. Impact assessment methodology: Landscape

- 13.6.1. Table 16 sets out definitions of magnitude of change to landscape/ townscape. This refers to the ‘setting’ of a character area, but does not seem to include changes within a character area. This needs to be clarified. Changes within a character area should be referred to and treated equally as changes to the setting.



13.7. Impact assessment methodology: Visual

13.7.1. Table 18 and Table 19 set out the broad criteria that influence the level of significance of visual effects. These seem appropriate, but it must be stressed that these will largely be based on officer opinion. It is therefore essential that Local Authorities are involved in the designation of sensitivity to each receptor as set out in Tables 13 and 14.

13.8. Interlinked Impacts and Effects

13.8.1. The impacts on the landscape will need to be considered in cumulation with many of the other chapters. In particular, noise impacts throughout the rural areas will reduce the amenity and value of the landscape. These aural impacts will reduce the enjoyment of particularly sensitive landscapes and needs consideration.

13.9. Assessment of Significance

13.9.1. The process for determining the significance of effects is set out in paragraph 12.6.11. This states that significance requires the application of professional judgement to weigh the sensitivity of the receptor with the magnitude of an impact. Effects may be beneficial or adverse. The broad criteria are set out in Table 19. These broad criteria seem to be appropriate. However, it would be useful to have more clarity to show how professional judgement is used to weigh sensitivity with magnitude.

13.9.2. Importantly, it will be necessary to understand the role of Local Authorities have in the assessment process. It is likely that Decision makers will rely largely on the assessor professional judgement. If this assessment differs substantially from Local Authorities' interpretation then there needs to be a clear process for negotiation, this is particularly pertinent to the 'triggers' for which mitigation is required.

13.10. Presentation of Findings

13.10.1. Accurately presenting the impacts of HS2 on the landscape will be a fundamental part of the assessment. HS2 Ltd should commit to using high quality software packages and computer generated imagery that allow consultees to clearly see the impacts of the scheme.

14. Sound and Vibration

14.1. General Comments

- 14.1.1. The methodology for the assessment of this topic area contains a number of gaps and does not appear to be properly aligned to the scheme being presented. Elements of the methodology appear to be taken directly from that used for the Crossrail project. This approach allows limited additional work to be undertaken for the HS2 scheme but assumes that the project and likely environmental impacts will be similar. Crossrail connects east London with the metropolitan areas of west London and will use conventional trains. HS2 is unique to the UK, and will impact on central areas of London (similar to Crossrail) but will then emerge in rural west London before passing through areas previously untouched by large scale infrastructure. This unique scheme calls for a unique EIA methodology.
- 14.1.2. In addition, the draft Scoping Report lacks background information about the project to understand the likely extent of impacts. This makes it difficult for consultees to help refine the type and sensitivity of the receptors exposed to the impacts. For example there are no noise contour maps, yet the methodology does try and refine the scope of the assessment.
- 14.1.3. Local residents will be the ones who suffer from adverse noise impacts from HS2. Provisions dealing with adverse noise impacts from operational train movements are problematic and often inadequate. The onus would be on residents to adequately make a case that there are unreasonable noise impacts for a rail operator to make operational changes. There is a lot of responsibility on this environmental assessment to fully consider the future noise impacts, and to ensure that mitigation will reduce noise levels to acceptable parameters. It is therefore highly important that the approach to the noise methodology is agreed with Local Authorities prior to the assessment taking place to ensure that residents are fairly considered. This will require HS2 Ltd to share much more information than they currently have.
- 14.1.4. The draft Scoping Report refers to ground-borne sound and vibration in some detail although they were not comprehensively covered in the AoS. This was pointed out by Southdowns in the Bucks County Council/51M (the Southdowns Report) response to the AoS:

Of particular concern is the risk of adverse effects to residential and other noise sensitive receptors within 200m of the proposed tunnel alignment under the Chilterns through chalk for the base engineered case with slab track

14.1.5. The Southdowns Report also contains the following observation:

There is limited data available for the mitigation of vibration from high speed trains travelling in tunnels and the benefits of ballast track with under ballast mats or floating slab may not be sufficient to remove adverse effects, albeit undefined.

14.1.6. Ground-borne noise and vibration are caused by energy from the movement of trains being transmitted through the ground and into buildings. This effect is not easy to predict. The commonest form of mitigation is careful design of the track to minimise energy transmission. Local Authorities need to be convinced that any mitigation is fit for purpose. There is minimal reference to noise mitigation in the draft Scoping Report. This report should at the very least set out thresholds at which improved mitigation will be required.

14.2. Baseline

14.2.1. It is important to establish the baseline noise levels on which the assessment of change will take place. HS2 Ltd should set out in detail the proposed methods for collecting baseline information, including where, when and how surveys will be carried out. This draft Scoping Report does not do this; instead it refers to the broad methods that will be undertaken. This provides very little for consultees to provide comments and advice on. Agreement with Local Authorities should be reached prior to assessments and surveys being carried out

14.3. Scope of Assessment – Ground-borne Noise

14.3.1. Paragraph 13.2.16 sets out the spatial scope of assessing ground-borne sound and vibration impacts. It suggests that the scope should be limited to 85m from the centre line of the track or nearest construction activity. This is a fairly constrained area. There are many unpredictable variables to ascertain to determine the extent of impacts such as geological formations. The use of an 85m limit (170m radial buffer) does not allow for much margin for error for measuring unpredictable variables. A precautionary approach should be

adopted and the scope of the assessment should therefore be extended from 85m to 175m from the centre line of the track. This area should be open to further extension in areas where impacts could be more extensive and influenced by assessments from other chapters.

- 14.3.2. It is always beneficial to seek out case studies to refine approaches to assessments for relevant projects. However, the applicability of these case studies needs to be considered carefully. It may be easy for the assessors to use the US Federal Railway Administration guidance as stated in paragraph 13.2.16, as it means they would not have to create their own; however, this guidance was adapted to trains travelling approximately 240kph as opposed to the 400kph trains used for HS2. HS2 Ltd should be considering more tailored approaches to the methodology and not to rely on case studies which have very little similarity to that being proposed.

14.4. Scope of Assessment – Airborne Noise

- 14.4.1. In paragraph 13.3.15 of the draft Scoping Report, the spatial scope for direct effects of airborne operational noise is confined to:

(i) the areas 500m and 1km from the centreline of the line of the route or the area (urban and rural respectively)

(ii) within which operational noise is forecast to exceed 50 dB LpAeq,16hr during the day or 40 dB LpAeq,8hr during the night.

- 14.4.2. This paragraph should be modified to specify that the greater area determined using (i) or (ii) defines the spatial scope.
- 14.4.3. The World Health Organisation (WHO) guideline values for annoyance have been set at 50 to 55dB. These represent the daytime noise levels below which majority of the adult population will be protected from becoming moderately (50dB) to seriously (55dB) annoyed. These guideline values do not suggest there will be no annoyance below 50dB during the day. Furthermore, it is believed that the annoyance guideline values in the WHO document relate to steady and continuous noise, and would underestimate annoyance from intermittent event noise characterising railway noise. Therefore it is not agreed that the WHO document “Guidelines for Community Noise” is an appropriate standard to use when setting the spatial scope.

14.4.4. It is suggested that the noise levels included in the determination of the spatial scope for direct effects of airborne operational noise should be 45dB LAeq by day and 35dB LAeq by night. Although it should be acknowledged that in some areas these may need to be lowered. For example, HS2 will pass on a viaduct through the Colne Valley in west London. The effect of raising the noise source in a valley has the potential to generate noise impacts far beyond that currently experienced in the area. Similarly, areas through the Chilterns Area of Outstanding Natural Beauty may also be sensitive to noise changes far below the levels being set out in the draft Scoping Report.

14.4.5. Paragraph 13.3.16 of the report states:

Spatial scope for indirect effects - a qualitative assessment will be made where the increase or decrease in road or rail traffic volumes or traffic types caused by HS2 would be likely to cause a change in the baseline sound level (LpAeq,T) exceeding 3 dB during either the day (07:00 to 23:00) or night time periods (23:00 to 07:00).

14.4.6. It is accepted that a 3dB increase in noise levels will be noticed by the majority of the population exposed to it. However, it is now accepted in transport noise assessments that a 1dB noise increase will still be noticed and considered an adverse impact by a large proportion of the population exposed to it. It is no longer acceptable to make the assumption that a 3dB increase marks the limit of significant noise change. The Noise Insulation Regulations have adopted a '1dB change' as an intrinsic part of the qualification for treatment of a property. **It is therefore important that the 3dB referred to in paragraph 13.3.16 is changed to 1dB.**

14.5. Magnitude of Impacts – Ground-borne Noise

14.5.1. Table 20 provides the criteria for defining ground-borne noise impacts. This suggests that residents who experience a 40-44dB sound level in the centre of a dwelling room would only be experiencing a 'moderate' impact. This is wholly inadequate, particularly for a flagship transport scheme. HS2's tunnels will go through suburban London where there are currently no underground lines, and through into rural countryside. Using the same criteria for Crossrail in central London to assess the impacts of HS2 in rural Chalfont St Giles in Buckinghamshire is fundamentally wrong.

- 14.5.2. In addition, it is noted that the impact criteria of Table 20 use the metric of maximum sound pressure level (LpAS,max). This measurement takes no account of duration neither of the impact nor of time of day. In isolation, it will not adequately characterise the noise impacts of HS2.
- 14.5.3. Ground borne vibration induced noise in a dwelling is a very distressing effect and can be influenced by the shape and construction of the affected area. It is generated by the walls of the room vibrating in response to the vibration travelling through the ground. Retrospective mitigation in households is very difficult and needs measures such as floating the dwelling on an independent foundation slab. It is therefore highly important that such effects are rigorously explored. It is therefore suggested that HS2 Ltd aim to construct the new railway line so that ground-borne noise is **largely inaudible** in residential receptors.
- 14.5.4. Table 20 should be refined to demonstrate that any measured level over 25dB LpAS,max is considered to be a 'significant effect' to residential receptors. In this 'equation', all residential receptors are considered to be the highest level of sensitivity and the magnitude of impact needs to be set against a new set of criteria in table 20. Regardless of how a 25dB+ increase is defined (moderate, high or very high), the resultant effect on the residential receptors (highly sensitive) will be considered significant. It is then anticipated that a significant effect will prompt a requirement for further mitigation within the track design.

14.6. Magnitude of Impacts – Airborne Noise

- 14.6.1. Paragraph 13.3.24 of the report provides the criteria for identifying operational sound impacts. These are defined as:

The Proposed Scheme causes a change in the equivalent continuous sound level between 07:00 and 23:00 hrs (LpAeq,16hr) of 3 dB or greater; or

The Proposed Scheme causes a change in the equivalent continuous sound level between 23:00 and 07:00 (LpAeq,8hr) of 3 dB or greater; or

The maximum sound level (LpAF,max) from an HS2 train pass-by is 85 dB or greater at the façade of the receptor.

- 14.6.2. We welcome the consideration of maximum sound level (LpAF,max) from a HS2 train pass-by. However, we consider that the criterion of 85dB is too high.



The World Health Organisation guidelines document recommends consideration of 60dB LpAF,max, although HS2 Ltd should be aiming to achieve higher standards. In addition, the magnitude of impact should also be based on existing baseline positions. This allows the changing landscape along the route to be considered, e.g. urban, suburban and open countryside areas.

- 14.6.3. Table 25 gives impact criteria for airborne sound from operational train movements. The table includes impact classifications of “negligible” for noise increases in LpAeq,16hr and LpAeq,8hr of 0 dB to 1 dB, and “small” for increases of 1 dB to 3 dB. It is also apparent from paragraphs 13.3.24 and 13.3.25 that only noise increases of 3 dB or more will be considered further; in other words, increases less than 3 dB will be regarded as insignificant.
- 14.6.4. 51M considers this criterion is not appropriate to be able to present decision makers with an accurate assessment of the effects of HS2. The levels used are set much higher than the level where reaction to noise will be substantial. The reliance on a 3 dB change as an indicator of significant effect cannot now be justified. Thus to use this parameter to identify when an impact is likely to be in place is wrong. Changes of just less than 3dB will mean that any impact will remain unidentified whatever its noise level.
- 14.6.5. Noise indices such as LpAeq,16hr and LpAeq,8hr use a single number to measure fluctuating sound level over a period of time, a lot of detailed information on the way the sound level fluctuates during that period is lost. Consequently, changes in a noise index of much less than 3 dB can be perceptible depending on the cause of the change, e.g. changes in numbers of passing trains or other changes in the time pattern of the noise.
- 14.6.6. In addition, the justification of 85 dB LAmax as a parameter is not sensible. 85 dB indicates a noise level within a dwelling of around 70dB with windows open. Levels within dwellings will depend upon the activity taking place but activities such as reading and listening to music would indicate levels of around 35 dB LAeq. For sleep, levels of 30 dB LAeq are more appropriate. An internal noise level of 45 dB LAmax has been shown to initiate sleep disturbance; this corresponds to an external level of around 60 dB Lmax with windows open. Exposures within this environment of 85 dB LAmax external would be severely detrimental. It would be intrusive and disruptive. It is not sensible to use this level as a sieve to what define what is a noise impact. It is suggested that the



values to be included in the EIA for this identification purpose should be a change of **+1dB in daytime or night time** noise exposure or an exposure of **greater than 60 dB LA_{max} as a façade noise level**.

- 14.6.7. The impact criteria of Table 25 used to quantify impacts are solely based on changes in LA_{eq} sound levels. It is believed that the impact criteria used to assess airborne sound from operational train movements should include a consideration of maximum sound levels from an HS2 train pass-by. As explained above, it is not accepted that a maximum sound level of 85 dB is appropriate for this purpose.
- 14.6.8. The noise indices L_{pAeq,16hr} and L_{pAeq,8hr} average noise levels over long time periods, and can hide larger impacts. For example, high noise levels during morning and evening peak hours could be hidden when averaged with lower noise levels at other times of the day. **It is therefore necessary to consider hourly noise levels so as to enable the hours with the greatest environmental impact to be identified.**
- 14.6.9. Paragraph 13.3.25 sets out how a change in continuous sound level will be considered. It states that further consideration of noise impacts will only take place if the absolute sound levels from the proposed scheme are above 50 dB LA_{eq} by day and 40 dB LA_{eq} by night. It has been explained above that 50 dB LA_{eq} by day is not appropriate for defining the spatial scope for direct effects of airborne operational sound. In addition, the methodology put forward in the report will remove any consideration of noise being an effect where the ambient background levels are low. For example, in an area of 45 dB daytime ambient LA_{eq} an imposition of a noise of 49 dB will certainly be noticeable and have an adverse effect but would not be considered in this assessment as it would fail to meet the threshold of 50 dB. The impact of HS2 on quiet areas would effectively be ignored.
- 14.6.10. As stated above (14.4.4) it is suggested that the criteria in 13.3.25 are not appropriate to adequately understand the effects of HS2. The noise levels in this paragraph should be reduced from 50 to 45dB LA_{eq} by day and from 40 to 35 dB LA_{eq} by night. Although as discussed previously, these levels will need to be commensurate with the baseline conditions of locations. For example, urbanised areas in London and Birmingham should not be considered in the same way as the rural areas between these cities. In addition, HS2 Ltd should



not consider rural areas have capacity for noise increases because they are currently relatively 'quiet'.

- 14.6.11. It is not considered sensible that the same impact criteria should be used for urban areas already exposed to significant noise levels and for quiet rural areas.
- 14.6.12. It is also suggested that the likely effects of operational noise should be assessed using absolute noise criteria for daytime and night-time.
- 14.6.13. The technical justification for the semantic scale for operational airborne noise given in Table 25 is challenged. There is no technical justification or quoted references for the content of the table.
- 14.6.14. The qualifying criteria set out in paragraph 13.3.24 and 13.3.25 and semantic scale in Table 25 will not result in an accurate representation of the noise impacts of the scheme. The whole approach needs much greater consideration and closer engagement with Local Authorities, which should also include the provision of more detailed information from HS2 Ltd. It is unacceptable for HS2 Ltd to solely accept the level of noise exposure along the route on behalf of those who enjoy the countryside or live by the route. The levels that HS2 Ltd appears to consider acceptable are far too high. These levels are likely to result in detrimental noise impacts being un-assessed and ultimately being experienced by local residents. HS2 Ltd must take responsibility for much higher standards for this rail scheme and develop sensible approaches to the noise assessment which acknowledges the uniqueness of the project and the role of Local Authority.

14.7. Presentation of Assessment

- 14.7.1. The noise assessment is likely to be highly technical. However, IEMA guidelines suggest that EIA should be accessible to any reader. The results of the noise assessment need to be presented in the environmental statement in a clear manner that allows a non-expert reader to understand the impacts.
- 14.7.2. The noise effects should be clearly set out in graphical form which clearly shows the existing noise levels and extent of increases.



- 14.7.3. Results should also be explained in peaks as well as averages. If the number of trains increases during peak times, then the results should not be averaged out during the day to produce a disingenuous set of results.

14.8. Assessment Methodology – Legislation and Guidance

- 14.8.1. Paragraph 13.3.17 sets out the legislation and guidance relevant to the noise methodology. The list should not be considered exhaustive. The Environmental Noise Directive (END) should also form part of this list. This is especially important because it proposes that events that occur during the evening and night receive a weighting to take account of the increased sensitivity of respondents to exposure at these times. HS2 Ltd should provide noise contour maps in accordance with the END and clearly link the noise assessment to this directive.

- 14.8.2. Paragraph 13.3.19 sets out an approach to the noise assessment similar to that undertaken for HS1. It is important to provide details of the 'inputs' that were used in establishing the results. For example, information wind speeds and direction should be provided, as well as how they were considered in the modelling work.

14.9. Assumptions

- 14.9.1. Paragraph 13.3.36 sets out a very brief list of the assumptions to be used for airborne sound assessment. This list is woefully short. This project is of a national scale and will take a number of years to come to fruition. Over that time expectations of what is environmentally acceptable will change. Standards will rise. In accord with any planning process and certainly within the Planning profession any future estimates and assumptions must always take a worst case view.

14.10. Assessment of Significance

- 14.10.1. The purpose of scoping is to provide assessors with the opportunity to agree the approach to assessing significance. This draft Scoping Report does not include criteria that allows how the 'impacts' on 'receptors' will be measured in terms of significance. This is necessary to establish the trigger levels for further mitigation.

Detailed Comments on Paragraphs	
13.2.6	<ul style="list-style-type: none"> • Absolute criteria to be used for ground-borne vibration. This is sensible except the report says there will be a ground-borne baseline survey for receptors close to rail sources. No definition of “close to rail sources” or what a “focused survey” means. The two definitions are closely linked. More detail is required prior to the assessment to ensure consultees understand the methodology.
13.2.22	<ul style="list-style-type: none"> • The sources for table 20 and 21 need to be clearly defined.
13.3.28	<ul style="list-style-type: none"> • The assessors need to clearly define the difference between an “Operational Static Source” and a “Static Source”. BS4142 should be used instead. • We do not accept that impacts are ‘negligible’ and ‘minor’ at the rating level difference specified in table 25. The aim should be to achieve a positive indication that noise complaints are unlikely.

15. Socio-Economics

15.1. General Comments

- 15.1.1. The methodology presented in this chapter is exceptionally vague. It lacks a clear relationship to the proposed scheme. It fails to fulfil the purpose of scoping by not providing any information on the sources of information or how or what information will be used. This lack of detail makes it very difficult to provide any meaningful comments.
- 15.1.2. The relationship between this chapter and the communities' chapter is unclear. Paragraph 14.1.2 suggests that this chapter will feed into the communities' chapter. Both chapters appear to be considering the same issues.
- 15.1.3. The vagueness of this chapter makes it difficult to understand the relationship between the two chapters and therefore providing comments on it is very difficult.

15.2. Establishment of Baseline

- 15.2.1. Section 14.2 of this chapter sets out a very vague overview of the information to be collected. However, it fails to provide any details about where the information will be sourced. For example paragraph 14.2.4 states:

Key data providers are likely to include local authorities, dedicated subregional bodies and specialist research organisations.

- 15.2.2. The purpose of the scoping stage is to clearly define the methods to be used to make the assessment. It should define sources of data and methods for collection. This report fails to set out all the 'key' data providers, or what sources will be used. There must be a consistent approach to establishing the socio-economic baseline and therefore it would have been much more useful to have provided some information on the detailed methodology.
- 15.2.3. It is particularly important to establish the baseline in consultation with Local Authorities because it is much of their information that will be sourced.
- 15.2.4. The list of factors outlined in paragraph 14.2.5 would seem broadly sensible to understand the baseline socio-economic position; however, it fails to set out



what information will be used to measure the variables in list. For example, how will HS2 Ltd measure Labour Supply?

- 15.2.5. It is likely that the assessor will complete the assessment, submit it for consultation, and then consultees will be highly critical of the source of data because they would not have been involved in defining it prior to the assessment.
- 15.2.6. The socio-economic assessment will rely heavily on officer opinion. This subjectivity can be reduced if all parties agree on the detailed methods for establishing the baseline, i.e. the specific data to be used.
- 15.2.7. The information in this chapter is wholly inadequate and far from sufficient for consultees to comment on.

15.3. Key Aspects of the Scheme

- 15.3.1. Section 14.4 is also very vague and does not clearly define what will be considered in the assessment. The terminology is very vague which makes it difficult to understand what areas the assessor will consider for example paragraph 14.4.1 includes reference to:

The economic and land use effects of changes in accessibility;

- 15.3.2. It is not immediately obvious whether the assessor will consider the impacts on tourism particularly throughout the Chilterns. A much more detailed methodology needs to be produced.
- 15.3.3. It is difficult for 51M to comment on the wider implications of the study as insufficient information has been produced. For example, there has been no information on station location or construction and no information on the likely impacts on the West Coast Mainline have been produced. This makes it impossible to comment on the key aspects or scope of study, particularly in those areas that might be exposed to changes in operation from the West Coast Mainline.

15.4. Scope of Assessment

- 15.4.1. It is not possible to comment on the scope of assessment as insufficient details are provided and the language used in Table 27 is very ambiguous. For example, 'wider catalytic effects' will fall within the scope of the assessment. It



is not clear what the assessor will be using to determine what 'wider catalytic effects' are.

15.5. Assessment of Significance

- 15.5.1. The assessment of significance uses a variety of ambiguous language which puts a great deal of weight on officer opinion. Using the criteria in tables 28 and 29 the assessor will have to determine the sensitivity of the receptor and magnitude of impact by providing a judgement on a lot of variables. This will effectively render the assessment immaterial.
- 15.5.2. A much clearer methodology needs to be developed and linked to the existing baseline position. The assessor and consultees must be in agreement about what receptors will be assessed, and the sensitivity attributed to each one.

16. Traffic and Transport

16.1. General Comments

- 16.1.1. This chapter is hampered by the lack of detail on the proposed operational scheme and no information at all on the construction aspects of the scheme. Proper consideration of the impacts of the HS2 proposals on the highway network is not possible and significant concern remains regarding the impacts of operation and construction. As a scoping exercise it is premature and wholly inadequate and does not allow consultees to answer the consultation questions. For example, spoil removal from tunnels could generate significant amounts of road related traffic if it is to be removed by road; if the intention is to remove soil by rail, then impacts on existing networks are increased. This consultation is not being undertaken in an open and transparent manner.
- 16.1.2. Of all the topic areas, the traffic and transport section requires a clear understanding of what the project is. The EIA will not just assess a railway line between London and Birmingham, it will consider a much wider construction project, and change in transportation methods for thousands of people. Yet all that is presented is a simple red line on a plan at an inappropriate scale delineating the broad route of a railway. This is wholly inadequate.
- 16.1.3. There is insufficient detail regarding any of the project's impact on transportation. It is inappropriate to ask consultees to provide input into the scope of the study without giving any information on the project they are being asked to comment on.
- 16.1.4. There is also insufficient information regarding the transport models proposed in terms of the platform used and the spatial scope of the models. It is expected that there would be separate models for the urban areas of London and Birmingham. Transport modelling will need to be reviewed over the construction phase of the project, since the recommended lifetime of a model is around five years. Assumptions on background traffic growth and origin-destination data will change over that period and there will be a need for updated traffic counts. None of this information is presented. It therefore undermines the point of scoping which is to establish agreement about the methodologies.

- 16.1.5. Assessment of traffic impact in the rural areas is of greatest concern for the construction phase, but there is no information on the routes and points of access for construction traffic and whether there will be the need for new or upgraded highways to accommodate this; the location of haul roads and construction compounds; number of construction workers and times of operation; the number of heavy vehicle movements and over what timescale.
- 16.1.6. Loss of amenity on pedestrian routes and rights of way is not assessed; nor are the social and distributional impacts of severance. The rights of way network is an important part of the sustainable transport network that links communities together. It is used for non-vehicular journeys to school, work, shops and other local amenities and is a vital resource for the public seeking peaceful fresh air and exercise in the countryside. It is also a considerable economic asset, an important part of the highway infrastructure and a key element within the tourism sector. Maintaining a fully integrated network is essential to protect opportunities for non-vehicular access to services and between communities. The many trails are promoted by County Councils and other organizations would be greatly affected, including the tranquillity of the Ridgeway National Trail. The bridleway network in the county is also used by a high number of horse riders. Local councils and communities continually strive to improve connectivity and accessibility, including for the less able. Transportation matters should not solely relate to rail and road impacts. These community and equalities issues are of importance when assessing the impacts of HS2 on the network.
- 16.1.7. One of the 'selling points' of HS2 is the 'positive' impact it will have on reducing domestic aviation. It will also have an impact on existing classic line networks. These changes in transportation patterns and the subsequent effects need to be fully considered in the transport assessment. This will be a highly complicated chapter, with many interlinked effects. The information presented in this draft Scoping Report does not provide confidence that the assessment team understands the wider implications of HS2.

16.2. Baseline

- 16.2.1. There is not enough detail in the report to provide an informed opinion on the soundness of the baseline, which is described in two very generalised and brief paragraphs. This requires a more detailed description of the proposed scheme; the details of the construction phase noted above; the scope of the transport



baseline model(s); the assumptions used in the baseline model(s); and the number, scope and timing of data collection used to inform the model. Similar concerns also apply to the forecast model(s) (or future baselines).

16.3. Scope of Assessment

- 16.3.1. The spatial scope of the assessment (temporary and permanent) is not sufficiently closely defined and a map or plan would be expected showing the extent of the transport networks under consideration.
- 16.3.2. As stated above, the temporal scope of the construction period is so long that one would expect transport models to be revised and the various forecast assessments to be re-run during the period 2017-26. Indeed, transport modelling undertaken now (2012) would need to be repeated at or before 2017.

16.4. Assessment of Significance

- 16.4.1. This section fails to properly define how assessment of significance will be assessed. There is no relationship between this chapter and section 2.5 in the main body of the report. This results in a highly ambiguous and poorly presented methodology. Baseline studies will need to be completed and all the receptors relevant to the project need to be defined. The published Scoping Report will need to assign a level of sensitivity to each receptor giving consideration to their importance and capacity for change and their influence on local and regional networks. The methodology must therefore be tailored to the specific impacts of the project. This methodology must be agreed prior to the start of the assessment.
- 16.4.2. Assessment of vulnerable road user delay and loss of amenity takes verbatim the assessments from WebTAG 3.5.5. However, the guidance caveats the the thresholds used (200; 1000; >1000) to indicate that they should be determined on a case-by-case basis. The thresholds set out here therefore are speculative and should be justified by reference to the changing contexts of the line / construction programme (i.e. urban / rural; farmland / AONB).
- 16.4.3. Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3, Part 8, Chapter 4 also makes reference to changes in amenity along pedestrian/cycle/equestrian routes. This is not considered by the draft Scoping Report and quantitative assessment should be made to noise, dirt and air quality impacts during construction and operation (or by cross reference to the

relevant chapters). Also a qualitative assessment should be made of changes to the quality of streetscape and landscape (further cross-reference required).

16.4.4. The assessment of severance in the report is restricted to a simplistic matrix of crossings and number of journeys affected. However, WebTAG advises that for complex impacts or major schemes the social and distributional impact should be subject to a more considered assessment approach, including surveying existing travel patterns and tying these in to access to community facilities (so cross-referencing the Community topic). Origin-destination surveys should be undertaken to inform the routes most affected and options for mitigation.

Detailed Comments on Paragraphs	
Introduction	
15.1.2	<ul style="list-style-type: none"> The commitment to a transport modelling exercise is vague and undefined. It is impossible to comment on the soundness of the modelling while the details of platform, scope and assumptions of the model are not yet known.
15.1.3	<ul style="list-style-type: none"> Key effects should include increases in delay and reductions in network capacity.
Establishment of baseline and definition of survey requirements	
15.2.1	<ul style="list-style-type: none"> More detail is needed on the scope of data collection. This should be over a period of at least 5 days and include queue length data for calibration purposes where appropriate. More detail is needed on the number and location of data collection points.
15.2.2	<ul style="list-style-type: none"> More detail is needed on what committed developments will be included and what principles will be used to determine trip generation rates.
Consultation	
15.3.2	<ul style="list-style-type: none"> CTC, Sustrans and equestrian groups should be added to the consultee list.
Key Aspects of the Scheme for the Topic	

15.4.1	<ul style="list-style-type: none"> Routes and points of access, haul roads, construction compounds and improved or new highways should be added to the list.
Assessment Methodology	
15.6.1	<ul style="list-style-type: none"> The Transport Assessment should be informed by a more detailed scheme description than that provided so far and by a more detailed scoping exercise than provided here.
15.6.6	<ul style="list-style-type: none"> Out-of-date reference: Guidelines for Traffic Impact Assessment 1994 have been replaced by Guidance on Transport Assessment (DfT) 2007.
15.6.9	<ul style="list-style-type: none"> Smaller increases may be significant depending on local conditions and it is expected that issues would be identified in discussion with the relevant highway authority
15.6.11	<ul style="list-style-type: none"> More detailed consideration will need to be made regarding implications for pedestrians, cyclists and users of Rights of Way as a result of changes in topography or route diversion.
15.6.13	<ul style="list-style-type: none"> Threshold rates of collisions should be related to current safety record and defined as: <ul style="list-style-type: none"> Links for which data is available that have experienced more than two personal injury accidents per km in a three-year period ending in 2011-12, or junctions / clusters of collisions on a link that have experienced more than 5 collisions within a 50m radius in the last 5-year period ending in 2011-12. These links, junctions and cluster sites are those that would be subject to an increase of 30% or more in total traffic flow during construction for a period of more than four weeks in any 12 month period.
15.6.27	<ul style="list-style-type: none"> If the degree of saturation of a junction already exceeds 85/90% then impacts of less than 2% could be material. Sensitive parts of the network will need careful consideration to ensure that relatively small increases in traffic do not have an exponential effect on capacity and delay.
Assumptions	
15.7.1-3	<ul style="list-style-type: none"> More information is needed on the specific levels of assumptions used, e.g. version of TEMPRO, trip rate generation and so on.



17. Waste and Material Resources

17.1. General Comments

- 17.1.1. This chapter provides only a very brief overview of the methodology to be used to assess the waste and materials impacts of HS2. It provides information on the types of methods that 'could' be used, but not that 'will' be used.
- 17.1.2. There is still a lot of work to be undertaken by the assessors to provide a detailed methodology that provides enough useful information to consultees to comment on.
- 17.1.3. The AoS has been referred to again as setting out the baseline position. This is an inappropriate statement as little detailed work went into collecting this information. For example, the AoS baseline omits reference to the Thames Valley as the principal location of sand and gravel resource in Buckinghamshire. It also omits consideration of commercial and industrial waste. In addition, the process for collecting the information was not consulted upon and therefore the starting position (the baseline) is not appropriate. The AoS cannot be relied upon to provide a suitable starting position for an assessment on waste and materials.

17.2. Consideration of Minerals

- 17.2.1. We are concerned that although Section 16 is entitled 'Waste and materials resources' little is actually said about minerals availability, sources of supply, and use of recycled material. Although briefly referred to in paragraphs 16.3.4 (4th bullet), the draft Scoping Report does not consider the potential natural resource implications.
- 17.2.2. Consideration should be given to the amount of primary aggregates required and where these are likely to be sourced. The demand on natural resources is likely to be significant and more weight needs to be given to this in the assessment methodology.
- 17.2.3. The assessment should demonstrate that construction will generally safeguard the mineral resource and avoid the unnecessary sterilisation of mineral resources. Where primary aggregate is extracted as part of the construction



phase it should contribute towards the needs of the project. In general the contribution of primary aggregates from windfall sites (borrow pits) should be considered, where possible and environmentally acceptable, to reduce the road movement of mineral and undue pressure upon existing active mineral workings.

17.3. Establishment of Baseline and Definition of Survey

- 17.3.1. Paragraph 16.2.3 broadly outlines the Waste Authorities relevant to the route. However, this consultation provided a good opportunity to go further and define the area in which HS2 Ltd will be making assessments and which facilities are likely to be affected. No geographical area has been defined so it is not possible to refine the environmental baseline on which further assessments will be based.
- 17.3.2. Paragraph 16.2.5 lists some of the sources where information will be collected on waste arising, but caveats it by saying that the process will not be 'limited to these sources'. 51M does not understand why the full list of data collection could not be given. Considerable investment is going into HS2 including in the consultant team delivering the appraisal. It should not be beyond this team to clearly set out the exact methods for collecting data and to identify all the sources. Asking for comments on the method for data collection for the assessment without setting out the assessor's proposed methods is not helpful. It is therefore difficult to reach agreement on the scope of the survey without this information. It would also be highly inappropriate for consultees to undertake this work for the consultant team, particularly as limited project information is provided.
- 17.3.3. This section should also have set out exactly how the local waste plans referred to in paragraph 16.2.7 will be used. It is simple to list the documents out, but defining how they will be used is far more complicated. This document should have provided at least an overview of how these important waste plans will be used in the assessment process.

17.4. Scope of Assessment

- 17.4.1. Paragraph 16.5.2 refers to contaminated soils and materials being considered in the 'land quality' chapter. The land quality chapter does not adequately consider how contaminated land as a waste material will be dealt with. These



are interlinked impacts that need proper assessment. This waste chapter needs to consider the implications for contaminated land and how it will be considered as a waste material.

- 17.4.2. The methodology needs to consider that beneficial measures of managing waste should be the minimum requirement and therefore linked to the waste hierarchy. The assessment methodology should make allowances for where waste can be treated positively, i.e. where certain facilities or end uses benefit from excavated material.
- 17.4.3. The catchments proposed for survey are not well-defined and seem to be too extensive. Baseline availability of existing and planned waste infrastructure in the “local and regional areas” is proposed, but not justified. What would be more appropriate is an assessment of the available capacity available within a defined geographical extent.
- 17.4.4. The analysis of potential landfill and recycling capacity should be influenced by the scope of the project. This can only be done once a proper project description is written and full details of construction are available. For example, the tunnelling in Ruislip will generate a considerable amount of excavated material, but no information is provided on timescales or even which end of the tunnel will be the starting place. No information is given on whether spoil will be removed via rail (expanding the scope for receiving facilities) or road (reducing the amount of available facilities). This further detail is essential for understanding the needs of any receiving sites, and the location of the tunnelling is required to be known so storage and sorting sites can be considered.
- 17.4.5. The proposed assessments seem rather ‘static’ in nature. Waste management is a highly dynamic business, with capacities and suitable sites for disposal (i.e. inert waste for development sites) constantly changing. It is not clear how this changing environment will impact on the methodology, for example the availability of capacity does not appear to be linked to the time when material comes available from the construction of HS2. Similarly it is not clear that the assessment will consider changes in waste output from construction on local waste planning areas, market catchments, and operation of local Waste Hierarchies.

17.5. Assessment of Significance

17.5.1. The assessment of significance does not align with the overall methodology in section 2.5. Table 33 only discusses magnitude of effects but does not relate to impacts or receptors. EIA needs to define significant effects, yet the language used in table 33 uses major, moderate or minor and does not provide any indication as to when further mitigation or compensation arrangements would be triggered.

17.5.2. Table 33 is also large irrelevant without any background data and uses thresholds with no justifiable evidence. For example a major adverse effect:

Net increase in waste arisings relative to the base case leading to a severe, national-scale reduction in landfill void space capacity for inert waste. Need for additional large-scale waste treatment and/or disposal capacity of greater than 10,000,000 tonnes.

17.5.3. The actual effects of HS2 will depend on the amount waste generated and the availability for disposal locally. Significant effects could arise if local waste management practices are compromised, or waste has to be disposed of to landfill, or transported large distances. To suggest an arbitrary figure of 10,000,000 tonnes of inert waste for a new facility is irrational. If any new facilities are required then this should be considered significant. The approach set out in table 33 is wholly inadequate.

17.5.4. The waste hierarchy has been constantly mentioned as the principle for managing waste for HS2. Therefore the assessment methodology should be linked to this hierarchy and the UK ambitions for managing waste. Therefore any waste generated for the disposal to landfill should be considered a major adverse impact.

Detailed Comments on Paragraphs	
Establishment of baseline and definition of survey requirements	
16.2.2,	<ul style="list-style-type: none"> The EIA should ensure that local requirements are considered rather than assuming capacity is available for the project. The consultants

third bullet	should consult with Waste Planning Authorities (WPAs) as to existing capacity and inform them of how much estimated capacity is likely to be required. There should be locational advice consistent with minimising road movement of wastes. WPAs will be key stakeholders for informing existing capacity through the preparation of their Local Plans and Annual Monitoring Reports (AMRs).
16.2.4	<ul style="list-style-type: none"> The WPAs should be consulted upon the estimation of total waste arisings and capacity requirements.
Consultation	
16.3.1	<ul style="list-style-type: none"> We endorse the comments previously made to the Assessment of Sustainability regarding the generation of 'spoil' and amenity/environmental impact. However it is not clear from the proposed methodology how these concerns will be addressed in the ES.
16.3.2	<ul style="list-style-type: none"> We endorse the proposed waste minimisation as a design aim. However, Section 16 does not explicitly refer to waste minimisation as part of the design process and how this is to be achieved (together with sustainable design and construction elements of the project) and how this will minimise the environmental impacts. There should be an explicit section in the ES, in conjunction with the legislation for Site Waste Management Plans referred to in paragraph 16.6.5.
16.3.3	<ul style="list-style-type: none"> We agree that the EA should be consulted. However the principal consultees should be the relevant WPAs along the route. As most of the waste material from excavation is likely to be clean (16.5.2) then land-use planning issues should have precedence as to how the material can be utilised in, for example, landscaping works;
16.3.5	<ul style="list-style-type: none"> It is not clear what the potential "opportunities for the re-use and recovery of excavation materials from the construction works of the proposed scheme" refers to and how these concerns would be assessed. We suggest this should also include reuse/recycling of demolition materials
Scope of Assessment	
16.5.4	<ul style="list-style-type: none"> States that "Uncontaminated excavated materials that can be used, in their natural state, for site engineering and restoration purposes will be excluded from the assessment..." This statement ignores some of the

	<p>purpose of Section 16 in minimising and managing waste generated and the resources used for the construction of the project. The relationship to the planning statement will need to be clear to demonstrate the prevention of waste through design.</p>
<p>Assessment Methodology</p>	
<p>16.6.5</p>	<ul style="list-style-type: none"> The reference to the SWMP Regulations is welcomed, however it would give greater confidence in the process if this were to inform the ES and planning support statement rather than be prepared post-EIA. In addition, there should be an acknowledgement that the SWMP Regulations are now proposed by the Government to be revoked (<i>Red Tape</i> initiative), therefore HS2 Ltd will need to commit to their own approach and high standards.
<p>Assumptions</p>	
<p>16.7.6</p>	<ul style="list-style-type: none"> Experience of other major projects is that it invariably leads to the unauthorised deposit of waste by sub-contractors and therefore this issue should be assessed in terms of possible environmental effects.

18. Water Resources and Flood Risk Assessment

18.1. General Comments

18.1.1. The broad approach to assessment taken in this chapter is sufficient.

18.2. Baseline Collection

18.2.1. As with all the topic areas, the environmental baseline is highly important to allow a 'starting point' for subsequent assessments. This starting point should be agreed before the assessment takes place. In particular, the approach to identifying existing water quality conditions, depths of groundwater, flows of aquifer, qualities of aquifers and geological layers, as well as the receptors to be assessed should all be agreed prior to the assessment. As with all the chapters, the information contained within the report is very limited and does not provide a detailed approach as to how the baseline will be collected or used in the subsequent assessment.

18.3. Magnitude of Impacts

18.3.1. Table 37 defines the magnitude of impacts to be used in the assessment. It generally relates directly to physical parameters, i.e. loss of an attribute or decrease in integrity. This table does not include the increased risk of flooding to people and property.

18.3.2. It is quite possible that the flood zones in certain locations will alter which could remove certain features from risk, and place others at risk. The assessment must recognise that any increase in risk to people and property should be considered a 'major' impact. The following should be added to the 'criteria' column of Table 37:

- *Major Magnitude add in criteria field - Increase risk of flooding to people and property, or decrease risk of flooding to people and property*
- *Moderate Magnitude add in criteria field – Temporary increase risk of flooding to people and property, or temporary decrease risk of flooding to people and property*

18.3.3. Table 37 also refers to 'temporary' impacts, but does not define what this means. Construction work could take many years to complete, and offsite compensatory works could take longer to bring online. It is therefore considered that temporary should relate to no more than two years.

18.4. Surface Water Designations

18.4.1. Table 35 outlines the sources of baseline information. It states Natural England and the Environment Agency to be sources for **surface water designations**. Some Local Authorities are now defined as Lead Local Flood Authorities under the Flood and Water Management Act. Lead Local Flood Authorities have taken on responsibility for managing and investigating surface water flooding and some have completed surface water management plans. The Environment Agency may or may not have been involved in the publication of these documents. Lead Local Flood Authorities should be added to this field and consulted regarding surface water designations.

18.5. Identification of Receptors

18.5.1. There is a problem with providing a broad outline of receptors that have not been generated from detailed baseline work. It is possible that some highly sensitive impacts may materialise from detailed assessment work which is not reflected in their position on the 'significance matrix'. Some minor watercourses may be tributaries to large water bodies or rivers and the loss or impact on these may be significant. These could be considered 'very high' or 'high' sensitive receptors. It is therefore important to refine the methodology once the baseline assessment work has been done and prior to the work commencing on the assessment.

18.6. Water Consumption

18.6.1. No information has been provided about the likely water consumption use in the construction and maintenance of HS2. Areas along the route are in water stressed areas. Normal planning policies would require developments to demonstrate sustainable water collection and reuse.

18.6.2. This topic should therefore consider the water use of the new scheme and make a full assessment of the quantity of water to be used.



19. Cumulative and Interlinked Impacts

19.1. Cumulative Impacts

- 19.1.1. An EIA requires the assessment of cumulative impacts which must consider schemes that have been submitted but not yet approved, as well development approved but not yet started. 51M is not in a position to provide helpful responses on the draft Scoping Report because there is insufficient information on the project, the operations and the extent of development. One of the areas of most concern will be transportation where some roads could be nearing capacity, but where new development is planned in Local Development Frameworks. No information has been given on construction periods rendering it impossible to provide assistance to HS2 Ltd.
- 19.1.2. The published Scoping Report should provide information on all the projects expected to be included in the cumulative assessment. This should be refined using Local Development Frameworks and other land use assessments.

19.2. Example of Cumulative Impact: Calvert Landfill and Strategic Waste Complex

- 19.2.1. We are aware that the published alignment of HS2 runs to the east of the operational landfill and strategic waste complex at Calvert. In considering the cumulative impacts of the identified corridor we would request that you consult WRG as operators of the waste site and contractors for the County Council as Waste Disposal Authority. WRG has a current contract with the County Council for the disposal of municipal waste from the north of the county. WRG are also the preferred bidders for a long term contract to manage Buckinghamshire's residual municipal waste.

Information on the Calvert Landfill and Strategic Waste Complex can be found here:

http://www.buckscc.gov.uk/bcc/waste/energy_from_waste_home.page?

<http://wrg.co.uk/page.php?article=831&name=Calvert+Home+Page&preview=true>

19.3. Example of Cumulative Impact: East West Rail

- 19.3.1. We note that the current published alignment of HS2 in relation to the existing operational railway that will form part of East West Rail (EWR) between Quanton and Claydon Junction remains uncertain and is still subject to change. The current proposals are unlikely to be acceptable to East West Rail, as the HS2 horizontal and vertical alignments conflict with the existing operational railway/EWR track alignments.
- 19.3.2. EWR was placed in the National Infrastructure Plan as part of the Chancellor's Autumn Statement in November 2011. The project will in summary will reopen a railway link from Reading, Didcot and Oxford to Milton Keynes/Bedford and also from Milton Keynes to London Marylebone via Aylesbury and High Wycombe. Whilst there are a couple of conditions to be met to confirm the £270m investment in HLOS (High Level Output Specification) for Control Period 5, the agreed aim, accepted by DfT, is for EWR passenger services to be operational by 2017.
- 19.3.3. Background information on EWR can be found at <http://eastwestrail.org.uk/> and a visualisation of the proposed services can be accessed at <http://eastwestrail.org.uk/video/>
- 19.3.4. It is understood that HS2 are considering technical options to potentially re-align the existing track bed that will form part of EWR in this area. In terms of the cumulative environmental impact in this particular railway corridor, the EIA should not only acknowledge the existing railway (currently primarily used for bin-liner traffic) and the planned introduction of EWR passenger services, but also the impact of any proposed re-alignment that has yet to be determined.

19.4. Interlinked Impacts and Effects

- 19.4.1. There are a variety of interlinked impacts and effects of the topic areas. For example air quality will impact ecological receptors; land quality can impact on water resources; severance of roads can impact on socio-economic receptors.
- 19.4.2. The chapters appear to have been written in isolation with no consideration for the interlinked impacts and effects.



- 19.4.3. The published Scoping Report should include a clear chapter of how the effects and impact assessment will be interlinked. It must be obvious to the decision makers and consultees that interlinked impacts and effects have been assessed properly. For example, any adverse air quality impacts on ecological receptors need to be clearly demonstrated.
- 19.4.4. The interlinked impacts and effects should be presented in a clear flow chart or matrix with relevant references to the necessary chapters.