2nd July 2013

Wendover HS2 Group.

HS2 Phase One Draft Environmental Statement

Community Forum Area Report 10: Dunsmore,Wendover and Halton

Comments from Wendover HS2

Wendover HS2 wishes to make the following recommendations regarding the Draft Environmental Statement and would also comment on the Code of Construction Practice referred to there-in. Our reponse is organised into the following broad areas:

- Summary of Key Points
- Draft Code of Construction Practice
- Volume 1
- Volume 10
- Mitigation
- Community Payback

Summary of Key Points

- With so much missing data the draft Environmental Statement is not fit for purpose
- The Code of Construction Practise needs to be enforceable in law
- A Parliamentary Ombudsman needs to be appointed with no conflict of interest paid for by the government.
- The DfT should fund Local Authorities to monitor and police the COCP
- The Minimum Design Requirements should be enforceable in law
- The nominated undertaker should be independent of HS2 Ltd, DfT and the contractors preferably reporting into DEFRA/Parliamentary Ombudsman
- The Environmental damage to Wendover is huge
- Noise is a major concern – we were misled in the sound booths
- A fully bored tunnel through the whole of the Chilterns and correctly located portal is the best solution
- There should be some community payback for the disruption being inflicted on us for no benefit.

The Draft Code of Constructon Practice. (CoCP)

The main thrust of the responsibility for delivering the requirements of the Code has been placed on the contractors. There is little or no reference to enforcement or the role of HS2 Ltd in this. Neither is there any reference to the County and District Councils and the exercise of their statutory duties and obligations. This means that enforcement of the Code's provisions is weak and it appears that there will be no one who has responsibility for ensuring that contractors adhere to it.

HS2 Ltd will take 'reasonable steps' to engage with the community. Experience of 'engagement' with HS2 Ltd through the Community Forums suggests that this will be a box-ticking exercise with little notice being taken of views expressed by community representatives. It leaves the question of what the alternative unreasonable steps would be and who or which organisation decides on this. What are the tests for reasonableness?

The Local Environment Plan site controls will be provided after the Bill Submission has been made in support of the Hybrid Bill. Any comment which local authorities, other organisations and the community wish to make on this will have to wait until then. Commenting at that stage will be an expensive and difficult task.

Main Issues

During the construction phase, the issues that most directly affect local communities are as follows:-

- Working Hours
- Noise
- Dust Emissions
- Visual Intrusion
- Traffic

Working Hours

Working hours are noted generally as 0800 to 1800 weekdays and 0800 to 1300 on Saturdays.

However the following activities are not limited to core working hours:

- One hour start up and close down at each end of the normal working hours
- Earthworks
- Concrete pours
- Piling and diaphragm walling
- Plant maintenance
- Materials deliveries

Therefore most of the major activities associated with the construction phase are **not** limited to core working hours.

Further, maintenance will largely be carried out at night. This will involve workers, illuminated areas and frequently a significant amount of additional noise (e.g. when working on the rails themselves).

This is not a matter which can, or should, be relegated to the Code of Construction Practice. It is a significant environmental effect and should therefore be included in the full ES.

In addition, the contractor must conform to core working hours for other construction activities '*as far as reasonably practicable or unless otherwise permitted'* presumably by HS2).

This clause does not provide the rigour and independent monitoring and enforcement required to safeguard the local community and ensure the majority of the works are indeed carried out within the core hours.

Noise

'Best Practicable Means (BPM) will be applied during construction' defined as *'those measures that are reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications'*

- Best Practicable Means appears to be decided by HS2, not independent assessors and is limited by commercial considerations
- Perimeter hoarding will provide negligible sound reduction for major earthworks and construction of large structures
- Bunds may limit the extent of noise emission but are only practical in limited and restricted areas and not over the length of the construction worksites
- Noise insulation to adjacent properties will be offered when *'noise levels are predicted or measured by the contractors to exceed the relevant trigger level defined in Table 13.1 at that property for at least ten days out of any period of fifteen consecutive days or alternatively 40 days in any 6 month period',* which allows the contractor significant leeway
- The trigger level for insulation, dependant on the time of day, varies from 55 to 75 dB. Noise levels around 45 to 50 dB are sufficient to be intrusive and make normal conversation difficult.

HS2 Ltd's contractors will seek to obtain consents from the relevant local authority under Section 61 (s.61) of the Control of Pollution Act 1974 (CoPA) for the proposed construction works.

There is not provision in the COCP for failure to reach agreement with the local authority. Nor does the COCP define actions to be taken if the agreed s.61 levels are breached and does not include for independent monitoring, control and enforcement, to safeguard the local community.

In reality, noise emissions will be significant and unavoidable and the only way to reduce the impact on the community is to rigidly apply limits to working hours for all activities near premises, which is at odds with Section 5 of the COCP.

Dust Emissions

During the construction of HS1, a local councillor stated that **'construction had meant disruption, temporary road closures and diversions and a lot of dust over a couple of years.'**

HS1 was an exemplar project and construction of HS2 will largely employ the same designers, contractors and technology used on HS1, so the impact on the community will be similar.

With regard to Section 7 of the COCP,

- *'Erection of hoardings or other barriers along the site boundary'* will not mitigate to any significant degree, dust arising from earthworks and transportation of spoil
- Dump trucks operating within the site boundary will not be sheeted
- Stockpiles are located near the site boundary in the Draft Environmental Statement

- Spoil material stockpiles are too large to be adequately watered or sheeted
- Even haul roads surfaced with granular material will generate dust under heavy trafficking
- Excavation and depositing of spoil in live working areas will not be on hard standing.

In reality, significant emissions of dust are a natural consequence of major earthworks and the extent of emissions may be reduced by watering but never eliminated.

No trigger levels for dust emissions have been included in the COCP. In addition, though the *'relevant local authorities will be consulted regarding the monitoring procedures to be implemented,'* there is no allowance for the rigour of independent monitoring and enforcement required to safeguard the local community

Visual Intrusion

The major earthworks and construction of large structures cannot in reality be disguised by anything other than the natural topography of the land – except where unsightly spoil heaps are located between the worksites and public areas.

- The *'use of well maintained hoardings or fencing'* will not hide the excavators, dump trucks, bulldozers, cranes and other miscellaneous items of major construction plant

- *Appropriate measures to reduce landscape, visual and other environmental impacts associated with temporary site offices and compounds'* is so vague as to be meaningless. The only way to remove compounds from the public view is to locate them in an area screened by topography or woodland

'Relevant local authorities…..will be consulted, as appropriate' does not provide for agreement with local authorities to locate compounds away from public view and therefore does not safeguard the local community.

Traffic

The impact of increase traffic during the construction phase will be significant, on the basis that in excess of 1000 HS2 staff is likely in the Chilterns area, with >800 LGV and 300 >HGV trips per day estimated on the A413 alone.

- The COCP traffic management states *'procedures'* and *'measures'* will be put in place to mitigate traffic impact, which is meaningless without some description or examples of what these measures and procedures will be
- *'public access is maintained where practicable'* presumably means that access will not be maintained if considered not practicable by HS2
- The construction works will require road closures and diversions which will impact the local community
- Vehicle sharing by the workforce has historically not been achieved to any significant scale
- HS2 workforce will be trying to get to work at the same time as local commuters and when school bus trips are taking place, resulting in significant peaks.
- *'Phasing of the works'* to reduce traffic congestion is unlikely though deliveries are not restricted to core working hours
- It is likely that traffic control will be required where 'B' roads intersect, such as the B485, to allow construction traffic to cross, which will impact on local road users

- It is very important that the effect on Wendover business, delay to get to work, damage to roads,pavements,verges etc. by construction transport is policed. This activity is 'off site' and Wendover should be compensated by some form of fee, say £200 per lorry movement of either spoil from the site or delivery to site of plant and machinery as damage to the roads .will be significant
- For such controls to e enforced by the Community Relations Representative (our Wendover man) must have the authority to keep the Contractor working within the Code of Construction Practice paid for by the DfT and provided a site office for meetings/contact point by the Contractor. This approach worked well on the Hindhead Tunnel Project.

The Traffic Management Plan will be compiled and monitored by the contractor, with no provision for independent monitoring, control or enforcement.

Conclusion

There are insufficient independent controls in place to safeguard the local community from the adverse impact of HS2. Appropriate 'procedures' and control 'measures' should be agreed with local authorities before implementation.

Requirements for Noise and Dust Emissions should be based on the NPPF Technical Guidance for Minerals issued by the Department for Communities and Local Government in March 2012, which should be regarded as the minimum acceptable.

As happens on other projects, HS2 limited should pay the local authorities to employ additional, project-dedicated Environmental Health Officers (EHO's), to monitor and ensure that these agreed 'procedures' and control 'measures' are in place and are being complied with.

The local authority EHO's should also have the powers to suspend the works should the agreed control measures be breached, until more rigorous measures have been put in place.

Apart from works that have to be carried out on a 24/7 basis, eg tunnelling, no work should be permitted on Sundays except with the prior agreement of the local authority. Applications must be made 14 days in advance and the work to be done specified in detail. Bank Holidays hours should be the same as Saturdays.

Bearing in mind that half the archaeological sites excavated during the construction of HS1 were unknown before work started, HS2 Ltd should also pay for local authorities to employ dedicated archaeologists to maintain an effective watching brief. The principals of Planning Policy Statement 5, issued in 2010, should be applied to sites affected by any aspect of work on HS2.

VOLUME 1

Volume 1 indicates " future baseline conditions and cumulative effects are not addressed in the draft ES, because the necessary predictive work is continuing. This will be included in the formal ES." Wendover HS2 maintains that the lamentable lack of "baseline information" in this draft proves that insufficient information was gathered prior to the original route selection for a High Speed Line, to enable effective cost/benefit analysis on this matter of national importance.

A Parliamentary Ombudsman should be appointed and paid for by Parliament to address those issues which will arise between the contractor on one hand and the community on the other having regard to the law and government policy across all of government.

Section 1.4.

Structurally the Environmental Minimum Requirements (EMR's) should be included in the Hybrid Bill and given legal force. Promises are not enforceable and will be dropped when the budget or schedule becomes pressurised.

The nominated Undertaker should be an Independent 3rd Party who has a legal duty to ensure the EMR's are delivered. This should be an absolute requirement to deliver the EMR's) Probably should report through DEFRA so as to avoid any conflict of interest. The Secretary of State for Transport, the Department for Transport and HS2 Ltd. are all conflicted and prejudiced in this matter. This role is seen as enforceing the delivery of the EMR's not responsible for delivery itself. Combining the roles – delivery and enforcement -would obviously create an ongoing conflicted position which would be sub optimal both for society and the project. The role of enforcement should be a funded position by government.

1.4.6

"Reasonable endeavours" is not sufficiently strong enough. The EMR's are commitments that have to be delivered otherwise HS2 Ltd., and the contractors will ignore them if they are too difficult. They should have a legal duty to meet or better the EMR's.

2.4 Enhancing Capacity.

The case for increased capacity is based on flawed assumptions and results in a spurious doubling of demand. The figures released by the Department for Transport showed that the West Coast Mainline was only operating at 55% capacity at peak times. In addition figures issued by the Office of the Rail Regulator shows a decline in usage across all rail sectors over the last 12 months. Long distance passenger figures fell by 2.6% rather than increase by 2.4% as forecast by HS2 Ltd.

3.3 Operating Hours
The hours of service 05.00 to 24.00 Monday to Saturday and 08.00 to 24.00 on Sundays will mean that the residences of any residential property within 500m-1000m of the line will suffer sleep disturbance with the knock on affect on health and productivity.

Main Activities:

Site Clearance & Demolition

3.6.5. Remove the commensal statement words "where relevant" as any tree or hedgerow removal throughout operations should be conducted outside bird nesting season in accordance with guidelines given by the RSPB; all bird species' nests, eggs and chicks are protected under e Wildlife & Countryside Act 1981 (as amended).

3.6.6 No mention is made in this section of checks for protected species, be they within buildings, trees or other habitat (Mention is only made later under 6.9). It is vital that such checks are made. An additional paragraph could read: **"Checks will be conducted at the relevant time of year by Protected Species experts to determine the presence/absence of species protected under national law, and for those of regional importance. The advice of specialists would be followed to ensure minimal disturbance to these species and safe re-location prior to commencement of any demolition works."**

Earthworks:

3.3.5 Care must be taken to ensure that re-use of excavated material utilises materials relevant to the aim of the embankment/bund/tunnel eg. If the bund is to be seeded with chalk grassland species, it should be chalky not neutral soils to optimise results; if bund/ embankmentis to be planted with trees, a higher quality soil should be used, and even better if to be returned to agricultural use.

Bridges & Viaducts:

3.5.10 - 3.5.12 Whilst appreciating financial and safety constraints, within the Chilterns AONB thought should be given to use of local materials to individualise the appearance of bridges, for instance use of timber, brick and flint, reflecting the cultural heritage of the area. This is an area highly visited for walking as "stress busting" for those living in London. It is unlikely to maintain this appeal if HS2 is built is built according to current plans. (The effect this lost "therapy zone" may have on the wider economy, one assumes has not been included in HS2 calculations.)

Construction

3.6 Appropriate, strong fencing must take into account the many local Badger populations and their historic track ways. There is a very high population of badgers along this stretch, with setts on both sides of the valley. (Annual road kill between Gypsy Lane and the Wendover roundabout is approximately 5) The imposition of HS2 will sever their routes and every effort must be made to minimise disruption, particularly to avoid fatalities. Note that, along the length of the route, there could be significant delays to construction if Protected Species work is not handled with sufficient care from the start. The guidance of Bucks Badger Group and statutory advice must be followed.

Cultural Heritage

5.6 In order to establish a baseline, HS2 Ltd/ARUP/URS (from now on I shall refer to them simply as 'they') examined within an area extending up to 5km from the centre of the line of the Proposed Scheme. They used environmental records (HER) data, including historic landscape character mapping. They also conducted 'site visits, desk based research, historic map review and the analysis of the results of Light Detection and Ranging Survey (LiDAR) and aerial'. They originally intended to cover designated assets within a study area of up to 3km from the centre line, but later decided to consider only those designated assets that fall within the zone of theoretical visibility (ztv). Ztvs are defined as 'the likely (or theoretical) extent of a development, usually shown on a map'. They go on to state that 'impacts have been assessed on all heritage assets, designated and non-designated, within 250m of construction works'. They report that 'baseline survey work is on-going and the results of that work, in conjunction with on-going engineering design development, will inform the formal ES' and that refinement, where necessary, of the assessment of effects during construction and operation, may take place. Cultural heritage research and surveys, which include the examination of historic geotechnical data, geophysical survey, surface artefact collection (field walking) and archaeological trial trenching (evaluation) remain unfinished. There are also on-going 'discussions with English Heritage and local planning authority archaeologists and conservation officers'. They also state therefore 'that the conclusions of the formal ES and the proposed mitigation may change from those presented in the draft ES'.

Mitigation: Ecology

6.9.2 There must be consultation on the proposed mitigation measures once written in the formal Environmental Statement to follow this draft.

VOLUME 2, Area Report 10.

These comments are made in numerical order directly relevant to that number given within the Forum Area Report. Additional comment is also given, some of which may also be relevant to other sections of the Environmental Impact Statement.

SUMMARY RECOMMENDATIONS:

- Requirement for more detailed base-line ecological information (eg Phase One Habitat survey and protected species survey)
- More detail about Biodiversity Opportunity Areas, Biodiversity Action Plan (BAP) and BAP Priority species for this area and mitigation targetted specifically towards these.
- Significantly increased detail required in all mitigation measures, both in preparation for, during and after construction.
- More detail of lighting impact and mitigation (both during construction and operation).
- Increased awareness of potential wind-borne dust implications to adjacent SSSI
- Inclusion of additional specific "receptors"
- More attention to effects on local hydrology/ aquatic habitats
- Further research on the impact of continual train wind turbulence on air-bourne species, particularly bees, and potential crop pollination impact.
- Careful attention to all comment made from specialist ecological bodies.

2 Overview of the Area

Under the European Habitats Directive, Britain has a Biodiversity Action Plan to which the Government is committed. Throughout the Country, regional Biodiversity Opportunity Areas (BOAs) have been identified but there is no mention of the BOA's covered by HS2, more specifically within the AONB and this Community Forum Area (CFA). Therefore:

2.1.19 We propose either addition of text under 2.1.19 or a further paragraph 2.1.20: *This section of the proposed route encompasses 6 Biodiversity Opportunity Areas as identified by the Buckinghamshire and Milton Keynes Biodiversity Partnership. These are: Central Chilterns Chalk Rivers; Chess Valley Headlands; Chilterns Escarpment; Dunsmore Woodlands; Prestwood Local; Wendover Woods.*

2.3.12 Mention is made here of lighting site compounds seeking to "reduce as far as reasonably practicable light pollution to the surrounding area", but no mention is made of lighting impacts along the route. Such impact is both of human nuisance plus can affect both flora and fauna.

2.3.27 Where excavated material is taken from areas to become Green Tunnel, it is important that appropriate geological material is replaced (in appropriate order) to retain the site-specific habitat. There is scope here for potential habitat enhancement or recreation, particularly with regard to chalk grassland. Stockpiling of soils for future use must be done with care to ensure their viability, preferably with oversight of a third party to insure correct procedures are followed.

2.3.30 Landscaping and planting must use only native species relevant to the Biodiversity

opportunity Area and should be done in conjunction with guidance from the Local Biodiversity Partnership, the Local Wildlife Trust (BBOWT) and local community. This tunnel is at the end of a highly significant SSSI for lowland Chalk grassland and (although the area is currently neutral grassland and woodland) re-instatement of chalk over the tunnel could potentially extend the area of this protected habitat

Further detail is required regarding temporary road diversions and routes required during the construction phase. It is likely that mature trees will be felled and ancient badger paths broken thus it is vital that relevant procedures are followed to minimise disturbance to fauna, which could include other protected species such as bats.

It should be noted that the existing narrow historic route ways of Rocky Lane and Leather Lane contain species indicative of ancient green lanes and care should be taken to ensure retention of these features of biodiversity, with translocation of plants an option where appropriate.

Part C: Environmental Topic Assessments.

3 Agriculture, forestry and soils

3.4.1 ' a 200m wide corridor centred on the proposed scheme' is inadequate and seems to ignore the practicalities of farming the land while the scheme is being constructed.

There will be a significant loss of BMV land within the Wendover area.

Potentially looking at the loss of 2 farms in the area.

3.6.4 The environmental Statement has ignored the impact of noise and the startle effect on livestock. Concerns have been raised by environmentalists who suggest high noise levels adjacent to a rail corridor can cause impact such as interference with communication, masking predation, startle and fright. In fact the U.S. FRA guidance manual on HST noise – Appendix A.5 have set criteria for the effects on livestock and wildlife. They have identified similarities between High Speed trains and low flying aircraft. There are some quantitative documentation associated with effects (heart rates, blood pressure, hormonal changes, milk production, etc.). HS2 Ltd., should undertake the necessary research and quantification of these impacts.

4 Air Quality

There are several unanswered questions in this section of the CFA/10. It quotes several policies that they will try to adhere to during the Construction Phase and the Operational Phase but does not say how they will ensure they are met. They refer to draft Code of Construction Practice (CoCP) and on referring to this, HS2 Ltd's own findings concluded that "the impact of HS2 on carbon emissions is both complex and highly uncertain". They say in 2.1.2 (of the CoCP) that "HS2 Ltd and its contractors will comply *as a minimum* with applicable environmental legislation at the time of construction together with any additional environmental controls imposed by the hybrid bill" but then go on to say they will "ensure

that measures are applied to the construction to enable it to be ***undertaken economically*** and meet the requirements of the hybrid bill".

More information is required to ensure that best practice is in fact employed. A definition is needed of precisely what controls will be put in place to protect air quality both during the construction and operational phases of this project. There is a high reliance on the hybrid bill for final clarification.

The effect of dust pollution during construction has not been given sufficient consideration. The effect of dust emissions on Bacombe & Coombe Hill SSSI at the Ellesborough Road construction area could be highly significant, dependant on prevailing winds. Note that this is a scarp above a flat vale, so winds here can be quite significant and potentially carry dust from the planned "materials stockpile" and tunnel portal area toward areas of high biodiversity and extreme sensitivity to nutrient enrichment, air quality also likely to affect rare moss and liverwort associations. This site also supports the critically endangered Fringed Gentian. Further consideration must be given to this potential problem and mitigations measures put in place to ensure stockpiled materials do not effect the SSSI or SAC further along the scarp (These are habitats of National and International importance). Further, the impact of the prevailing wind would mean that all the dust and fumes during the construction phase will be deposited over Wendover. To a lesser extent, this was experienced of this during the construction of the Wendover Bypass and was far from pleasant. HS2 is a far more complex and difficult project so we can expect the impact to be even greater (it is assumed that the same so-called "preventative measures" were employed during the construction of the bypass). In addition, the storage of chalk waste while they build the green tunnel could create a huge problem for Wendover. Chalk spoil is renowned for drying out and becoming dusty. Locating it to the south-west of the town will ensure there is a white cloud of dust blowing over Wendover.

All the work and the equipment used to do it, is expected to produce reactive organic compounds and nitrogen oxides - two chemicals that mix in the atmosphere to create ozone - as well as dust and carbon dioxide and other greenhouse gases. Aside from the inevitable dust from diggers, cement mixers and the fumes from the hundreds of lorries there is no reference to the potential for the production of ozone from the arcing caused by the power lines and pantographs once the line is operational. HS2 is so close to the town that there could be a substantial increase in the local concentration of this gas. Although they quote PM2.5 they make no specific reference to the production of ground-level ozone. Ground-level ozone can result in a number of health effects that are observed in broad segments of the population. Most of these are effects on the respiratory system. Evidence from observational studies strongly indicates that higher daily ozone concentrations are associated with increased asthma attacks, increased hospital admissions, increased daily mortality, and other markers of morbidity. It also adversely impacts plant life, reducing crop yields and killing trees.

Whilst mention is made of the SSSI and its important flora, no mention is made of the fauna specific to this unique habitat. Invertebrates in particular can be hugely affected by air quality and their abundance in turn affects larger fauna up the food chain. Of particular importance are the populations of Chalkhill Blue butterfly and other invertebrates.

In summary, regarding Air Quality:

- The dust pollution has been under-estimated and they have ignored the impact on Wendover from the chalk spoil which will have to be stored nearby during construction.

- The document is vague on how the impact of dust and fumes will be minimised apart from talking about some policies and standards. There is no definition of what is an acceptable level taking due account of local topography. It seems all the information will be in the Hybrid Bill.

- No mention is made of the fauna specific to this unique habitat.

- They have not taken into account the negative effect of ground level ozone on the population of Wendover and its environs and on the flora and fauna both during the construction and operational phases of HS2.

In Spain, where high-speed trains have been running for 20 years, some experts said it can take decades for high-speed rail to make up for environmental damage from construction.

5 Community

The Draft Environmental Statements cover a range of issues. Some are addressed by HS2 and some are not.

1 The Community section of the report concludes that there are two areas of residual significant effects in the absence of further mitigation. A) loss of houses in Ellesborough Rd B) permanent loss of the cricket club pavilion and the cricket ground. The question arises - are there other areas of significant harm that HS2 Ltd has not fully considered ?

2 Wendover Dean together with the Smalldean viaducts, Ellesborough Rd cricket ground and the overbridge at Nash Lee Rod have Rights of Way footpaths, most of which are affected by permanent and temporary land take. HS2 Ltd proposes solutions but consider that the temporary diversion of the Chiltern Way as a minor and non-significant effect.

3 Potential impacts on Community infrastructure (centre of town shops, clubs, pubs and schools etc) associated with temporary accommodation for workers have not been assessed and will be dealt with in the formal ES. HS2 Ltd assume that there will not be any need for accommodation for family members – maybe not on site, but taking the timescale into account (1.5 years to 5 years) are these assumptions correct ?

4 Consultations with all community facility representatives have not been undertaken. Hence detailed information on usage, services provided and future plans for the facilities were unavailable for the draft ES. Consultations are being undertaken now and will be reported in the formal ES. Could be argued that the present consultation with providers is useless because impacts of potential workers' needs have not been assessed? Does delaying assessments and consultations mean that the solutions for community provision and development of specific mitigation measures is devalued and is HS2 Ltd falling down on the job ?

6 Cultural Heritage

Likely significant effects of construction and operation on the environment are outlined, focussing on effects 'that require consideration at a scale that is larger than that of the CFAs'. The area studied considers features within 500m of the Proposed Scheme. They make reference to:

Designated assets eg:

Grim's Ditch, a Scheduled Monument
Four Scheduled Monuments, comprising two barrow sites on Bacombe Hill, a moated site 90m west of Terrick House and a moated site at Grove Farm
One Grade 1 listed building – the old church of St John the Baptist at The Lee
Five Grade 11* listed buildings: two to the south of Wendover, two within the historic centre of Wendover, and Wellwick Manor, now part of Wellwick Farm
127 Grade 11 listed buildings , the majority in Wendover, predominantly on Aylesbury Road,
Tring Road, Pound Street, the High Street and within the medieval core of the town
Two Conservation Areas comprising The Lee and Wendover
Eight Ancient Woodlands

Non-designated assets eg:

Durham Farm, a complex of buildings of 19/20th century origin
Road Barn Farm, also a farm complex of 19/20th century origin
30,32,34,36,38,and 40 Ellesborough Road, a 19th century terrace row to the west of Wendover.
Potential archaeological remains of prehistoric, Roman and settlement associated with the 'Clay with Flints' geology and head and alluvial deposits in the Misbourne Valley, and
Potential archaeological remains of Roman and medieval date on the Gault/Greensands landscape between Wellwick Farm and Nash Lee Road, including remains at Nash Lee and Coneycroft Farms.

Under Assessment of impacts and mitigation, it is stated that 'There would be no effects on known buried archaeological remains arising from the operation of the Proposed Scheme'. Also 'The introduction of the Proposed Scheme into an area of existing open landscape has the potential to introduce impacts on the setting of heritage assets. The Proposed Scheme includes elevated sections on embankment and viaduct, together with the re-alignment on the existing highway infrastructure and the introduction of road and foot bridges over the Proposed Scheme'. They also state that 'The provision of earthworks and planting, as illustrated on Maps CT-06-035 to CT-06-040, would reduce the effects of the Proposed Scheme. However, mitigation would not be fully effective until planting has matured'.

The following specific heritage assets would experience significant effects through changes to their setting:

The remaining sections of Grim's Ditch Scheduled Monument, which will have its character and continuity permanently altered
Four Grade 11 listed buildings at Hunts Green Farm, Woodlands Park and Cottage Farm which all lie close to the Proposed Scheme, and
Six Grade 11 listed buildings at Wendover Dean Farm, which will have their settings altered by the presence of the new viaduct.

Summary

It states that 'The route would pass Wendover in a tunnel, starting south of Bacombe Lane on the north-western edge of Wendover'. Under Local Alternatives, it states that 'Local alternatives were considered for an extension to the Chiltern bored tunnel and Wendover green tunnel, enclosure of the viaduct at Wendover Dean and re-alignment of Rocky Lane'. These options and the key factors in the design of the scheme are discussed in Volume 2, Report 10.
Under Cultural Heritage they state that measures within the draft Code of Construction Practice would result in the removal of part of Grim's Ditch Scheduled Monument and part of Jones Hill Wood ancient woodland. Buried archaeological remains could potentially be removed at Wellwick Farm, Nash Lee Farm, Coneycroft Farm and within the land required for the Scheme. Durham Farm, Road Barn Farm, and 30, 32, 34, 36, 38 and 40 Ellesborough Road would be demolished . Whilst it would not compensate for their loss, features would be investigated and documented prior to construction. During construction and operation, the remaining sections of Grim's Ditch Scheduled Monument and ten Grade 11 listed buildings at Hunts Green Farm, Woodlands Park, Cottage Farm, Wendover Dean Farm, and Upper Wendover Dean Farm would be affected by changes to their setting. Each of these effects to heritage assets is considered significant.

7 Ecology

It was noted that the number of unfinished phrases in this particular section seemed reflective of the lack of detail. Information is required (likely in tabular format)particularly on the status of those BAP priority species, both at UK and regional level, present in the study area and strategies for their protection.

7.3 Given the key assumption in Vol 1 5.7.3 that "all existing habitats within the extent of the Proposed Scheme (i.e. both areas of temporary & permanent land take) would be lost permanently." It is imperative that sufficient survey work is undertaken and appropriate mitigation measures adopted. Where access is not possible, the personal species accounts and records of local residents and landowners should not be discounted (i.e. those accounts not necessarily passed to the Records Centre). It is essential that protected species surveys are conducted, particularly along the immediate proposed route where demolition, tree felling and hedge removal would be required. In addition to the known abundance of badgers (with setts likely to be affected), there is potential for glow-worms to be present along the existing railway cutting near Wendover over which the proposed road may pass. Glow worms are present along the Great Missenden end of this line, as are Harvest Mice, both local BAP priority species. Goldcrests, possibly Firecrests have been noted in the past in Larch and Pine trees at Road Barn Farm, although it is not known if this is a breeding site; this area would be obliterated by the proposed scheme.

7.4 Environmental baseline
7.4.2 Addition of "often ancient" between the words "intact" and "hedgerow" is required. Many of the hedgerows likely to be removed between These field boundaries are present on the earliest maps made of this Parish. Their role as wildlife corridors, including foraging routes for local bat species and owls is vital (NB barn owls known to breed within 2km of the proposed route).

7.4.4 Regarding statutory designations, the first paragraph on Bacombe & Coombe Hills SSSI requires completion. No mention is made of the fact that there are at least two more SSSI within 4km of this section of proposed route and a Special Area of Conservation (SAC). These points must be made, even if mention is not made of the other SSSI & LNRs within 10km.

7.4.6 There are many more habitats which have not been mentioned in this section. Those missing are listed below. The aquatic habitats are of particular significance as they support populations of Water Vole (UK Priority BAP species) and Kingfisher (UK species of Conservation Concern), not to mention a wealth of other wildife including water fowl such as the Little Grebe (Dabchick).

- Hampden Pond,
- Hampden Meadow
- the Wendover Stream that runs along Heron Path in Wendover and adjacent chalk spring beside the cricket ground (there is a further chalk spring in Walnut Tree Meadow)
- the sedge beds adjacent to Ashbrook Recreation area (snipe known here) and adjacent meadow
- the disused Wendover arm of the Grand Union Canal
- the streams that run from this canal to Weston Turville SSSI
- chalky arable margins where rare arable"weeds" can be found

Whilst the chalk streams around Wendover are tiny, they are all-important fragments of an internationally important habitat listed in Annex 1 of the European Habitats Directive, and HS2 has not given sufficient evidence to ensure that its proposals will not seriously affect the major chalk aquifer of this Chilterns region, one which provides both wildlife habitat and a vital source of water for our human population.

Given that under 7.5.5 it is admitted that there could be reduced water level at Weston Turville Reservoir SSSI, these negative effects are likely to be reflected equally, if not more so, on these other smaller "feeder" streams and wetlands. Advice on potential mitigation measures must be sought from Natural England, the JNCC and the Environment Agency.

7.4.7 and Table 5 The "Value" quoted for each "Resource/Receptor" in this table is highly questionable, as is the statement give in 7.4.8 particularly as many of these species form targets for local Biodiversity Action Plans which feed into the National Biodiversity Action Plan, adopted in order to fulfill the European Habitats Directive. Sustainability at a National Level is impossible without first acheiving local sustainability.

Additional Species must be detailed in this table, namely Kingfisher; Firecrest; Barn Owl; Glow-Worm; Harvest Mouse; Hare; Stag Beetle. These must be included as their habitats could be directly effected as a result of the proposed scheme.

The recording "in low numbers" for instance of farmland birds, does not indicate their absence, more a lack of recording, thus indicating greater need for survey, particularly as there are known high numbers of farmland birds within a few kilometres.

Detailing that there are no notable records of terrestrial invertebrates "close to the scheme" is highly ambiguous; the term "close" should be clarified by a unit of measurement.

The statement "Habitat suitable for large numbers or diverse assemblages of notable species is uncommon near the proposed scheme" is **totally false :** consider the number of SSSI within 4km radius, all including noteworthy invertebrate species; consider that a length of ancient hedgerow is known to support over 100 invertebrate species, not to mention those associated with assisting decay. Habitats associated with old farm buildings (some of which are destined for demolition) also support invertebrates including a variety of solitary bee species, Bumble Bee colonies, and occasional wild honey bee colonies. Where found, relocation of these colonies should be attempted.

7.5 Construction

7.5.2 Measures to translocate woodland to adjacent land must be explained in more detail and conducted with approval from the Woodland Trust. Whist it would be helpful, it would not recreate ancient woodland.

No suggestions are given regarding the potential creation of chalk grassland along internal railway sidings and on embankments. This should be given serious consideration with guidance sought from Natural England and BBOWT, and could help meet BAP target objectives for this habitat.

7.5.5 Should potential works on the Wendover GreenTunnel affect the groundwater flow as anticipated, not only would Weston Turville Reservoir be affected, but all local streams too, with disastrous affect on the species directly reliant on aquatic habitat. This is turn would affect the Kingfishers and water vole, reducing their capacity to breed and, particularly in the case of the water vole, threatening survival of their colony.

Lorry Movements

No mention is made of the ecological effect of consistent lorry movements along the network of narrow, historic country lanes, particularly along the eastern stretch of this CFA, within the AONB. These will cause damage to existing road verges, their related floral and fauna and to trees. An increase in fauna killed by traffic is inevitable. Survey of mature trees along the route must assess whether certain lower bows may need careful removal before accidental removal causes damage to the tree. There may also be additional damage to trees caused by the weight and constant volume of vehicles which could damage roots and ultimately require felling. All those vertebrate and invertebrate species associated with that tree would then also be adversely affected. Note that there will also be affects on the historic fabric of houses along these lanes and compensation for damage to buildings caused by the proposed scheme's construction traffic must be made available.

7.5.7&8 Loss of hedgerow, woodland and mature trees would certainly reduce foraging and roosting habitat for bat and owl species as well as farmland birds, all of which are BAP priorities. Commitment to replanting of hedgerows is good, however in many instances they will be a far inferior quality of habitat to the existing ancient hedgerows. Of particular relevance is the severance of the area between the A413 and the proposed route, creating an "island swathe" and dramatically reducing the range of species supported.

7.5.9 There are a number of small ponds along the country lanes around Hunt's Green The Lee and South Heath. Such ponds will be affected by the massive increase in traffic that construction would bring. Mitigation measures to protect these habitats must be put in place, particularly with regard Great Crested Newt. The ES states in Table 6 that "small populations have been recorded ", but if any have been recorded it is likely there will be a good population (this species tends to spend significant amounts of the year hiding on land).

7.5.10 As already detailed above, Table 6 requires additional species , particularly those relevant to the local BAP. Text will require considerable alteration in the light of more accurate survey information, once acquired, contrary to the statement made at 7.4.8.

7.5.12 Table 6 will require updating with a number of other ecological receptors as already detailed.

The addition of many standing water features to the landscape has been noted. These features are not indicative of a typical Chilterns landscape and effort must be made to minimise the impact of their appearance. Aquatic habitats can support a diverse range of species and mitigation must ensure suitable design and planting to help acheive targets set in Habitat Action Plans overseen by the Buckinghamshire and Milton Keynes Biodiversity Partnership.

Operation

By the time operation commences, severe habitat destruction, fragmentation, isolation and degradation will have taken place. Insufficient work has been carried out on the effects of the wind turbulence corridor that the trains' speed and frequency of operation will create and the effect on airborne species, including invertebrates. The effects on pollination of crops and subsequent effect upon agricultural business (and indeed food production capacity of the UK) has not been considered, and is relevant when one considers the important role of invertebrates, particularly bee species, which can forage over 3 miles from the hive.

In Conclusion, Wendover Action Group further notes the dramatic loss along the entire HS2 route of nationally significant habitats (including 50 river corridors & 24 SSSI) and diverse species of flora and fauna, coupled with irreversible degradation of heritage AONB landscape. No mitigation would be sufficient to offset these environmental costs, and it is adamantly felt that the scheme will never meet "assumed" future benefit targets to justify the immeasurable expense, particularly as technology continues to advance.

8. Land Quality

This paragraph relates to the presence or otherwise of **contamination** rather than land quality.

8.4.4, Groundwater. The report appears to ignore the existence of Hampden pond in Wendover. It also ignores the springs starting at Wellhead which feed the Wendover Arm canal and hence the Grand Union canal.

8.6.5. Residual pollution associated with operations are not considered to be significant. However with the number of balancing ponds which will collect pollutant from the trains and metal particles from the line grinding there is no explanation on how these will be handled and not contaminate either the underground aquifers, the Hampden pond which is used for fishing or the Wendover arm canal and associated wildlife.

This does not address at all the short-term and long term impact of the scheme on land quality and demonstrates again why the current Draft Environmental Statement is not fit for purpose.

9 Landscapes and visual assessment

Light pollution has not been addressed in the Draft ES. The impact of fully lit coaches streaking across the horizon in otherwise dark areas devoid of light pollution is not identified. Neither is the significant intrusion of the "flashing" caused by arcing between power cables and the pantographs (especially noticeable with HS1).

The photographic image of the green tunnel near Bacombe Lane shows a concrete structure which is ugly and dominates the view – another eyesore.

The sighting of the line above ground in a valley appears designed to maximise the visual exposure of this project.

10 Socio-economic

The information is spread over several sections. Document CFA 10, Section 2.1 identifies 4,500 people within 1km of the line. This does not relate to the number affected, just to residential addresses within an arbitrary distance. About 75% of these are owner occupied, the employment rate is 67% (slightly lower than adjacent areas) and there 32% are single person. About 55% are aged over 45; more detailed demographic data has been accessed. No analysis is given. The area is presented as rural with one "settlement" Wendover. All this material is a perfunctory desk exercise.

The detailed consideration in Section 10 is sparse to non-existent. There is no attempt to link the various sections into the socioeconomic impact yet this is where many of the construction, amenity, landscape and community effects will impact.

HS2 seem to believe that Wendover is in Chiltern District and presents the broad pattern of economic activity in Chiltern vs the SE as a graph (off a website). No conclusions are drawn or possible. It is clear that no survey work in the "settlement" has been done. The assumption is that Wendover's economy is professional services (24%) with under 5% in accommodation and food, 7% retail and maybe 8% recreation and entertainment. There is no assessment of what amenity loss may do to Wendover as a "settlement" or any quantification of local economic impact.

The construction phase is assessed as needing 1,050 person years. As the main construction is over three years 2018-2020 (starting mid 2017) this is about 300 jobs in the area per year. With 55% of the inhabitants over 45, and unemployment of 6%, it is not clear that many local people will find temporary work digging the green ditch or building elegant viaducts. HS2 notes is that local businesses could supply goods (beer and sandwiches?) to the construction sites. They seem to be arriving with their supplies via the M40 and A413 via Amersham.

From other sections of the report, one can estimate that the business impact on Wendover for the major and prolonged construction works will be severe. There are major adverse landscape impacts during construction. This may deter visitors. The document, section 10.5.4 talks of "discretionary enhancement measures" such as business support and measures to enhance local construction skills. Exactly what these platitudes mean is not known till the formal ES; this is not reassuring. The route-wide document, section 11.5.2 estimates that 1,520 jobs will be lost due to construction with a further 670 job losses as a result. This is a small number along the whole

route and will be based on a crude and unverified model. If Wendover accounts for 1% of these, purely arbitrary, that might be 22 jobs lost. The losses are regarded as trivial in the context of London and the West Midlands. It assumes that the unemployed quickly find new work but ignores the potential for local blight.

After construction, other sections make it clear that there are major adverse local landscape impacts and areas of high noise from 5 am till midnight. Residual (66 years in the business case) effects are "currently being assessed" and must wait for the formal ES. The report notes that people from the settlement might benefit from HS2 employment at stations, working on trains or at depots but observes that there are no stations or depots in the area.

Conclusion: HS2 have absolutely no idea what impact the scheme will have on the Wendover social structure or economy. It has done no local work or surveys and not troubled to check the "facts" gleaned from a few hours on the internet. On this basis, there can be no confidence that the formal ES will have any basis in fact or adequate compensation paid.

Health Issues

The introduction of a High Speed Line close to a large community – about 4500 people are living within 1 kilometer of the line - brings potential health hazards that this draft Environmental Statement has not addressed.

(1) Detailed below is a schedule issued by HS2 Ltd., showing the number of work camps in and around Wendover, and more importantly the number of workers who will be working there and potentially residing there as well. Very simply for a period of 1.5-4 years there could be an average of up to 425 workers involved with a peak as high as 535. This will give rise to more demand on the services of Wendover Health Centre. It therefore will require incremental resources. What incremental funding is available during this construction phase from HS2 Ltd., and/or the Department of Transport to ensure Wendover Health Centre will continue to offer the same level of service to the community of Wendover as it does today.

(2) During the construction phase HS2 will increase traffic on the A413 by 30%. Up to 80 HGV lorry deliveries a day will be required for the main construction site for a 4 year period. In addition the construction of the cut and cover tunnel at Wendover will require the storage of a huge amount of chalk spoil to the South West of Wendover. As it dries out chalk dust could potentially blow across Wendover given the prevailing winds. Taking these two aspects into consideration how are the impact on people suffering from respiratory illnesses around Wendover being addressed by HS2 Ltd.

(3) There are other long term health issues related to exposure to excessive environmental noise (above 55dB) as outlined by the World Health Organisation in their report 'Burden of disease from environmental noise'. This highlighted concerns such items as:
- myocardial infarction,
- hypertension,
- sleep disturbance,
- tinnitus and
- cognitive development.

As the current plans by HS2 Ltd. show excessive operating noise (even after some mitigation) by the Church, Wendover Campus School, Hale road, Hale lane and London road this must be a

cause for long term concern that illness and even deaths may occur if the noise is not fully mitigated.

These concerns need to be addressed by HS2 Ltd. or the Department for Transport now and how they will provide funds for the necessary resources to address these issues.

Compound type	Location	Typical works coordinated from the compound	Estimated duration of use[11]	Estimated number of workers	
				Average work day	Peak period work day[12]
Main site	Main construction site at the Small Dean viaduct, map CT-05-037	Main area administration and support; viaduct, bridge, utilities and culvert works; footpath diversionary works	4 years	Up to 10	Up to 30
Satellite site	Worksite for the overbridge at Leather Lane, map CT-05-035	Overbridge, earthworks, public footpath diversionary works, utilities	1.5 years	Up to 60	Up to 90
Satellite site	Worksite for the viaduct at Wendover Dean, map CT-05-037	Earthworks, overbridge, viaduct abutments, culvert works, public footpath diversionary works	2 years	Up to 35	Up to 65
Satellite site	Launch area for the viaduct at Wendover Dean, map CT-05-036	Viaduct, earthworks, public footpath diversionary works	2 years	Up to 70	Up to 70
Satellite site	Worksite for the bridge at Rocky Lane, map CT-05-037	Bridge, earthworks, highway diversion, utilities	2.5 years	Up to 30	Up to 55
Satellite site	Launch area for the viaduct at Small Dean, map CT-05-038	Viaduct, earthworks	2 years	Up to 70	Up to 70
Satellite site	Storage area 1 for the green tunnel at Wendover, map CT-05-038	Green tunnel, earthworks, public footpath diversionary works, utilities	3 years	Up to 100	Up to 125
Satellite site	Storage area 2 for the green tunnel at Wendover, map CT-05-039	Green tunnel, earthworks, highway diversions, public footpath diversionary works, utilities	3 years	Up to 20	Up to 30
Satellite site	Worksite for the overbridge at Nash Lee Road, map CT-05-040	Overbridge, earthworks, highway diversions, utilities	3.5 years	Up to 30	Up to 60

Table 1: Location of construction site compounds

Total 1-4 years Up to 425 Up to 535

Ecosystems are often recognised as having no immediate market value. It is interesting that the recent UK National Ecosystem Assessment (NEA) which links the importance of ecosystem services with human well-being has apparently had quite an impact on UK environment policy. It is becoming clear that ecosystems play a very important role in human health – biodiversity and ecosystems can improve health through providing aesthetically important cultural and recreational spaces. As we all know the Chilterns AONB provides a hugely important cultural ecosystem service to both local people and to huge numbers of people from London and the southeast. Dept of Health figures estimate poor mental health costs the UK economy £145 billion per annum in health care, benefits and lost productivity. Has HS2 made any attempt to calculate the negative health effects and the costs to the UK economy in terms of poor mental health that the destruction of biodiversity and ecosystem services that HS2 will bring?

11. Sound, noise and vibration

(1) Description of the Contour Maps

The operational sound contour maps have been generated by a computer modelling tool and are estimates of the noise levels that will result from passing HS2 trains only. Any other sources of noise have been ignored. The modelling has been confined to a strip extending 1km either side of the track centre line

As is normal practice in noise mapping, the levels are given in decibels (dB). This is a compressed (logarithmic) scale that approximates to the way that we actually hear noise. The average person hears a 10 dB increase in noise level as an approximate doubling of volume. A 20 dB increase would be perceived as a quadrupling of volume.

The noise levels shown on the contour maps are not what you would hear when a single train passes. For the day-time measurement for example, the noise energy from every train that passes during the sixteen daytime hours is aggregated and an "equivalent continuous sound level" calculated that represents the continuous sound level that would release the same total noise energy over that period. Thus the actual sound generated when a train passes will be much higher than the indicated figures.

For the same location the equivalent continuous sound level for the day-time hours is, according to HS2 Ltd, 10 dB greater than the one calculated for the night hours. This does not mean that the trains are any quieter at night; it's just that there are fewer of them and so the "average" noise is lower.

(2) Consideration of Day-time Noise Levels

The lowest day-time noise level that may be discerned from the contour maps is 50 dB $L_{pAeq,16hr}$ – the symbols $L_{pAeq,16hr}$ indicate that it is an equivalent continuous sound level calculated over a 16-hour period. HS2 Ltd claims that "adverse effects are not expected" below this level.

The WHO regards 50 dB day-time noise as the level that should not be exceeded "to protect the majority of people from being moderately annoyed during the daytime". So anyone who lives within a colour-shaded area marked on the contour maps is likely to experience at least moderate annoyance due to HS2 noise.

The same paragraph of the WHO document also advises that "to protect the majority of people from being seriously annoyed" the day-time level should not exceed 55 dB. So anyone who lives within the colour-shaded area marked on the contour maps, excluding the pale yellow zone, is likely to experience serious annoyance, or worse, as the result of HS2 noise.

The WHO also states that these recommended levels apply to "a steady, continuous noise", which HS2 noise will certainly not be.

Further the WHO says that "most countries in Europe have adopted 40 dB as the maximum allowable level for new developments". According to the WHO "the lower value [of 40 dB] should be considered the maximum allowable sound pressure level for all new developments.

The European Environmental Noise Directive (END) has recommends a more accurate methodology be should be used as a common assessment method for environmental noise and limit values (so-called CNOSSOS-EU which will be operational by 2017). This methodology gives a more valid assessment of annoyance levels but HS2 Ltd has refused to rework their figures.

(3) Consideration of Night-time Noise Levels

The actual noise generated by each passing train is the same for both day and night will exceed the 40 dB indicated by the HS2 Ltd contour maps. The WHO describes the expected health effects of night-time noise levels as follows:

"40 to 55 dB Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with the noise at night. Vulnerable groups are more severely affected.

"Above 55 dB The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardiovascular disease increases."

Based upon these descriptions, it is clear from the contour maps that have been published by HS2 Ltd that HS2 will cause significant sleep disturbance and risks to health in some locations.

(4) Unfettered noise pollution**.**

The Japanese have put substantial effort into research and design to make high speed trains (Shinkansen) quieter because the Japanese Government has imposed a legal limit equivalent to approximately 56 dB noise pollution that these trains are allowed to cause. This is a full 9 dB below the day-time noise level which qualifies for a sound insulation grant in the UK.

In the United Kingdom there are no statutory provisions to limit noise pollution. The only legal obligation on noise polluters is to make grants for sound insulation in extreme cases. HS2 Ltd has given no indication that it will set noise limits to determine the noise mitigation that will be offered, or if, as seems likely, noise mitigation measures will be determined more by economic considerations. It appears that, as things stand, HS2 will be a major, and largely unfettered, noise polluter.

Wendover HS2 would make the following observations:

1) The lack of ambient background noise measurements for Wendover is disturbing.
2) Not publishing the ambient noise levels of Wendover today invalidates the noise contour maps published as there is no reference point on which to compare the potential increase in noise.
3) Furthermore it does not allow for a validation of the base ambient noise levels and snapshot readings may give misleading results.
4) No detail is given of the assumptions used in the noise modelling thus stopping any validation and checking of its credibility.

5) There is apparently no monitoring or reporting beyond 1000m even though noise will travel beyond this point.

6) Of the results shown there are a number of issues:

a. The fact that the north-western side of the town will receive no sound from HS2 (only 200m away at it's nearest in a shallow cutting with a predominant wind direction from the South West) requires explanation as to how this is achieved.

b. There is a point about 25m from the green tunnel portal entrance which does not hear HS2 – seems unbelievable. The noise spreads to the side of the line but not very far behind the portal – is this right?

c. The noise levels at the South West end of the town impacting the Church, the school and houses including those on the London road, hale road, hale lane and A413 are unacceptable. Apart from the health impacts it will destroy a community centre- the church being used, and it will either stop the playgrounds of the school being used or endanger cognitive developments issues in children.

d. It is unclear if the valley topography has been taken into account.

e. **HS2 Ltd and the DfT have misled to us over the expected noise levels of HS2. In the sound booths used during the public consultation of 2011 they demonstrated a sound level of 62dBLmax at the corner of Church Lane and London road. On an average basis this becomes about 50-52dB's LAeq. HS2 Ltd now show this to be 60-65dB's - a potential four-fold increase in noise levels. This clearly highlights the lack of credibility that can be placed in the information provided by HS2 Ltd., and their consultants.**

There is no consequent to HS2 Ltd and the Department for Transport for this misrepresentation in noise levels. How trustworthy are their latest projections?

(5) Mitigation

- Overall more mitigation is required.
- Earth bunds and plantings are not effective methods of noise attenuation
- Apart from natural sounds, some areas are completely quiet at night. What measures is HS2 taking to ensure that this level of quiet is protected?

(6) World Health Organisation

The EU and WHO have set limits on environmental noise associated with projects. HS2 Ltd have referenced a day time noise of 50dB, and a night time noise level of 40dB. However these targets refer to projects that address existing infrastructure. For new projects such as HS2 the target should be 10dB lower at 40 dB daytime and 30dB night time noise.

In addition the playground at Wendover campus will breach WHO guidelines on children's play areas and will thus be unusable.

12 Traffic and transport

On reviewing the Travel and Transportation section, and the findings are as follows:

a) They have estimated the number of journeys needed by staff and materials coming to the local construction sites to potentially give rise to a 30% increase in traffic, and hare thinking about how to mitigate that.

b) There's no estimation about journeys for transportation of spoil from cuttings, but there are suggestions about "haul roads" – tracks that would be used by

heavy earthmoving equipment between Road Barn Farm past Rocky Lane to the Wendover Dean Launch compound, and the Wendover Dean Satellite compound to the Leather Lane compound. The wording in the document is imprecise and needs clarification.

c) Looking at the Construction phase maps shows significant "Materials Stockpiles" some distance from the track line, which seem to be there to allow the future construction of noise /Visual intrusion abatement embankments between the Folly Bridge portal and Nash Lee Road, and at Hartley Farm (north of Wendover Dean) which could hide the sight of the line from Dunsmore.

d) Finally, looking at the size and shape of the construction land take, it looks like they are planning to move five of the National Grid power pylons.

From the recent Draft ES consultation in Great Missenden - the HGV movements in Table 12 (for forums 7 to 10) do NOT include spoil! Apparently they 'haven't decided" what to do with it, and hope to get away with dumping it locally. In fact this should have been obvious from the text:

> "12.5.6 Construction vehicle movements related to the building of the Proposed Scheme have been calculated based on the quantity of materials required to construct the Proposed Scheme with a further 10% added to allow for ancillary delivery vehicles.
> 12.5.7 The typical numbers of vehicles estimated to be generated by the site compounds in this area are shown in Table 12."

Since we already have 300 HGV movements a day up and down the A413 there are likely to be capacity issues and increased congestion on this and the feeder roads particularly at peak times.

13 Water resources and flood risk assessment

The Wendover HS2 group are not geologists or experts on water resources or flood risks . This is therefore a lay interpretation and analysis of section 13 of the document. This represents our view of the most important impacts and omissions from it (based on the document and some reasonably perfunctory research). The main observations, are as follows:

Baseline

- According to the baseline, there are three Public Water Supply and five licensed private groundwater abstractions in the chalk. The proposed route runs through groundwater source protection zones for the public abstraction points. From the maps, the main point of public abstraction within our area occurs at Wendover Dean (in the vicinity of Mayertorne Manor).
- Groundwater levels are generally below the route elevation, but may rise above the base of the route north of Wendover Cricket Club.
- Weston Turville Reservoir is a Site of Special Scientific Interest (SSSI). It was formed in 1797 to manage levels in the Wendover Arm of the Grand Union Canal and is an SSSI

primarily as a site for a number of bird species (including being a nationally important site for the Shoveler and Water Rail).

- The area is not particularly susceptible to flooding – although HS2 Ltd do note the risk of flooding to their works during construction.

Construction

- During construction, there is an expectation of potentially significant impacts on the quality of groundwater extractions north-west of Wendover. HS2 would mitigate through monitoring and working with individual license holders (this appears to affect private groundwater extractions and not the public water supply).
- There is also a risk of reduced groundwater flows into the Weston Turville reservoir SSSI. There is a risk that the reservoir may not receive enough groundwater to replenish it (particularly during dry weather during the construction phase).
- HS2 Ltd do not appear to have identified definite strategies to mitigate that risk other than working with the "Canal and River Trust" (presumably the Wendover Arm Trust?) to investigate whether releases from the reservoir could be managed to reduce the impact on the SSSI. They say that they will conduct further analysis and we should hold them to that.

Operation

- This section, has very little substance and implies that it will simply all be fine. The thrust is that the scheme has been designed to mitigate any risk of pollution to groundwater sources or any impact on groundwater flows. As the report fails to explain what those mitigation measures are there is simply a lack of information to judge whether it is or is not true.
- In fact, the major thrust is that run-off will typically flow either directly to sewer or through SuDS (Sustainable Urban Drainage Systems) attenuation ponds into the sewer. Attenuation ponds help to manage the flow of run-off, harvesting water during periods of high rainfall and then gradually releasing it during drier periods.
- Despite a) the apparent criticality of these ponds in mitigating the risk of flooding and contamination and b) the significant number in our area (I count 16 separate ponds of differing sizes in our area alone) there are no details on what these new features would look like, whether will be open or enclosed, how they will operate (will they contain water all of the time or sometimes be dry), how safe they will be (particularly for children), and whether they will be beneficial from an environmental perspective (planted in such a way as to encourage wildlife) or simply concrete.
- The approximate locations of the attenuation ponds are as follows (sizes are our interpretation and we would encourage people to look at the maps CT-05 and CT-06 to get a sense of scale):
    - Leather Lane (medium)
    - Bowood Lane overbridge (medium)
    - Wendover Dean farm (one very large and two medium)
    - Rocky Lane (two large, two medium, one small)
    - Grove Farm (two medium)

- Ellesborough Road (one small)
- Nash Lee Lane (one small)
- Maintenance loops site (one large, one medium)

- It is critical therefore that we are provided with greater detail about these ponds and the chance to engage in their design (from visual, environmental and safety perspectives).

Summary

In summary, the key points are:

- There is a significant risk to the Weston Turville Reservoir SSSI during construction that HS2 Ltd need to demonstrate that they have addressed.
- There is a risk to private groundwater extractions during construction, particularly to the north west of Wendover, that HS2 Ltd need to address.
- There is a fundamental lack of detail about the way in which HS2 Ltd intend to mitigate flooding and groundwater contamination risks during operation (as opposed to during the construction phase). They need to publish far more information for us to consider whether they are making adequate safeguards.

In particular, HS2 Ltd must provide more detail about the nature and operation of the attenuation ponds, which are significant features and which at present we know nothing other than their approximate area).

Observations from other parts of the Community Forum Area report 10:

2.1.11 Note there are four nurseries in Wendover : Jack-in-the-Box; Little Acorns kindergarten; The Children's Day Room and Wendover Pre-School. There are a further two nurseries in Halton (Cherry Trees and Bambinos) and another at Lee Common (Leeside). There are three main Churches communities within Wendover, although only two church buildings. There are a further two churches in Halton, one at Dunsmore, one at Bowood Lane, one at the Lee (perhaps classed as two as the ancient church is behind a slightly more recent one) and one at Lee Common.

2.1.12 Outside Wendover there are further children's play parks at Halton and Lee Common, with another Cricket Ground at the Lee

Map CT-04-INDEX-CFA10 : mis-spelling of Dinton (find Dirton)

Map CT-04-09 Coombe Hill is labelled in entirely the wrong location (that is Aston Hill).

Mitigation

Our Preferred Solution - A Bored Tunnel through the Whole of the Chilterns AONB

A properly constructed bored tunnel would bring many benefits to Wendover and the AONB. The proposals put forward by Chiltern Ridges Action Group of Option B and Option C brings many benefits. As CFA report 9 states in section 2.6.11
Option B and C would both perform better on environmental grounds compared with Option A as they avoid a range of impacts upon environmental receptors due to reduced surface impacts. There would be reduced landscape and visual effects on the AONB and benefits for ecology. In particular, a number of areas of ancient woodland would be avoided. Under Option B this would include Sibley's Coppice and for Option C this would include Sibley's Coppice, Farthing Wood and Mantle's Wood. In addition, the land severance impacts on agriculture and habitat would be reduced under Option B and C compared to Option A.

Section 2.6.12 states

Option B and C would also reduce operational noise impacts and for certain locations would result in reduced construction impacts as well.

Specifically for Wendover the benefits are manifold
It would avoid demolishing:

- Durham Farm and 4 commercial buildings
- Road Barn Farm and outbuildings
- Houses along Ellesborough Road
- destruction of the Wendover Cricket pitch
- Having to move 5 pylons near Wendover

It would avoid having to build the following structures:

- 'Wendover Dean Viaduct': c500m long viaduct; max height 17m. With noise barriers on both sides and long embankments at both ends
- 'Small Dean Viaduct' over the A413: c500m long viaduct; max height 13m. With noise barriers on both sides. Followed by c700m embankment, up to 11m high
- Auto-transformer stations near Hartley Farm and Nash Lee Road
- New overbridges to allow line to pass under existing roads, e.g. to enable HS2 to pass under the private access road to Grove Farm
- Noise barriers from Grove Farm up to green tunnel portal at Bacombe Lane
- Green tunnel: with perforated hood at either end to mitigate sound waves. (Will not be completely below ground but a visible 'hump' in the landscape)

- A tunnel portal building at either end of the green tunnel
- Bridges over the A413 Nash Lee Road and Nash Lee Orchard public footpath
- New drainage ditches and ponds to mitigate against flooding

It means the following Road changes will not be necessary:

- Temporary diversion of Ellesborough Road behind the terrace of cottages. (Therefore Ian Rennie Memorial Woodland now not affected)
- Permanent closure of Bacombe Lane and a new link road created between Bacombe Lane and Ellesborough Road for access to Bacombe Lane
- Temporary closure of Bowood Lane and Small Dean Lane
- Permanent diversion of Rocky Lane
- Diversion of access to The Hollies and Hartley Farm
- Realignment of private access road to Boswells Farm and Hog Trough Lane
- Road upgrades to Small Dean Lane and the access road to Grove Farm
- New access track to ponds near Wendover Dean Viaduct
- 400m access track continuing on from Grove Farm to access the portal
- Diversions including:
  - Footpaths temporarily or permanently diverted, including the Chiltern Way, Ridgeway.
  - Diversion of water main, gas main and high voltage electricity lines.

It will avoid having a Significant Impact on Farming
11 out of 13 farms were to experience land loss, severance and loss of buildings during construction (Hunts Green Farm; Strawberry Hill Farm; Durham Farm; Upper Wendover Dean Farm; Hartleys Farm; Road Barn Farm; Bank Farm; Grove Farm; Smalldene Farm; Wellwick Farm; and The Orchard, Nash Lee Road)

Permanent significant land loss to be felt at six (Hunts Green Farm; Hartleys Farm; Bank Farm; Grove Farm; Wellwick Farm; and The Orchard) will be avoided. And:

> **"The future of Durham Farm and Road Barn Farm is difficult to assess as there is likely to be significant property demolition, and negotiation with HS2 Ltd regarding their possible replacement has yet to be undertaken."**

Cultural Heritage would be saved

- Part of Grim's Ditch, a scheduled ancient monument, destroyed and the remainder negatively impacted
- Ten Grade II listed buildings (at Hunt's Green Farm, Woodlands Park, Cottage Farm, Wendover Dean Farm, and Upper Wendover Dean Farm) affected by changes to their setting.

The Ecological Impacts would be minimised

The benefits here are huge and having a tunnel will avoid most of them.
Weston Turville Reservoir SSSI is designated for reed beds and lowland fen (both of which are habitats of principal importance), rare plants (including mudwort, orange foxtail and grey club rush), wintering birds, and some notable aquatic invertebrates. Although 1.1km north of HS2, it is connected to the proposed HS2 cuttings near Wendover by groundwater-fed streams. The Wendover Green Tunnel and adjacent cuttings could intercept the groundwater flows that feed streams that flow into the Weston Turville Reservoir SSSI. "Effects are only likely to be associated with periods of low rainfall, following which water levels in the SSSI would recover. ..the periodic reduction in water levels could reduce extent of the reed beds and lowland fen, habitats for which the site is designated. Changes in these habitats would have resulted in **permanent adverse effect on the site's integrity that would be significant at up to the national level.**"

Woodland – Rushmore Wood and Jones Hill Wood are ancient semi-natural woodland, habitats of principal importance and local BAP habitat connected to each other and several smaller woodlands. HS2 would require 0.85ha (46%) of Jones Hill Wood, which all is ancient woodland and therefore irreplaceable. The remaining isolated woodland would be of reduced ecological value. Habitat loss of this extent would result in a **permanent adverse effect** on ancient woodland conservation status.

Hedgerows – many are likely to qualify as a habitat of principal importance and as a Local BAP habitat. Some also meet the wildlife and landscape criteria specified in the Hedgerows Regulations (1997). Most hedgerows are intact and provide habitat continuity, particularly with the ancient woodlands to the west of the route. **The route would remove approximately 60 hedgerows (up to 19km) and fragment a network of mature hedgerows**, some of which link to woodlands and a number of which are likely to be long established as species rich. Commitments to reinstate hedges through planting and translocation will reduce the extent of effects and reinstate connectivity either side of the route, but not over it. There would therefore still be a **permanent adverse effect on hedgerow conservation status**.

Several **small bat roosts** supporting more common species are known in or next to the HS2 route but few other records have been recorded to date. (Suitable habitat for Barbastelle bats is present near HS2 but their presence has not been confirmed). The intersection of the route with Leather Lane, Bowood Lane and Chesham Lane would fragment several known movement corridors used by pipistrelle bats. These impacts would result in a **permanent adverse effect on bat conservation status** that is significant at the district/borough level.

Great crested newts are listed under the WCA and the Conservation of Habitat and Species Regulations (2010 as amended). Small populations have been recorded near Wellwick Farm, Hartley Farm and Wendover Church but in low numbers. **Toothwort**, which is a county-scarce species, is present on the HS2 route. **Black poplar, box, wood barley and white helleborine** are present in or near the route; the last is also a species of principal importance.

Visual Blight

People visit the Chilterns and Wendover to escape the big city and experience the countryside. Having the line located in a valley makes the line very visible from a great distance away. The view from Coombe Hill will be impacted as will various list buildings. By removing a visual eyesore which with the viaduct and embankments through Wendover dean will allow the visitors to the Chilterns and Wendover to continue to enjoy and benefit from this unique area.

Noise

The noise profile shown by HS2 without a tunnel is devastating. The church could become unuseable. The Wendover Campus school for BESD pupils will become an issue and their playground potentially un-useable . The noise levels for house holds in the area is such that gardens and patio's may become significantly impacted and certainly unenjoyable. A tunnel will avoid this.

HS2 Ltd. Through the sound booths promised a sound scenario which was apparently acceptable. Their latest sound maps imply they made a mistake and it will be too loud to be tolerated. A tunnel will avoid this.

The noise map showing the tunnel portal at the other end of the town implies that Bridleways and Lionel Avenue will not hear the train. We believe this is wrong. The solution is to move the tunnel portal further away from Wendover.

How will a tunnel impact Wendover

It is clear in the long run on an operational basis a tunnel provides many benefits to Wendover provided the tunnel portal is in the right position.

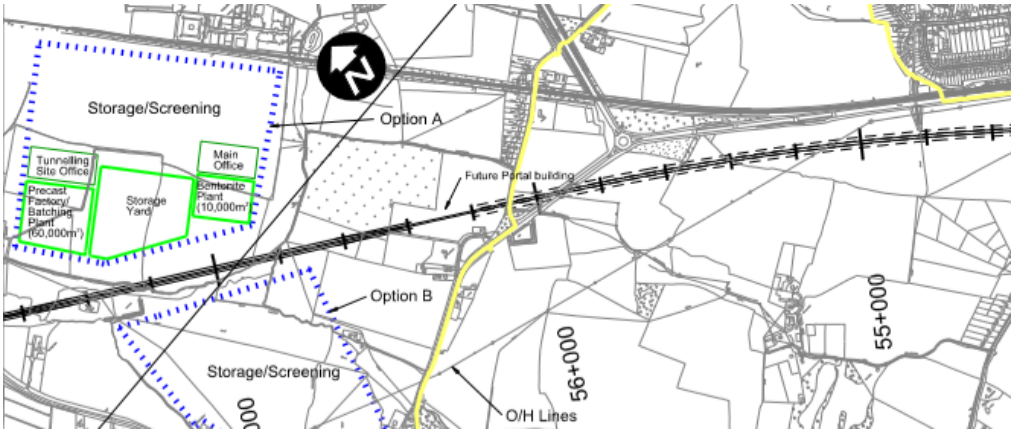
Most of the debate and issues centres on the construction period.

On one hand we have an open concrete box being constructed over 3 years along the full width of the town. It will involve the earth and chalk being excavated and stored while the 'green tunnel' is constructed. Given this construction is along the whole of the town it will be pretty devastating during this period with many HGV movements and potentially chalk dust being blown over the town.

A bored tunnel will take longer – 6 years v 3 years, require a bigger work camp and require more traffic movements to handle spoil and raw material receipt. However there are ways of mitigating these impacts to make them bearable.

1. **Tunnel Portal Position**. Firstly we believe that by making the bored tunnel portal as far away from the town as possible it will remove a source of noise and pollution from where people are living. Our preferred option would be to have the bored tunnel start to the north of Nash Lee lane preferably not before chainage 56.400. If there has to be an open portal in the AONB then as an absolute minimum we believe that the open tunnel portal should not be nearer the town than chainage 55.800. Clearly the bored tunnel portal is important only if it is open to elements and allowed to pollute the town. We believe that the bored tunnel portal should be no nearer to the town than chainage 54.800 to stop vibration and other impacts . However if it has to be this near to the town then a green tunnel needs to be built and the TBM's launched through it (from 55.800 to 54.800).

2. **Site Location**. By locating the main site to the north of Wendover mid way between Wendover and Stoke Mandeville we believe this is far enough away to mitigate the worse impacts of having an industrial sized work camp located there. The Interim Atkins report suggested two locations however Option A



appears to be the most optimal being located between the two towns.

3. **Transportation**. Sited at option A has a decided advantage in being situated alongside the Chiltern Line. While a bored tunnel will focus operational work at both ends of the tunnel it also offers the opportunity to centralise certain activities. In this case the use of a spur off the Chiltern Line to bring in raw materials and take away spoil will take a lot of HGV's off the A413 and associated roads. By having a bored tunnel and having a focussed activity with rail access we believe this will make the traffic movements on the A413 more bearable compared to the green tunnel option.

Therefore for the above 3 reasons we believe the worst impacts of the construction of a bored tunnel can be mitigated and therefore this is a realistic aspiration for the community of Wendover to demand a fully bored tunnel through the Chilterns.

The final Atkins report on the CRAG tunnel proposals puts the cost at £321-345M. This would be more that offset by the environmental, health and social impacts this proposal will have on Wendover and the Chilterns. Along with the saving in property compensation this makes absolute sense to have a tunnel.

We are aware that Stoke Mandeville believe that the existing green tunnel portal should not be moved from where it currently is at chainage 55.050. This is 200m from the corner of Wendover town and 2,900m from the corner of Stoke Mandeville. If the portal was at chainage 55.800 that would still be 2,150m from Stoke Mandeville and beyond their hearing distance. Even if the portal was at chainage 56.400 it would still be 1,550m from the the corner of Stoke Mandeville and the noise would not under the current laws of physics be noticeable. While we have attempted to explore these issues with Stoke Mandeville Parish Council and Action Group they have been reticent in discussing the rationale behind their thinking in coming to this position.

Escape Facility

Another aspect of a fully bored tunnel is the need for an escape facility if the tunnel from the M25 is extended to Wendover. Under current legislation an escape facility appears to be required. The Wendover HS2 position is that the current options – Mantle's Wood or Durham Farm are both feasible and may be necessary. However until a decision is taken on the tunnel then this is academic – once a decision has been made then it is possible to discuss the precise horizontal alignment to find a solution that does not involve either the destruction of a farm or an ancient woodland. We would like to be involved in those discussions.

It is our belief that the new TSI legislation which should come into force by the EU in the next 12-18 months will do away with the need for an escape facility and therefore the need for this facility will go away.

Tunnel Vents

Some vents will be required to support a fully bored tunnel through the Wendover area. We understand they need road access to them. Having reviewed the position we believe the best situation is as follows:
For Durham farm we believe the best situation is chainage 51.000 and
For Bacombe lane the best situation is chainage 53.100

Other Points

While a bored tunnel is the best solution we believe a proper hydrological survey is required to ensure not only that the invaluable aquifers along the valley and around Wendover are

not disturbed but also key springs feeding into Hampden Pond and the Wendover Arm canal.

Other Mitigation Options

If the government cannot find the money to build this line properly and provide a tunnel for Wendover then at a minimum we need more mitigation than is currently being proposed.

The Areas of Concern

A. To the north west of Wendover the green tunnel ends just past the houses at the edge of the town. These houses along Lionel Avenue, Aylesbury Road, Halton Lane and a couple of care homes by the entrance to Nash Lee Lane may still suffer from the impacts of noise and disturbance due to HS2. A particular concern is the air quality that will be blown over the town particularly once the line is in operation.

B. To the south east of the town, with the green tunnel portal near Bacombe Lane the line is raised compared to the town and continues on an embankment and viaduct as it crosses the A413. Numerous houses will be exposed to noise and disturbance in Bacombe Lane, London Road, Hale Lane and Hale Road.

   Significantly the 14th century, listed St Mary's church is still likely to be subjected to unacceptably high levels of noise and disturbance, jeopardising its continued pastoral and social roles in the community. A refurbishment programme costing around £1million was recently completed. The Church provides the highest capacity (300) meeting place in Wendover and is constantly used for social and cultural events. It has been the home for 50 years of the Wendover Choral Society (WCS) and Wendover Music with its annual series of concerts by national and international artists. Peter Bassano, musical director of WCS and of the Oxford University Sinfonietta, believes that the noise of HS2 will make it impossible to hold concerts at St Mary's in future. There is no alternative venue in the Wendover area.

   The Wendover House School/Wendover Campus is next door to St Mary's and its playing fields will be fully exposed to high noise levels. High noise levels have been shown to impact children's development. This is particularly important for this school who cater for pupils suffering from **B**ehavioural, **E**motional, **S**ocial **D**ifficulties. These disturbed children who suffer from a lack of concentration will find the noise and visual distraction of HS2 enough to engender antisocial and potentially dangerous reactions.
   There is also general concern about other noise effects on the Hampden Pond, the skate board park and in the South Street area including the nursery school located there.

C. The embankments through Wendover Dean will be a significant source of noise for those people living along the A413.

Potential Mitigation Actions.

1. To the north west of Wendover as the green tunnel exits into a cutting in this direction it would seem to be fairly simple to actually extend the green tunnel to just past where Nash Lee Lane crosses the line. This would not only secure that end of the town from noise and dust, it would also help address the bridge over the HS2 line to ensure Nash Lee Lane is not cut off. In addition it would minimise the long term disruption to farming and effective land take. This should not be particularly expensive and would enable the usage of some spoil over the green tunnel.

   A relatively cheap option would be to use 'TechSpan' type arches to allow quick and easy construction while providing the necessary noise attenuation especially from pantograph noise. Its strength will enable the structure to be covered by earth and returned to farm use. It may require spoil being used to grade the slope over the structure which will make the line less visible from Coombe Hill. This would have the advantage of moving the portal entrance away from the town.

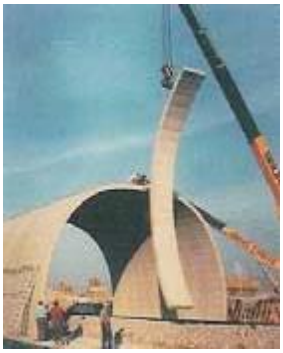
   The depth of the cutting may be sufficient to hide the train and pantograph although its actual depth still appears to be uncertain. Even so earth bunds of sufficient height and absorbent barriers would be required to ensure the noise does not roll up the slopes. Additionally the prevailing wind direction from the south west will tend to blow the noise over Wendover unless proper noise mitigation measures are taken. Need some certainty over depth and the level of mitigation required to be sure that barriers and bunds offered a suitable and effective solution.

2. To the south east of the town there are a number of solutions which may be considered to the noise problem. The key thought on the part of HS2 is that if you cannot see it you will not hear it (assuming the covering/barrier is properly specified)..

   One option to mitigate these impacts would be to continue the green tunnel eastwards extending the railway beneath the A413 and Chiltern Line. This would require HS2 to be lowered and by the time the line gets to Wendover Dean it would probably be in a cutting. However, there are a number of advantages to this approach:
   A) This would solve the geometric problem associated with the extremely low skew angle, in which the proposed viaduct over the A413 and Chiltern Line would require a span of at least 60-80 metres, resulting in a very expensive truss or cable stayed span and/or increase in construction depth. It might be possible to reduce the span

by diverting the road, but that introduces further land take issues that will lead to considerable disruption during construction and an ongoing change.
B) It will avoid the cost of having to relocate some of the line of electricity pylons.
C) It will reduce the amount of property blight in this part of the town.
D) It would help negate the need to consider an aesthetically acceptable viaduct design at Wendover Dean, as highlighted by CPRE and the Chilterns Conservation Board.
E) It would help protect the church and reduce the related social and community impacts.
F) It would protect the BESD children in the playing fields around the Wendover Campus school who are a vulnerable grou; also children using the skate board park and the nursery school in South Street.

A second option assuming the bridge over the A413 is wide enough and strong enough is to use the 'Tech Span' type enclosures from the portal of the green tunnel through to where the line crosses the A413. Putting a green roof on this will help it blend into the background.



This would also achieve the benefits of effectively extending the green tunnel and whilst being cheaper in construction terms than the extended green tunnel. It would be more visible and would require some of the pylons to be moved (as they currently are planned to be), however it does achieve the noise mitigation desired.

A third solution to the concerns in this area is to the use of the HS2 preferred enclosure. This was presented to the UIC 7th Annual Noise Reduction Workshop – 7th November 2011. See image below:

Using this solution as an enclosure from the green tunnel portal then onto the viaduct over the A413 will provide the noise mitigation required to protect St Mary's, Wendover Campus and eastern side of the town. It may be more aesthetically pleasing than the 'techspan' option just discussed.

A fourth option is to consider barriers and earth bunds. The geography/topography militates against the use of earth bunds here as it would not be possible to get sufficient height to be effective. Given this is the Wendover Gap of the Chiltern's the noise mitigation needs to consider not only those dwellings and buildings which are below the line and in the valley but also those dwellings across the valley on the same level as the line and those further up the hill in Bacombe Lane. For this reason low viaduct barriers would not be effective. A minimum height of 6-7m noise absorbent barrier with reflective top would be required. This however could lead to two new problems, firstly an increase in transmission noise through the barrier which given its location would have to be mitigated and secondly the barriers refecting noise up the hill towards the houses in Bacombe Lane. It would be very unsightly compared to the other options already mentioned. Overall we do not consider this solution would be adequate or acceptable for this end of the town. Therefore we believe the solution has to be an enclosure or extension of the green tunnel.

3. The houses along the A413 will be severely impacted by HS2 noise especially given the embankments being used along that stretch of line. An enclosure on the embankments for example the HS2 proposed option would address this issue and be less unsightly that tall absorbent barriers on the embankments.

   The general input we have received from the community is that noise blight is more intrusive that visual blight

These mitigation actions address the noise propagation path in seeking to protect the town from unacceptable levels of noise. An option if there is doubt about the effectiveness of the noise mitigation proposed is to adopt the Swiss approach to noise control. That is in areas of noise sensitivity, such as around dwellings, is to institute a series of ongoing noise monitors locations with legally enforceable noise thresholds. These would be regularly monitored by the local environmental health department and where the thresholds are breached then the line operator would be legally required to adjust their operations to comply with the thresholds until the situation is resolved. This could include reducing train speed or frequency of operations. Obviously to work this would require an agreed working threshold which the town could 'live' with.

Community Payback

The HS1 project recognised that communities where the line passed through did not directly benefit from the scheme at all. In order to compensate these communities for the disruption during construction and ongoing blight impacts they adopted two approaches. HS2 should do the same.
1)Firstly they set community funds that the impacted communities could call on to fund social and community projects. These ran to several millions of pounds and lasted for a long period of time after the line was opened. The same should be done here to help local groups such as the youth club, or Parish Council having access to fund community benefitting projects.
2) HS2 Ltd., and its contractors should restore and remediate their impacts up to the highest benchmark levels. A couple of instances come to mind although others will arise through the process. Firstly with all the incremental traffic movements along the A413 the road will need to be completely resurfaced by the end of the project. HS2 Ltd., should pay to have it resurfaced using 'silent tarmac' and thus reduce road noise around Wendover. Secondly having moved the pylons HS2 Ltd.,/DfT should pay the incremental cost of burying them.

These ideas are not to take money away from the need for benchmark levels of mitigation but to separately recognise by the DfT that the community should be rewarded for having to suffer the disruption associated with HS2.