July 2015

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) BILL

HOUSE OF COMMONS SELECT COMMITTEE

Chilterns tunnel and other issues

Promoter's Response Document

INTRODUCTION

This Promoter's Response Document addresses issues raised in a large number of similar petitions, which all call for an extended Chilterns tunnel as well as raising a number of other issues, which are also addressed.

In this PRD, 'the Promoter' means the Secretary of State and HS2 Ltd acting on his behalf.

The purpose of this response is to advise you and the Select Committee of the Promoter's position in relation to the petitioning points raised. It is intended that this response will alleviate many of the concerns raised in the petitions.

The Table of Contents overleaf lists the page number and a summary statement of the issue(s) contained in the petition for quick reference.

Copies of the HS2 Information Papers referred to in the response can be found at https://www.gov.uk/government/collections/high-speed-rail-london-west-midlands-bill.

Attached to this response are:

- a map showing the route of the Proposed Scheme with the location of the Petitioners who are receiving this response;
- a map showing the Chilterns Area of Outstanding Natural Beauty (AONB) and the route of the Proposed Scheme where it passes through the AONB;
- a map showing the main Chilterns tunnel extension proposals; and
- a cost comparison table for the main Chilterns tunnel extension proposals.

If you do not have access to the internet you may request hard copies of the documents referred to in this PRD from HS2 Ltd by writing, emailing or calling the HS2 helpdesk at:

High Speed Two (HS2) Ltd
One Canada Square
London
E14 5AB

Email: HS2enquiries@hs2.org.uk

Telephone: 020 7944 4908

Department for Transport
High Speed Two (HS2) Limited

TABLE OF CONTENTS

Wendover Green Tunnel	123

TUNNEL OPTIONS

Impacts of the Proposed Scheme in the Chiltern Area of Outstanding Natural Beauty (AONB)

1. The effects of the Proposed Scheme on the Chilterns Area of Outstanding Natural Beauty (AONB) have been the subject of extensive consideration both in the identification of the route and through the assessment in the Environmental Statement (ES).

2. The current Proposed Scheme, as specified in the Bill and described in the ES, now includes the extended twin-bored tunnel, 13.5km long including portals, of which just under 9.6km lies within the AONB. Going north through the remaining 11.2km section of the AONB, the route includes several lengths of cutting and the two green tunnels at South Heath and at Wendover, now approximately 1.2km and 1.3km long respectively. Two viaduct structures with short sections of embankment leading up to them are included: one crossing a dry valley at Wendover Dean and one crossing the A413 and the Marylebone to Aylesbury railway line.

3. Of the 20.8km of route in the Chilterns AONB, approximately 46 per cent of the length is proposed to be in bored tunnel; approximately 12 per cent in green tunnel and approximately 26 per cent in cutting. Thus, in total, some 84 per cent of the route in the AONB is now below ground level or in tunnel. The only sections on embankment or on viaduct lie between the Wendover Dean viaduct and the Wendover green tunnel – that is, along the most developed section of this part of the AONB, crossing the existing transport corridors of the A413 and the Marylebone to Aylesbury line. This section will be further screened by false cuttings, planting and noise barriers where appropriate.

Environmental effects and proposed mitigations - construction

4. Paragraph 2.5.25 of the ES Volume 3 sets out the key impacts on the landscape of the AONB during the construction phase as follows:

- the removal of woodland including 10.2ha of ancient woodland (including 6.2ha at Mantle's Wood, 0.5ha at Farthings Wood, 2.5ha at Sibley's Coppice and 1ha at Jones' Hill Wood), substantially altering the character of parts of the Misbourne Valley but only slightly altering the overall wooded character of the AONB as a whole;
- the loss and severance of agricultural land, including the loss of mature hedgerows, locally altering the rural agricultural character; and
- the removal of small areas of historic sunken laneways at Bowood Lane and Leather Lane, and a section of Grim's Ditch scheduled monument.

Ancient woodland

5. It is recognised that ancient woodland is irreplaceable. In terms of landscape character, the proposed planting would quite substantially mitigate the significant adverse effects reported for year 1 and 15 of operation.

Mantle's Wood, Farthings Wood, Sibley's Coppice and Jones' Hill Wood

6. The ES, Volume 2, CFA 9 report, acknowledges that construction will remove 6.2ha (31 per cent) of woodland from Mantle's Wood, of which 4.2ha is ancient replanted woodland and 2.0ha is ancient semi-natural woodland. The construction of the Chiltern tunnel north portal will also sever Mantle's Wood creating two smaller woodlands (7.8ha and 6.3ha north and south of the route of

the Proposed Scheme respectively),(see paragraph 7.4.3).

7. At Farthings Wood construction will remove approximately 3.5ha (27 per cent) of woodland, 0.5ha of which is ancient replanted woodland and the remainder is lowland mixed deciduous woodland, a habitat of principal importance, (see paragraph 7.4.4).

8. Construction will remove 2.5ha of woodland, affecting the southern part of Sibley's Coppice Local Wildlife Site (LWS). As the entirety of the LWS is ancient woodland, its extent is important to its integrity, as is maintaining a minimum viable area. (The latter is defined as the smallest possible size (extent) at which the woodland can maintain its biological and ecological functions (for example, being species-rich) and exist without being damaged due to increased vulnerability by external environmental factors), (see paragraph 7.4.5).

9. Five areas of lowland mixed deciduous woodland (of 16ha, 8ha, 3ha, 3ha and 10ha respectively) will be created near South Heath. This will compensate for the loss of woodland at Mantle's Wood LWS, Hedgemoor and Farthings Wood LWS and Sibley's Coppice LWS (7.4.23) and will result in a net increase in the extent of woodland (see paragraph 6.4.2).

10. This new planting will provide an overall increase in secondary woodland cover of approximately 40ha of lowland mixed deciduous woodland (a habitat of principal importance) (see paragraph 7.4.24).

Jones' Hill Wood CFA 10

11. The ES, Volume 2 CFA 10, report, paragraph 6.4.19 confirms that land will be required for the construction of the Proposed Scheme from Jones' Hill Wood (DWH030), ancient woodland of high value. Construction of the South Heath cutting was stated to remove approximately 0.9 to 1ha of the existing woodland. Subsequent consideration of the works in this area has identified that the temporary material stockpile and haul road can be relocated outside Jones' Hill Wood. These proposals would reduce the amount of existing woodland to be removed from approximately 0.9 to 0.44ha (approximately 0.44ha of woodland will still need to be removed for the cutting).

12. The loss of ancient woodland from Jones' Hill Wood will be compensated through a range of measures. Ancient woodland soil with its associated seed bank will be salvaged and trans-located to the ecological compensation area east of Jones' Hill Wood and planted with broad-leaved trees so as to increase the extent of woodland and increase connectivity across the landscape. This new planting will provide connection between Jones' Hill Wood, and the un-named wood 180 metres to the south-east. In turn, this will provide a good habitat connection between Jones' Hill Wood and Rushmoor Wood, the ancient woodlands in this district. Other measures such as planting native tree and shrub species of local provenance and translocation of coppice stools and dead wood will be undertaken in accordance with the ecological principles of mitigation (ES, Volume 5, Appendix CT-001- 000/2) (see paragraph 7.4.30). Consideration is currently being given to moving the temporary material stockpile to a location outside Jones' Hill Wood.

Loss and severance of agricultural land

13. The Promoter has undertaken extensive investigation of the effects of the scheme on farms, estates and rural businesses, through a programme of farm and business impact assessments, environmental surveys and direct discussions with farmers and landowners along the route of the Proposed Scheme, including the effects and the possible mitigation options arising from land severance which fed into the ES.

14. Development of the scheme proposals to date has been informed by the information and intelligence gathered through these programmes.

15. As HS2 Information Paper C2, Rural Landowners and Occupiers Guide sets out, the provision of permanent accommodation works will depend on the individual circumstances on the holding and will usually be developed as the detailed design of the Proposed Scheme is undertaken. (Accommodation works are taken to include accommodation bridges and access arrangements and will have regard to the commercial justification by the land owner, such as the value, use and location of the lands concerned.)

16. The nominated undertaker will discuss with each land owner the provision and timing of accommodation works as part of the compensation package.

Reinstatement of agricultural land and maintenance of access

17. In relation to reinstatement of agricultural lands, HS2 Information Paper C2, Rural Landowners and Occupiers Guide sets out that the Environmental Minimum Requirements (EMRs), including the Code of Construction Practice (CoCP) will:

- Provide effective planning, management and control during construction to control potential impacts upon people, businesses and the natural and historic environment; and
- Provide the mechanisms to engage with the local community and their representatives through the construction period.

18. Controls will be implemented to mitigate potential avoidable impacts on soils, farms and farm-based businesses, including maintaining access. For further information, see HS2 Information Paper E24, Private Means of Access and HS2 Information Paper D11, Maintaining Access to Residential and Commercial Property During Construction. There can be no standard approach to dealing with existing private means of access. Each location has to be considered on a case-by-case basis on its own merits. These controls will also provide for the reinstatement of any agricultural land which is used temporarily during construction, where this is the agreed end-use.

Loss of mature hedgerows

19. The Proposed Scheme includes a comprehensive package of measures to avoid and mitigate detrimental effects on the environment. These include the reinstatement and introduction of hedgerow planting to reconnect severed lengths of hedgerows and to break up the linear alignment of the Proposed Scheme, integrating it into existing vegetation patterns.

20. In order to restore, recreate and enhance the habitat connectivity provided by hedgerows, many of the replacement hedgerows will fall within the zone required for construction. There will be phased restoration of land that is temporarily required and hedgerows will be planted as soon as possible. Where necessary, for example to retain an important bat commuting route, temporary replacement features that can be moved during the main construction works will be used.

21. In relation to woodland areas within the AONB, approximately 50ha of new woodland planting is proposed to replace areas of lost woodland and to introduce new areas of woodland to break up the linear alignment of the Proposed Scheme, integrating it into the existing vegetation patterns.

Leather Lane

22. As the ES, Volume 2 CFA 9 report sets out, optioneering in relation to the proposed new road overbridge at Leather Lane has sought to minimise impacts on its trees and embankments (see paragraph 2.6.41 – 2.6.44), so that the selected alignment 'will avoid the loss of mature trees and an established farmland pond' (paragraph 7.4.1). There will be a loss of hedgerows 'between Jenkin's Wood and Leather Lane', however, proposed mitigation measures provide for their re-instatement (see paragraph 7.5.1). As paragraph 9.5.96 of the ES, Volume 2, CFA 9 report sets out:

> 'By year 15 and beyond to year 60 of operation, a linear swathe of planting will have established to form an effective screen of the Proposed Scheme in cutting.
>
> 'Embankments associated with Leather Lane bridge will be further screened as mitigation planting matures, softening and integrating the Proposed Scheme with the surrounding landform thereby reducing effects to being non-significant. These are reported in Part 4 of Appendix LV-001-010 (Volume 5)'.

Bowood Lane

23. As the ES Volume 2, CFA 10 report sets out, Bowood Lane will be temporarily closed and re-aligned to accommodate the works for the Proposed Scheme, but then subsequently restored along its original route (see paragraph 2.3.25). Proposed mitigation planting on the embankments of Bowood Lane will be important in linking existing woodland in and around Jones' Hill Wood with new mitigation planting on the western side of the route (see paragraph 7.4.34). The creation of planted embankments at this point will encourage bats to fly at a safe height over the Proposed Scheme.

Grim's Ditch

24. Since deposit of the Bill, the Promoter has undertaken further surveys and been in discussion with Historic England regarding the extent of Grim's Ditch to the east. It is now understood that the Ditch did not extend so far east. As a result the proposed mitigation planting in the Bill to replicate the alignment of the Grim's Ditch Scheduled Monument will not be provided. The assessment of the impact on the setting of the monument is not affected by this new information. Please see the Promoter's response on cultural heritage for more information on Grim's Ditch.

Tranquillity

25. As the ES sets out, those areas of the AONB with a high level of tranquillity will not be noticeably affected by the construction of the Proposed Scheme due to their distance from the Proposed Scheme. The sole exception is the localised impact in the vicinity of the hidden fold in the landscape at Wendover Dean. Areas of low and medium tranquillity closer to the Proposed Scheme will be temporarily affected by the presence and operation of construction plant, construction activity and construction traffic. This is not considered likely to give rise to a substantial effect on tranquillity for the AONB as a whole.

Effects during operation

26. Paragraph 2.6.2 of Volume 3 of the ES summarises the proposed mitigation measures in the Proposed Scheme as follows:

'The operational assessment of impacts and effects is based on year 1 (2026), year 15 (2041) and year 60 (2086) of the Proposed Scheme. A process of iterative design and assessment has been employed to avoid or reduce adverse effects during the operational phase of the Proposed Scheme. Measures that have been incorporated into the design are documented in Volume 2, CFA reports 8, 9 and 10, Section 9; and those of particular relevance to the wider landscape assessment of the AONB include:

- an approximately 9.6km long bored tunnel under the southern portion of the AONB, with only vent shafts and associated infrastructure visible above ground;
- two green tunnels (total length 2.5km), allowing the reinstatement of the landscape above the Proposed Scheme adjacent to the South Heath and Wendover communities;
- the use of cutting for the majority of the remainder of the Proposed Scheme north of the Chiltern tunnel;
- the use of earthworks to integrate the Proposed Scheme into the landscape through the AONB, providing visual screening and noise attenuation;
- integration of embankment landforms into the natural topography, including earthworks associated with road diversions, and road and pedestrian bridges;
- the reinstatement and introduction of hedgerow planting to reconnect severed lengths of hedgerows and to break up the linear alignment of the Proposed Scheme, integrating it into existing vegetation patterns;
- the use of approximately 50ha of planting to replace areas of lost woodland and to introduce new areas of woodland to break up the linear alignment of the Proposed Scheme, integrating it into the existing vegetation patterns; and
- exploration, at particularly sensitive locations, of how effects will be mitigated.'

27. Taking these into account and the length of time over which a number of the mitigation proposals will become established (for example, the time it takes for replacement woodland to fully mature) and the sensitivity of the AONB, the ES, Volume 3 assesses that in the short term (from year 1 to year 15 of operation) there will be a moderate adverse effect of the Proposed Scheme on the AONB, but that over time, this will decrease until they are considered to be 'not significant' by year 60 of operation (see paragraph 2.6.33).

28. As the ES, Volume 3 sets out, modelling of cumulative effects on the AONB 'addresses the natural beauty and special landscape qualities of the AONB' as reflected in paragraphs 115 and 116 of the National Planning Policy Framework (NPPF).

29. At paragraph 2.37 of its response, Natural England, summarizing the ES's assessment of the extended bored tunnel option, states that since all tunnels perform well on environmental grounds in terms of avoiding 'a range of impacts upon environmental receptors'... 'it would seem, therefore, that an extended bored tunnel could provide the most effective means of mitigating the landscape and visual effects of the AONB'. However, Natural England go on to advise that:

> 'dialogue should continue with partners and stakeholders to ensure all other mitigation strategies are fully explored'.

30. The Promoter fully supports this view. Natural England's commissioned report 'A Strategic Analysis of the Sustainability Case for High Speed 2'in fact refers to the lessons learned from HS1, and that 'substantial mitigation measures involving design, alignment, planting, habitat creation and species relocation along the length of the route were developed to address some of the most significant landscape and biodiversity impacts.

Detailed design

31. The Promoter has offered Chiltern District Council an assurance on design and landscaping in the Area of Outstanding Natural Beauty (AONB) in February 2015.

32. The Promoter has, in so far as reasonably practicable, sought to avoid direct landscape and visual effects in relation to the scheme development, route optioneering and design and associated works.

33. The design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations. The level of detailed design necessary to enable the Proposed Scheme to be constructed has yet to be carried out, and is unlikely to be completed until after the Bill has secured Royal Assent. Once complete the nominated undertaker will need to apply for approval of the detailed design for various elements of the Proposed Scheme from local planning authorities along the route under the planning regime established under Schedule 16 to the Bill. This will ensure that although deemed planning permission for the Proposed Scheme is granted by Parliament, local planning authorities will be able to approve the detailed design thereby ensuring that the design of permanent structures fits into the local environment. This is explained in HS2 Information Paper E1, Control of Environmental Impacts and HS2 Information Paper B1, The Main Provisions of the Planning Regime.

34. HS2 Information Paper G6, Design Development – Detailed Design and the Role of Planning Authorities explains how engagement with planning authorities is critical to the design development process, and will continue as the process moves forward, with the Promoter engaging on detailed design.

35. Design of the Proposed Scheme to date has included keeping the Proposed Scheme low within the landscape where reasonably practicable to do so. In other locations the design has incorporated landscaped earthwork, tree planting (screening), cutting and tunnels to reduce impacts and to help integrate the Proposed Scheme into the local landscape. As acknowledged above, in total, some 84 percent of the route in the AONB is now below ground level or in tunnel. The only sections on embankment or on viaduct lie between the Wendover Dean viaduct and the Wendover green tunnel – that is, along the most developed section of this part of the AONB, including the existing transport corridors of the A413 and the Marylebone to Aylesbury line.

36. The Proposed Scheme is demonstrably justified against national planning policy, and development of the Proposed Scheme has had proper regard to, and fulfilment of, the Statutory Duty under Section 85 of the Countryside and Rights of Way Act 2000.

Alternatives

37. The impacts on the AONB have been considered at each stage of the evolution of the Proposed Scheme and in the evaluation of other options. As the ES Volume 1, Introduction to the Environmental Statement and the Proposed Scheme – Strategic and Route-Wide Alternatives sets out, in terms of the process of considering routes from London to the West Midlands, 'consideration of the effects on the Chilterns AONB was particularly important in this process'. In laying the Decisions and Next Steps document before the House in 2012, the then Secretary of State emphasised this, stating: 'we must safeguard the countryside and its wildlife as far as possible, both for the benefit of those living there today but also for future generations'.

38. The consultation route through the Chilterns announced in February 2011 already proposed designs to minimise the impact of the Proposed Scheme on the Chilterns AONB. This included a 9.6km twin-bored tunnel from just inside the M25 to Amersham, followed by 2.4km of deep, partially retained cutting and a further 1.3km length of twin-bored tunnel towards Little Missenden. Cut and cover tunnels (or 'green tunnels') were also proposed past South Heath and Wendover.

Route options

39. Any direct route between London and the West Midlands must cross the Chilterns AONB. The broad route of alignment of the Proposed Scheme through the AONB was established by the House of Commons at Second Reading.

2010

40. In March 2010 the Promoter published the initial preferred route (Route 3) broadly aligned to existing transport corridors (A413, Marylebone to Aylesbury line) before joining the route of the former Great Central Line between Aylesbury and Brackley. From there it runs relatively straight, passing to the east of Warwick and between Kenilworth and Coventry, towards the NEC. The Government then commissioned and received advice from HS2 Ltd on various aspects of the proposed route. In December 2010 the then Secretary of State took account of that advice when he made his announcement of the proposed route for public consultation. Furthermore, it offered significant advantages in terms of costs and journey time.

2011

41. In February 2011, the Government undertook a national public consultation on its HS2 Phase 1 proposals. The consultation document (High Speed Rail: Investing in Britain's Future - February 2011), explained the route options considered for the Phase 1 railway at Annex B. A question posed by the Government in that public consultation (page 112) was 'Do you agree that the proposed route, including the approach proposed for mitigating its impacts, is the best option for a new high speed rail line between London and the West Midlands?'.

2012

42. In January 2012, the Government announced its 'post consultation route' for the Phase 1 Railway in the Command Paper 'High Speed Rail: Investing in Britain's Future – Decisions and Next Steps. Chapter 6 of that Command Paper (page 92) stated the Government's conclusion, following the public consultation was that:

- 'The proposed route corridor, including the approach for mitigating its impacts, is the best option for a new high speed line between London and the West Midlands. Many people expressed a view on the line of route in their local area. HS2 Ltd looked again at the route in light of the consultation responses and, subject to the alterations noted below, we believe this route remains the best option in terms of its overall benefits and costs, including impacts on sustainability.

- A package of alterations to the proposed route should be made to further reduce its impacts on the local environment and communities. These include additional tunnelling in the Chilterns Area of Outstanding Natural Beauty and in the Northolt area of West London.'

43. That package of alterations and the Government's reasons for selecting it are set out in Chapter 6 of the January 2012 Command Paper.

2013

44. The draft ES included more detailed mitigation proposals and provided a further opportunity for the public to comment on the proposed route through the AONB. The Proposed route through the Chilterns set out in the Bill was assessed in detail in the ES.

45. The ES included an 'Alternatives Report', which explained and justified the selection of the Bill Scheme. Public participation took place in response to the ES under Parliamentary Standing Orders. A summary of the issues raised by the public's responses was reported to the House at Second Reading in accordance with Standing Orders. Second Reading of the Bill established the broad alignment of the route through the Chilterns as part of the principle of the Bill.

46. The alternatives included:

- a realignment and extension of the twin-bored Chiltern tunnel to provide a single, extended, tunnel from the M25 to Mantles Wood near South Heath (approximately 13.5km long). This longer tunnel replaced the 2.4km section of deep cutting near Amersham with tunnel and the realignment below ground significantly reduced landscape and visual, cultural heritage, biodiversity and noise impacts. It removed any potential impacts to the setting of the Grade 1 listed Shardeloes and its Registered Park and Garden and the tunnel realignment helped reduce impacts on significant groundwater resources;
- an extension of the green tunnel past South Heath northwards by 200m and a revision to the alignment, which allowed a reduction in the depth of adjacent cuttings from typically 15m to around 9m deep. These changes further reduced visual effects near South Heath; reduced the amount of excavation and land-take required; but retained similar performance in terms of noise impacts; and
- a revision and lowering of the route alignment by Wendover allowing the green tunnel past Wendover to be extended northwards by 800m. This ensured effective noise and visual screening alongside the main residential area of Wendover and allowed existing road infrastructure to be reinstated over the tunnel.

47. The Secretary of State has made clear that the Proposed Scheme sets out to achieve 'the lowest feasible impacts on local communities and the natural environment', with particular reference to the Chilterns AONB. As the 'Strategy and Summary of Decisions Document' sets out at paragraph 6.16, 'the revised tunnel alignment through the Chilterns will avoid an important acquifer, significantly reducing impacts on water resources, and the changes made also mean a reduction in the impacts on ancient woodland along the route'.

48. Route-wide, just over 20km of the HS2 route lies across the AONB, of which approximately 12km will be in tunnel and over 5km will be in cutting. The remaining 3km includes two viaducts, one of which is in order to cross a major transport corridor south of Wendover (the Marylebone to Aylesbury line and the A413). As the Decision Document makes clear:

> 'changes to the route following consultation mean that out of a total length of just under 140 miles, around 22.5 miles will be in tunnel or green tunnel. This is an increase of more than 50 per cent on the route consulted on. In addition, around 56.5 miles will be partially

or wholly hidden in cutting… This means that around 79 miles (more than half of the route) will be mitigated by tunnel or cutting.'

49. Section 2.6 of ES, Volume 2, CFA9 report provides further information the tunnel options in the AONB considered during the evolution of the Proposed Scheme. The Promoter has responded to the 'Green Route' and Chiltern Long Tunnel proposals and others, including CRAG and REPA proposals, amongst others and discussed these with those who proposed them.

June 2015 report on tunnel proposals

50. In June HS2 Ltd published a four part report summarising general tunnel requirements and the results of HS2 Ltd's assessment of a number of options for a tunnel or tunnel extension made by Petitioners in the Chilterns. A copy of the report can be found at https://www.gov.uk/government/publications/high-speed-rail-in-the-chilterns. General requirements for long tunnels are set out in Part 1, and the assessment of various options proposed by Petitioners are set out in Part 2–4 (covering the Chilterns long tunnel proposal, the CRAG proposal and the REPA proposal). In July HS2 Ltd published an updated version of Part 4 of the report, assessing REPA's proposal to extend the Chilterns tunnel 4km to Leather Lane, rather than the 3.6km extension to Liberty Lane which was assessed previously.

HS2 Guide to Tunnelling Costs

51. In March 2015 the Select Committee published their first Special Report and this report state "The merits of tunnels should be assessed on the basis of their own cost and potential benefit, not their percentage contribution to overall project costs. We have requested that the Promoter make available a guide to tunnel costs to assist petitioners arguing the case for more tunnelling". In June 2015 HS2 Ltd published the "HS2 Guide to Tunnelling Costs" which provides a description of the principal cost elements for bored (or mechanised) tunnels constructed using either an 'Earth Pressure Balance Machine' (EPBM) or a 'Slurry' machine. A copy of the Guide can be found at https://www.gov.uk/government/publications/hs2-guide-to-tunnelling-costs.

AGRICULTURAL LAND

Loss and severance of agricultural land

1. The Promoter has undertaken extensive investigation of the effects of the cheme on farms, estates and rural businesses, through a programme of farm and business impact assessments, environmental surveys and direct discussions with farmers and landowners along the route of the Proposed Scheme, including the effects and the possible mitigation options arising from land severance which fed into the Environmental Statement (ES).

2. Development of the scheme proposals to date has been informed by the information and intelligence gathered through these programmes.

3. As HS2 Information Paper C2, Rural Landowners and Occupiers Guide sets out, the provision of permanent accommodation works will depend on the individual circumstances on the holding and will usually be developed as the detailed design of the Proposed Scheme is undertaken. Accommodation works are taken to include accommodation bridges and access arrangements and will have regard to the commercial justification by the land owner, such as the value, use and location of the lands concerned.

4. The nominated undertaker will discuss with each land owner the provision and timing of accommodation works as part of the compensation package.

Reinstatement of agricultural land and maintenance of access

5. In relation to reinstatement of agricultural lands, HS2 Information Paper C2, Rural Landowners and Occupiers Guide sets out that the Environmental Minimum Requirements (EMRs), including the Code of Construction Practice (CoCP) will:

- Provide effective planning, management and control during construction to control potential impacts upon people, businesses and the natural and historic environment; and
- Provide the mechanisms to engage with the local community and their representatives through the construction period.

6. Controls will be implemented to mitigate potential avoidable impacts on soils, farms and farm-based businesses, including maintaining access. For further information, see HS2 Information Paper E24, Private Means of Access and HS2 Information Paper D11, Maintaining Access to Residential and Commercial Property During Construction. There can be no standard approach to dealing with existing private means of access. Each location has to be considered on a case-by-case basis on its own merits. These controls will also provide for the reinstatement of any agricultural land which is used temporarily during construction, where this is the agreed end-use.

Land required for mitigation

7. All ecological mitigation and compensation measures were identified in response to unavoidable loss of existing habitats. The Bill seeks legal powers to deliver all the required habitats. However, the Promoter remains open to discussions with landowners about alternative ways of delivering the necessary ecological mitigation and compensation measures required, as long as the proposals meet the requirements of the ES and the requirement to reduce significant effects. As HS2 Information Paper C2, Rural Landowners and Occupiers Guide sets out, the Promoter recognises the value of on-going communication with landowners, occupiers and agents, including in relation

to proposed mitigations.

8. There is a balance to be struck between loss of agricultural land, landscape planting and creation of new ecological habitat within the railway corridor. In arriving at this balance, the Promoter has sought to limit disturbance to agricultural holdings and farm management, and to use severed areas for ecological mitigation and tree planting, wherever practicable.

9. HS2 Information Paper E2, Ecological Impacts also clarifies that to underpin the outcome of the biodiversity loss and gain calculation, habitats created for mitigation/ compensation will need to be managed appropriately. The draft Environmental Memorandum contains a commitment to ensuring appropriate management by the Promoter and the nominated undertaker.

10. There may be some cases where it is appropriate and reasonable for the current landowner to maintain ownership and provide for temporary occupation by the nominated undertaker, but, equally, there may be cases where the future use and management of land may be best undertaken by others, including in relation to areas of special planting, or wildlife habitat.

AIR QUALITY

1. Section 7 of the draft Code of Construction Practice (CoCP) outlines that the nominated undertaker will require its contractors to manage dust, air pollution, odour and exhaust emission during the construction works in accordance with Best Practicable Means (BPM). This will include the following as appropriate:

- reference to the general site management and good housekeeping procedures (relevant to limiting dust and air pollution);
- controls and measures to control or mitigate the effect of potential nuisance caused by the construction works;
- dust and air pollution monitoring measures to be employed during construction of the project; and
- measures relevant to control risks associated with asbestos dust.

2. HS2 Information Paper G6, Design Development – Detailed Design and the Role of Planning Authorities, explains how engagement with planning authorities is critical to the design development process, and will continue as the process moves forward, with the Promoter engaging on detailed design.

3. Schedule 16 of the Bill establishes a planning regime for the design and construction of the railway. In accordance with Schedule 16, in two-tier local authority areas, if a district council signs the Planning Memorandum it will become a qualifying authority as and when the Bill is enacted. By becoming a qualifying authority, the planning authority will gain powers to determine more than just detailed design approvals for building works under Schedule 16 of the Bill. For example, under powers conferred by the Bill once enacted, these qualifying (district) authorities will be able to consider requests for approval for the design or external appearance of works for the Proposed Scheme such as bridges and viaducts, walls and fences and sight and noise screens.

4. Potential impacts from construction dust will, therefore, be controlled by the effective measures to control dust and dirt set out in the CoCP, and worksites will be screened as set out in the CoCP. There is no reason to believe that crops or livestock will be affected by construction dust, given the measures in place in the CoCP.

5. No air quality monitoring was commissioned in Buckinghamshire to establish the baseline situation. As set out in the Scope and Methodology Report (SMR), the national air pollution model was used to establish baseline air quality; where necessary as an input to detailed modelling assessment, use was made of measurements produced by the Local Air Quality Management regime.

6. The impact of the loss of trees and vegetation in relation to existing air quality has not been assessed, because it does not feature in the guidance followed in the UK (as set out in the SMR). It does not feature in the guidance because the impacts are too small to quantify at a local level.

Air quality –World Health Organisation (WHO) Guidelines

7. With respect to the WHO Guidelines, so far as these are implemented in UK and EU legislation, the assessment of the air quality impacts during construction has been made with reference to them, and the impacts are considered to the Environmental Minimum Requirements (EMRs). Measures will be drawn up to demonstrate that the EMRs are met through the Code of Construction Practice (CoCP). This is likely to be based on the Local Air Quality Management regime set up by

Defra and carried out by local authorities. The regime involves a process of measurement, review and assessment, and making an action plan where there is a breach.

8. This is explained further in HS2 Information Paper D3, Code of Construction Practice (CoCP). The latest version of the draft CoCP can be found at www.gov.uk/government/uploads/system/uploads/attachment_data/file/259617/Vol5_draft_code_of_construction_practice_CT-003-000.pdf.

ALIGNMENT

Lower the level of the Proposed Scheme

1. The Promoter does not consider that the Proposed Scheme will have such a major visual impact on the Chilterns AONB that it should be lowered further.

2. Just over 20km of the route lies across the AONB, of which 12km will be in tunnel and over 5km will be in cutting. The remaining 3km includes two viaducts, one of which will allow the Proposed Scheme to pass over the Marylebone to Aylesbury line and the A413.

Track alignment

3. Following consultation in 2011 a review of a number of refinement options was undertaken which included a proposed change of the horizontal alignment as it passed South Heath with the effect that the line passed through a different section of landform and as a consequence the depth of the cutting was shallower in what became the January 2012 announced route.

4. Following the January 2012 announced scheme further design refinement work has been undertaken between Mantle's Wood and the northern end of the green tunnel at South Heath. The depth of cutting through this area has been further reduced in the Proposed Scheme to realise a number of benefits to the local area.

5. This change was proposed in order to reduce the extent of the construction footprint through this section and consequently the surplus volume of material that needs to be excavated compared with the January 2012 announced scheme. Benefits will include a shorter construction programme, reduced cost to the project and require a reduced number of lorry movements within the AONB. The Proposed Scheme will still be in cutting for most of this section and this will provide visual and noise mitigation as it will still be up to 20 metres deep.

ANCIENT WOODLAND AND HEDGEROWS

Preservation and enhancement of woodland

1. The Promoter supports the Government's commitment to maintaining existing ancient woodland[1] and to increase native woodland.

2. As HS2 Information Paper E2, Ecological Impact acknowledges 'it is not possible to replace ancient woodland' and the design of the Proposed Scheme has sought to minimize loss of or harm to ancient woodland, so far as is reasonably practicable. However, the Proposed Scheme is unable to avoid all ancient woodland. As the Environmental Statement (ES) for the Proposed Scheme sets out, where avoidance has not been possible, the nominated undertaker will use best practice measures, such as translocating the ancient woodland soils, and creating (route-wide) 280ha of new mixed deciduous woodland to compensate for the loss of 32ha of ancient woodland at 19 sites as set out in the ES. As stated in Section 12 of the draft Code of Construction Practice (CoCP), existing vegetation will also be protected during construction.

Mantle's Wood, Farthings Wood and Sibley's Coppice

3. The ES Volume 2, CFA 9, report, acknowledges that construction will remove 6.2ha (31 percent) of woodland from Mantle's Wood, of which 4.2ha is ancient replanted woodland and 2.0ha is ancient semi-natural woodland. The construction of the Chiltern tunnel north portal will also sever Mantle's Wood creating two smaller woodlands (7.8ha and 6.3ha north and south of the route of the Proposed Scheme respectively), (see paragraph 7.4.3).

4. At Farthings Wood construction will remove approximately 3.5ha (27 percent) of woodland, 0.5ha of which is ancient replanted woodland and the remainder is lowland mixed deciduous woodland, a habitat of principal importance, (see paragraph 7.4.4).

5. Construction will remove 2.5ha of woodland, affecting the southern part of Sibley's Coppice Local Wildlife Site (LWS). As the entirety of the LWS is ancient woodland, its extent is important to its integrity, as is maintaining a minimum viable area. (The latter is defined as the smallest possible size (extent) at which the woodland can maintain its biological and ecological functions (for example, being species-rich) and exist without being damaged due to increased vulnerability by external environmental factors), (see paragraph 7.4.5).

6. Five areas of lowland mixed deciduous woodland (of 16ha, 8ha, 3ha, 3ha and 10ha respectively) will be created near South Heath. This will compensate for the loss of woodland at Mantle's Wood LWS, Hedgemoor and Farthings Wood LWS and Sibley's Coppice LWS (7.4.23) and will result in a net increase in the extent of woodland (see paragraph 6.4.2).

7. This new planting will provide an overall increase in secondary woodland cover of approximately 40ha of lowland mixed deciduous woodland (a habitat of principal importance) (see paragraph 7.4.24).

Jones' Hill Wood CFA 10

8. The ES, Volume 2, CFA 10 report, paragraph 6.4.19 confirms that land will be required for the construction of the Proposed Scheme from Jones' Hill Wood (DWH030), ancient woodland of high

[1] Ancient Woodland is defined in the Environmental Statement (ES) Volume 1, Glossary of terms and list of abbreviations as: 'Land that has been continually wooded since at least 1600.'

value. The ES stated that construction of the South Heath cutting was expected to remove approximately 0.9 to1ha of the existing woodland. Subsequent consideration of the works in this area has identified that the temporary material stockpile and haul road can be relocated outside Jones' Hill Wood. These proposals would reduce the amount of existing woodland to be removed from approximately 0.9 to 0.44ha (approximately 0.44ha of woodland will still need to be removed for the cutting itself).

9. The loss of ancient woodland from Jones' Hill Wood will be compensated through a range of measures. Ancient woodland soil with its associated seed bank will be salvaged and trans-located to the ecological compensation area east of Jones' Hill Wood and planted with broad-leaved trees so as to increase the extent of woodland and increase connectivity across the landscape. This new planting will provide connection between Jones' Hill Wood, and the un-named wood 180 metres to the south-east. In turn, this will provide a good habitat connection between Jones' Hill Wood and Rushmoor Wood, the ancient woodlands in this district. Other measures such as planting native tree and shrub species of local provenance and translocation of coppice stools and dead wood will be undertaken in accordance with the ecological principles of mitigation (ES, Volume 5, Appendix CT-001- 000/2) (see paragraph 7.4.30). Consideration is currently being given to moving the temporary material stockpile to a location outside Jones' Hill Wood.

Loss of mature hedgerows

10. The Proposed Scheme includes a comprehensive package of measures to avoid and mitigate detrimental effects on the environment. These include the reinstatement and introduction of hedgerow planting to reconnect severed lengths of hedgerows and to break up the linear alignment of the Proposed Scheme, integrating it into existing vegetation patterns.

11. In order to restore, recreate and enhance the habitat connectivity provided by hedgerows, many of the replacement hedgerows will fall within the zone required for construction. There will be phased restoration of land that is temporarily required and hedgerows will be planted as soon as possible. Where necessary, for example to retain an important bat commuting route, temporary replacement features that can be moved during the main construction works will be used.

12. In relation to woodland areas within the AONB, approximately 50ha of new woodland planting is proposed to replace areas of lost woodland and to introduce new areas of woodland to break up the linear alignment of the Proposed Scheme, integrating it into the existing vegetation patterns.

BALANCING PONDS

1. The drainage proposals for the Proposed Scheme are designed to ensure compliance with European legislation such as the Management of Floods Directive and the Water Framework Directive (as implemented through UK national regulations) and national legislation such as the Flood and Water Management Act 2010. Their design is also based on the requirements of the National Planning Policy Framework (NPPF) and the associated web-based Planning Practice Guidance on flood risk produced by the Department for Communities and Local Government (DCLG).

3. HS2 Information Paper E4, Water Resources and Flood Risk, sets out the Promoter's approach. The design of the Proposed Scheme includes Sustainable Drainage Systems (SuDS) to control the rate, volume and quality of run-off from the rail corridor and other infrastructure, taking projected climate change impacts into account. These systems will help to avoid an increase in flood risk and will help to maintain natural flow regimes by encouraging storm water to soak into the ground or, where that is not reasonably practicable, will discharge it into watercourses or surface water/combined sewers at a controlled rate. This will be undertaken by implementation of SuDS which include balancing ponds, swales, infiltration trenches and other forms. Where possible, these drainage systems will also help to avoid having an adverse effect on the quality of the water which the run-off flows into by allowing sediments to settle out

4. Balancing ponds are necessary part of the proposed drainage system to control the rate, volume and quality of run-off from the rail corridor and other infrastructure. The number and size of balancing ponds are determined by drainage catchments, watercourse catchments and general topography. It is not possible to combine several ponds as different types of drainage system (e.g. railway, highway and land) should be kept separate due to varying ownership, management and maintenance requirements. The balancing ponds will not be designed to hold water permanently, but will be dry most of the time, except following intense rainfall events, and for most of the time will often resemble depressions in the ground rather than actual ponds

5. Balancing ponds will typically be unlined and have banks with a varying profile. The majority will not be designed to hold water permanently, but will be dry most of the time, except following intense rainfall events. Although infiltration to ground is the preferred option for sustainable drainage systems, in certain locations ponds may be designed to be permanently wet where there are site specific environmental requirements to retain water.

6. If balancing ponds are designed to stay wet, then infiltration into the ground must be limited. If the infiltration is reduced then the size of the pond must increase, so as to not impact upon flood risk, which incurs additional cost to the Proposed Scheme and disruption to landowners. Infiltrating water into the ground, in most circumstances, helps reduce potential adverse effects, including on water quality and water resources.

7. Where ponds or wetland habitats will be lost these will be replaced by appropriately designed new ponds/wetlands. This is preferable for biodiversity to the alternative of combining water balancing and biodiversity objectives, as this results in compromise and poorer ecological outputs.

8. HS2 Information Paper B1, The Main Provisions of the Planning Regime, explains that whilst the design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations the detailed design necessary to enable balancing ponds to be constructed has yet to be carried out, and is unlikely to be completed until after the Bill has secured Royal Assent.

9. Detailed arrangements – for example, maximum discharge rates and storage capacity – will be finalised in conjunction with consenting bodies such as the Environment Agency (EA), Lead Local Flood Authorities and sewerage undertakings. Once the detailed design is complete (and following Royal Assent), the nominated undertaker will still need to apply for approval of the detailed design for various elements of the Proposed Scheme, including balancing ponds, from the local planning authorities along the route. It is at this stage that discussions will take place on how to minimize permanent agricultural land take.

10. More detail on the general approach to Water Resources and Flood Risk can be found in HS2 Information Paper E4, Water Resources and Flood Risk, the Environmental Statement (ES) and draft Environmental Memorandum and further information on balancing ponds can be found in HS2 Information Paper E17, Balancing Ponds and Replacement Flood Storage Areas.

Additional Provision - No Man's Wood

11. The original Bill scheme provides for an access track from the A413 for construction of a balancing pond for railway drainage and for the creation of an area of woodland habitat between the Marylebone to Aylesbury Line and the Proposed Scheme. Part of the route of this access track is from the A413 via an existing private access to a property to the south of No Man's Wood. The remaining length of this track is a new access following the route of an existing equestrian route between No Man's Wood, which is partly designated as ancient woodland, New Firs and John's Plantation.

12. Since deposit of the Bill the Promoter has identified the need for a permanent access to the balancing pond and woodland planting for maintenance purposes, not just a temporary construction access.

13. A revised route for this new access track has been identified parallel and adjacent to the Marylebone to Aylesbury Line (see Map CT-05-032-L1 and CT-06-032-L1 in the Additional Provision (AP) ES Volume 2 Map Book Part 1). The revised route will reduce disruption to the property to the south of No Man's Wood, the adjacent Valley View Sporting Gun Club and the ancient woodland of No Man's Wood.

14. The existing access between the A413 and the Marylebone to Aylesbury Line is not of a sufficient standard and width for the construction and maintenance vehicles that will use it. It is therefore proposed that the access be improved and widened to 3.5m with 1.5m verges on each side and a 1.5m passing bay. The new section of access track parallel to the Marylebone to Aylesbury Line will be of a similar width and construction, also with a 1.5m passing bay. These widths conform to the HS2 standard for this type of access track and it is not expected that the widths would be increased further.

15. As explained above, the change in use proposed is that the track would not only be used to construct the balancing pond and the woodland planting but also to access these areas for ongoing maintenance. However, maintenance is expected to be infrequent. Access for maintenance of the woodland planting would probably be undertaken using a four wheel drive vehicle with a trailer. The balancing pond maintenance would likely be undertaken using an excavator and suction tanker, but the frequency of this is likely to be only once a year.

16. The estimated duration of construction is six months, which is the same as for the original Bill scheme. A 15m-wide strip of land is required for the construction of the works, as in the original Bill scheme. The land required for the revised route of this widened access track is outside the original

Bill limits, and so an AP was introduced to secure the additional land required. Overall an additional 1.1 ha will be required.

17. The ES for the AP (see Section 4 of the AP ES Volume 2, CFA 9, Central Chilterns report, paragraphs 4.1.-4.6) reports that the use of the additional land for construction and maintenance access does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA report 9, Central Chilterns).

18. Further information on balancing ponds can be found in HS2 Information Paper E17, Balancing Ponds and Replacement Flood Storage Areas and on maintenance of woodland planning in HS2 Information Paper E16, Maintenance of Landscaped Areas.

CODE OF CONSTRUCTION PRACTICE

Code of Construction Practice

1. The draft Code of Construction Practice (CoCP) sets out general standards/controls that the nominated undertaker will put in place to manage environmental effects arising from construction activity in relation to the Proposed Scheme. It is accepted that, as part of the Environmental Minimum Requirements (EMRs), the draft CoCP will evolve and be subject to refinement and expansion as elements of the design and assessment are developed through the Parliamentary process and passage of the Bill.

2. In addition, it is appropriate for the CoCP to be drafted at a level of general assurances, allowing sufficient flexibility for these to be met through a number of different control measures.

Definition of 'reasonably practicable'

3. Regarding the use of the term 'reasonably practicable', this principle has been considered by two Court of Appeal cases (Edwards v National Coal Board [1949] and Bhatt v Fontain Motors Ltd [2010]) both of which relied on the following formula:

> 'Reasonably practicable' as traditionally interpreted is a narrower term than 'physically possible' and implies that a computation must be made in which the quantum of risk is placed in one scale and the sacrifice, whether in money, time or trouble, involved in the measure necessary to avert the risk is placed in the other; and that if it be shown that there is a gross disproportion between them – the risk being insignificant in relation to the sacrifice – the defendants discharge the onus on them.'

4. This principle was usefully summarised by the Australian case of Silvak v Lurgi Pty Ltd [2001] which stated:

- The phrase 'reasonably practicable' means something narrower than 'physically possible' or 'feasible';
- What is 'reasonably practicable' is to be judged on what was known at the relevant time.

5. Accordingly to determine what is 'reasonably practicable' it is necessary to balance the likelihood of the risk occurring against the cost, time and trouble necessary to divert the risk. The Promoter retains this discretion however the commitments made by the Secretary of State through the EMRs, including the draft CoCP, are significant and onerous. Furthermore they are developed from EMRs that have been highly effective in controlling and reducing the environmental effects of previous national infrastructure projects.

6. On this basis, the Promoter does not consider that further assurances need to be provided in response to requests for a 'best endeavours' standard.

Enforcement

7. Section 6 of HS2 Information Paper D3, Code of Construction Practice, explains how the requirements of the draft CoCP will be passed onto contractors and enforced. On this basis, the Promoter does not consider that further assurances need to be provided to explore alternative control measures in the event that one method of working proved ineffective.

8. The commitments made by the Secretary of State through the EMRs are significant for the nominated undertaker. Undertakings and assurances will be recorded on a register compiled by the Secretary of State during the course of the Bill proceedings. The register will be published in final form at Royal Assent. The Register will form part of the EMRs which will be made contractually binding on any nominated undertaker appointed after Royal Assent.

9. Enforceability of such assurances is through the Secretary of State, who is in turn answerable to Parliament. For further information, please see HS2 Information Paper B4, Compliance with Undertakings and Assurances.

10. The draft EMRs for the Proposed Scheme are based on those already demonstrated to have been highly effective in controlling and reducing the environmental effects of previous projects, such as the Olympics and Crossrail.

11. Other controls with which the nominated undertaker must comply include (but are not limited to):

a) General principles of the EMRs;
b) The Environmental Memorandum;
c) The Heritage Memorandum;
d) The Code of Construction Practice;
e) Planning approvals that will be required under Schedule 16 to the Bill;
f) Highways approvals under Part 1 or 3 of Schedule 4 to the Bill;
g) The process relating to burials in Schedule 19 to the Bill;
h) Highways approvals under Schedule 31 to the Bill;
i) Utilities related approvals under Schedule 31 to the Bill;
j) Canal and river related approvals under Schedule 31 to the Bill;
k) Land drainage, flood defence, water resource and fisheries approvals under Schedule 31 to the Bill;
l) Approval of works to listed buildings under the Heritage Agreement process that has been discussed at the Heritage Sub-Group of the Planning Forum;
m) Approval of works to scheduled monuments under a Scheduled Monument Agreement;
n) Environmental permitting for discharges into watercourses during construction works under Part 1 of Schedule 2 to the Bill;
o) Sections 84 and 85 of the New Roads and Street Works Act 1991;
p) Seeking approvals under Section 61 of the Controls of Pollution Act 1974; and
q) Licences under the Habitats Directives.

Local Environmental Management Plans (LEMPs)

12. Local and site specific controls will also be included within the Local Environmental Management Plans (LEMPs), which will be developed during the Parliamentary process and at the detailed design stage. These plans are explained further in HS2 Information Paper D3, Code of Construction Practice. The LEMPs will be produced with input from the relevant local authority and statutory bodies. Furthermore, as HS2 Information Paper D3, Code of Construction Practice sets out, 'the nominated undertaker and/ or its contractors will engage with local communities in order to develop the LEMPs, once the detailed design and construction planning is underway and HS2 is nearer the start of construction'.

13. The first draft example LEMPs were shared in May 2014 with members of the HS2 Phase One

Planning Forum. The Promoter is currently developing a programme for the production of the remaining LEMPs and will discuss the first comprehensive drafts for each local planning authority prior to their respective Select Committee dates as timetabling allows.

Code of Construction Practice: engagement and compliance

14. The Promoter has carried out extensive stakeholder and public consultation and engagement in advance of the submission of the Bill. This is explained further in HS2 Information Paper G1, Consultation and Engagement.

15. Engagement locally took place through community forums, with NGOs, and with local and statutory authorities. This established a process of dialogue with relevant stakeholder groups. Engagement was undertaken in order to raise awareness of the programme, relevant policies and the documents being produced, and to encourage constructive participation in the consultation process.

16. The Promoter has already made a commitment in the draft CoCP to engage further with local communities on construction matters. Paragraph 5.1.1 of the draft CoCP requires the nominated undertaker and its contractors to produce and implement a stakeholder engagement framework and provide appropriately experienced community relations personnel to implement this.

17. As the draft CoCP sets out, the nominated undertaker must take reasonable steps to engage with the community, particularly those who may be affected by construction impacts including local residents, businesses, land owners and community resources, taking into account any specific needs of protected groups (as defined in the Equalities Act 2010).

18. Regular meetings will also be held between the lead contractor, the nominated undertaker, the local authority and representatives of the local community or other stakeholders to discuss construction issues and the forthcoming programme of works. Expert support for local businesses, land owners and voluntary or community organisations that may be affected by the works will also be provided by the nominated undertaker.

19. HS2 Information Paper G6, Design Development – Detailed Design and the Role of Planning Authorities explains how engagement with planning authorities is critical to the design development process, and will continue as the process moves forward, with the Promoter engaging on detailed design.

20. As is explained in paragraph 5.1.8 of the draft CoCP an independent Complaints Commissioner will be appointed to investigate construction related complaints against the nominated undertaker. This is explained further in HS2 Information Paper G3, Complaints Commissioner, HS2 Information Paper C10, Small Claims Scheme and HS2 Information Paper D3, Code of Construction Practice.

Control of environmental impacts

21. As HS2 Information Paper E1, Control of Environmental Impacts sets out, 'there are three distinct components that, taken together, will effectively control the environmental impacts of the construction and operation of the Proposed Scheme. They are:

- arrangements within the Bill for approving detailed design and construction arrangements;
- policies, commitments and undertakings entered into outside of the Bill; and
- existing legislation, unless expressly or impliedly disapplied or modified by the Bill'.

22. These controls, 'contained in the Bill and in general legislation… along with undertakings given by the Secretary of State, will ensure that impacts which have been assessed in the ES will not be exceeded'.

23. HS2 Information Paper D3, Code of Construction Practice, further sets out that the environmental and sustainability commitments that the Government will enter into through the Bill process 'are known as the Environmental Minimum Requirements (EMRs) and consist of a suite of framework documents which will:

- define the ways in which the nominated undertaker will engage with people affected by the Proposed Scheme; and
- explain how measures designed to protect communities and the environment will be put in place alongside detailed design and construction.'

24. The Promoter has already provided an assurance in Section 3.5 of the draft Environmental Memorandum that the nominated undertaker will put in place an environmental management system compliant with British Standard BS EN ISO14001.

25. The nominated undertaker will be committed to BS EN ISO14001 as it is a code of practice. BS42020:2013 is not a code of practice, rather it is a document that is meant to be used as guidance and contains recommendations which would not reasonably be binding on the nominated undertaker.

26. Notwithstanding this, the Promoter is satisfied that it already has given sufficient commitments and assurances within the draft CoCP and the draft Environmental Memorandum to ensure that biodiversity impacts are properly managed and monitored through the construction process consistent with BS4020: 2013.

27. The Local Environmental Management Plans (LEMPs) will not include matters around the detailed design of habitat mitigation which will be dealt with by other means. The LEMPs will build on the general environmental requirements within the draft CoCP and will set out how the nominated undertaker will adapt and deliver the required environmental and community protection measures within each relevant local authority area during the construction of the Proposed Scheme.

28. As described in paragraph 4.2.2 of the draft CoCP, there is already an assurance that the nominated undertaker and/or its contractors will engage with the local communities, local authorities and other stakeholders in order to develop the LEMPs. The Promoter therefore considers it unnecessary to provide additional assurances on this matter.

29. Site specific management plans will be prepared during detailed design, as specified in section 9.1.4 of the draft CoCP. Site specific details of management and monitoring regimes will be established. HS2 Information Paper E1, Control of Environmental Impacts explains this in more detail. This will be at a more detailed level than is provided in the LEMPs.

30. The draft Environmental Memorandum includes a commitment to an appropriate monitoring and environmental management regime. This is a commitment made by the Secretary of State to Parliament and the nominated undertaker and contractors will be contractually bound by it. In regard to created habitats, section 4.8.5 contains commitment to monitor and manage new habitats for an appropriate period to ensure that the objectives of the habitat creation are met.

Appropriate management periods are being discussed with Natural England and further details will be set out in the final Environmental Memorandum.

Code of Construction Practice: local authority costs

31. As set out in the draft CoCP, the nominated undertaker will require its contractors to undertake and report such monitoring, including real time noise and vibration monitoring, as is necessary to ensure and demonstrate compliance with all noise and vibration commitments. Monitoring data will be provided regularly to and reviewed by the nominated undertaker and will be made available to the local authorities. As such, no other compensation costs would be paid in this regard.

32. HS2 Information Paper C13, Local Authority Funding and New Burdens Arising from the Proposed Scheme sets out the Promoter's approach in relation to funding local authorities for carrying out activities for the Proposed Scheme. Table 1 in the Information Paper sets out those activities that place a new burden on local authorities, and where the Promoter would be likely to provide funding under the New Burdens Doctrine, to meet local authorities' reasonable costs.

33. Activities related to monitoring of the implementation of the CoCP and LEMPs are excluded from Table 1 and are, therefore, not matters in relation to which the Promoter expects to create a new burden for local authorities at this time.

34. Activities related to the alternative planning consents regime under the Bill are, however, included in Table 1 and would, therefore, be considered eligible for New Burdens funding in relation to the Proposed Scheme. Table 1 of HS2 Information Paper C13, Local Authority Funding and New Burdens Arising from HS2 gives further detail on the activities considered eligible. As the Information Paper sets out:

> 'funding for the activities in Table 1 will normally be managed through a Service Level Agreement. This agreement will describe the activities for which local authorities will receive funding and details of the financial settlement they will receive. Decisions on the level of funding that each local authority will receive and the final details of the agreement will follow discussions with individual local authorities.'

Code of Construction Practice: maintenance and monitoring

35. HS2 Information Paper E16, Maintenance of Landscaped Areas explains that 'during construction and for a period of time after, any new planting, grassland and habitat creation will be maintained by the nominated undertaker to ensure they become established and are properly maintained'.

36. HS2 Information Paper E26, Indicative Periods for the Management and Monitoring of Habitats Created for HS2 Phase One explains that the EMRs for the Proposed Scheme include a commitment to maintain and monitor created habitats for an appropriate period to establish those habitats. Paragraph 4.8.5 of the draft Environmental Memorandum states that:

> 'the nominated undertaker will maintain or make provision to maintain and monitor the new or managed habitat for a sufficient period to ensure that the nature conservation objectives are achieved'.

37. As HS2 Information Paper E26, Indicative Periods for the Management and Monitoring of Habitats Created for HS2 Phase One explains, the Promoter expects that the process of agreeing

an appropriate maintenance and monitoring strategy for ecologically-led habitat creation will be agreed in conjunction with Natural England. Table 1 in the Information Paper sets out indicative management, monitoring and maintenance periods for the 'establishment' phase of created habitats.

38. As the ES and draft Environmental Memorandum explain, habitat creation can take many years. The Promoter does not expect all habitat creation to be complete within two years. Generic establishment monitoring, management and maintenance periods range from 5 years for example, for open mosaic habitats on previously developed land, to 5-10 years for hedgerows and up to 50 years for trees.

COMMUNITY FUND

1. On 10 October 2014, the Promoter announced that a new Community and Environment Fund (CEF) and Business and Local Economy Fund (BLEF) will make up to £30m available for residents and local communities between London and Birmingham to invest in public projects such as the refurbishment of local community centres, nature conservation and measures to support local economies and employment.

2. Community groups, charities, local authorities, NGOs and business support organisations will be able to bid for grants from the new funds, which are expected to be rolled out when construction starts in 2017, following Royal Assent of the Bill. Grants will be awarded until the end of the Proposed Scheme's first year of operation in 2026.

3. The Promoter has yet to publish any details on the operation or eligibility for the funds. Engagement with local authorities, local enterprise partnerships and environmental non-governmental organisations took place in December 2014. Further information can be found in HS2 Information Paper C12, The Community and Environment Fund and Business and Local Economy Fund, and at https://www.gov.uk/government/news/30-million-hs2-community-and-business-support-funds-launched.

COMMUNITY-WIDE EFFECTS - SOUTH HEATH

1. As the introduction to the Non-Technical Summary of the Environmental Statement (ES) points out, the Non-Technical Summary 'provides a summary of the Phase One project and its likely significant residual effects on the environment'. Details on proposed mitigations are set out in the ES, Volume 2, under the relevant CFA report.

2. South Heath is one of eleven communities along the line of route that are identified as potentially experiencing a community wide effect. A community wide effect is reported in the ES where significant effects on community resources and receptors together could have an appreciable impact across the majority of a community as distinct from only affecting individually identified community resources and receptors. A full explanation of the methodology for identifying community wide effects in provided in the ES Volume 5, Technical Appendices: Scope and Methodology Report Addendum (CT-001-000/2), Annex B, Community Technical Note.

3. Community wide effects are therefore cumulative effects resulting in the combination of individual community effects on identified receptors. Unlike individual community effects, no level of significance is assigned to these cumulative community wide effects. Mitigation measures will address the individual community effects, thereby reducing the community wide effect.

4. In the case of South Heath an explanation of the community wide effect and a summary of the contributing community effects are provided in the ES, Volume 2, CFA 9 report, paragraph 5.4.31.

5. The ES, Volume 2, CFA 9 report provides details of the residual effects referred to. These are the 'permanent loss of residential properties and community infrastructure in South Heath; temporary adverse effects on residential amenity for some properties in South Heath; and the temporary loss of land at Sibley's Coppice in South Heath'. The loss of community infrastructure refers to the proposed demolition of the 'former Annie Bailey's public house' (despite this being closed at the time the ES was undertaken), and of the former 'Weights and Measures Gym' (also now closed). The ES sets out that the loss of residential properties refers to five properties in the village – one on Chesham Road, two on King's Lane, on Frith Hill, and the flat above the former Annie Bailey's public house.

Weights and Measures Gym

14. The Promoter is in discussion with the owners of the Weights and Measures Gym.

Visual effects

6. In the operation phase of the Proposed Scheme, the ES Volume 2, CFA9 report sets out that residual effects will be (for approximately 10 properties in Potter Row), 'significant visual effects' due to views of the Leather Lane overbridge, South Heath green tunnel north portal and South Heath cutting, and significant daytime noise effects from the passing trains. However, as the ES also sets out 'in the most part, landscape and visual impacts associated with the Proposed Scheme will reduce over time as any proposed mitigation planting establishes and aids screening of the Proposed Scheme, thereby reducing the significance of the effects' (see paragraph 9.5.4). Specific visual effects on Potter Lane are reported in paragraphs 9.5.88-9.5.92 of the ES, Volume 2, CFA9 report. This explains that whilst in the winter of year one of operation, 'reinstatement and screening planting will not have established to mitigate the adverse effects, allowing views across the cutting to the agricultural fields beyond' as paragraph 9.5.92 sets out, 'by year 15 and beyond to year 60 of operation, a linear belt of planting running parallel with the Proposed Scheme will have

established to form an effective screen, thereby reducing effects to non-significant. These are reported in Part 4 of Volume 5: Appendix LV-001-009'.

Noise effects

7. As the ES Volume 2 CFA 9 report sets out, 'the mitigation measures in this area will avoid noise and vibration adverse effects on the majority of receptors, including shared open areas.' However, the ES still considers that there will be residual permanent noise effects for those living closest to the route on Hyde Lane and Potter Row. The ES goes on to state that the Promoter:

> 'will continue to seek reasonably practicable measures to further reduce or avoid these significant effects. In doing so the Promoter will continue to engage with stakeholders to fully understand the receptor, its use and the benefit of the measures. The outcome of these activities will be reflected in the Environmental Minimum Requirements'.

Control of environmental impacts

8. The Environmental Impact Assessment (EIA) Directive (92/2011/EU) provides for the assessment of the environmental impacts of public and private projects. The objective of the Directive is to identify and assess the likely significant environmental effects of a project, with a view to informing the decision maker as part of the development consent process. The Environmental Statement (ES) accompanying the Bill fully complies with all UK and EU legal requirements and has been developed in accordance with the accepted best practice methodologies recommended by a range of UK institutional bodies.

9. The draft Environmental Minimum Requirements (EMRs) for the Proposed Scheme are based on those already demonstrated to have been highly effective in controlling and reducing the environmental effects of previous projects, such as the Olympics and Crossrail. As set out in HS2 Information Paper E1, Control of Environmental Impacts, the EMRs are a suite of documents that are being developed in consultation with local authorities and other relevant stakeholders in relation to the environmental impacts of the design and construction of the Proposed Scheme.

10. Any nominated undertaker will be contractually bound to comply with the controls set out in the EMRs. However, where it is considered necessary, these documents will be supplemented or varied in site specific undertakings in order to deal with specific issues around a particular site. The EMRs include the Environmental Memorandum, which will provide a framework for the nominated undertaker and representatives of the National Environment Forum to work together to ensure that the design and construction of the Proposed Scheme is carried out with due regard for environmental considerations.

11. Further details are set out in HS2 Information Paper E1, Control of Environmental Impacts.

12. The design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations. The detailed design necessary to enable the Proposed Scheme to be constructed has yet to be carried out, and is unlikely to be completed until after the Bill has secured Royal Assent. Once complete the nominated undertaker will need to apply for approval of the detailed design for various elements of the Proposed Scheme from local planning authorities along the route. Such works requiring approval of the relevant local planning authority generally apply to all permanent above ground building works. Paragraph 5 of Schedule 16 to the Bill generally covers the same type of issues that the Petitioner is seeking to address. The grounds or matters upon which Schedule 16

requests for permanent works can be determined or conditioned by the relevant local planning authority for example cover the preservation of a site of historic interest, the local environment or local amenity. The control of impacts from the design of permanent works on the local environment is therefore already proposed as one of the key local planning authority powers and controls as contained in the Bill.

Code of Construction Practice

13. The draft Code of Construction Practice (CoCP) sets out general standards/controls that the nominated undertaker will put in place to manage environmental effects arising from construction activity. It is accepted that, as part of the EMRs the draft CoCP will evolve and be subject to refinement and expansion as elements of the design and assessment are developed through the Parliamentary process and passage of the Bill. This is explained further in HS2 Information Paper D3, Code of Construction Practice (CoCP). The latest version of the draft CoCP can be found at www.gov.uk/government/uploads/system/uploads/attachment_data/file/259617/Vol5_draft_code_of_construction_practice_CT-003-000.pdf.

COMPENSATION

Compensation

1. The principle of the Compensation Code is to provide for the payment of fair compensation to an owner whose land is compulsorily purchased for public works. Depending on the particular circumstances in each case, compensation can be claimed under the following categories:

- The open market value of land taken, assuming 'no scheme';
- Severance and injurious affection - this means the depreciation in the value of land retained where part only of the claimant's land holding is acquired;
- Disturbance - this represents costs and losses as a result of being disturbed from the occupation of a property;
- Loss Payments - these are an additional set payment depending on the nature of the interest being acquired. For example, the home loss payment for a residential owner occupier is an additional 10% up to the maximum value of £49,000; and
- Fees – the reasonable surveyor's fees incurred in preparing and negotiating a compensation settlement together with solicitor's fees for any conveyancing are normally paid by the acquiring authority. Further details on fees are contained in HS2 Information Paper C9, Recovery of Costs by Property Owners.

2. Where no land is acquired from a claimant, compensation may be payable. This is in a case where the construction (rather than operation) of the public works interferes with the landowner's enjoyment of or diminishes the value of their land, either permanently or temporarily, in a manner for which they could sue the Promoter had they not the immunity conferred by their statutory authority to carry out the public works.

3. Compensation is assessed by reference to any diminution of value of the claimant's interest in land caused by the interference with their private right.

Subsequent use

4. On operation of the Proposed Scheme, Part 1 of the Land Compensation Act 1973 will apply. The Act allows owners of land close to new infrastructure projects to claim compensation for depreciation in the value of that land caused by certain specified physical factors which could be attributed to works, namely noise, vibration, smell, fumes, smoke, artificial lighting and the discharge onto the land of any solid or liquid substance. The measure of compensation is the full depreciation caused to the land by these physical factors. Claims for Part 1 compensation can only be made once the scheme has been in operation for 12 months, and compensation is assessed by reference to the diminution in value of the property.

5. This is explained further in HS2 Information Paper C8, Compensation Code for Compulsory Purchase. Other sources recommended for reference include the Department for Communities and Local Government`s Guides to Compulsory Purchase, a copy of which can be found at www.gov.uk/government/collections/compulsory-purchase-system-guidance and the Land Compensation Manual, which can be found at www.voa.gov.uk/corporate/Publications/Manuals/LandCompensationManual/toc.html.

Discretionary schemes

6. The Promoter also appreciates that there may be a problem of generalised blight whereby it may

become more difficult to sell properties on the market because of the possibility of the Proposed Scheme, before the scheme is certain or before the compensation code can be applied, or in areas to which the compensation code would not apply.

7. In January 2015, the Promoter unveiled a new package of property help and compensation measures for residential owner-occupiers and introduced a 'Need to Sell' Scheme. This Scheme would operate under no defined boundary whereby the Government will offer to accept applications to buy properties at their full un-blighted market value from those who have a compelling need to sell such as job relocation or ill health, but who are unable to do so other than at a substantially reduced price, as a direct result of the announcement of the Proposed Scheme.

8. Further details about the scheme are available at https://www.gov.uk/government/publications/hs2-phase-one-need-to-sell-scheme-guidance-and-application-form.

Property Bond

9. The Government has decided to rule out the implementation of a property bond for Phase One of the Proposed Scheme. Having carried out extensive work to investigate this option, including a detailed assessment by independent consultants PWC Ltd and a thorough review against defined policy criteria, it has concluded that the introduction of a property bond scheme could not guarantee sufficient benefits to outweigh the risks of the scheme and the significant commitment of resources that it would warrant. Further details on the Government's conclusions can be found in chapter 8 of the Property Compensation Consultation Decision Document, April 2014.

Business rates

10. Where businesses are affected by construction works, they are able to submit a 'Material Change of Circumstances' appeal to the Valuation Office Agency for a reduction in the rateable value of their property. If this is successful, they will be able to obtain some relief from business rates.

Powers to access land - clause 51

11. The powers to access land in clauses 51 and 52 will only be used by the Promoter once all reasonable efforts have been made to access the land with the consent of the landowner. Only if consent is unreasonably withheld will the power be used.

12. This provision is similar to that contained in other relevant legislation. Parliament has previously considered this matter and concluded that its inclusion in this type of legislation is appropriate and reasonable.

13. The exercise of the powers is subject to a number of safeguards which include requirements to obtain a warrant issued by a Justice of the Peace in the case of residential land or written authorisation from the Secretary of State in other cases, to produce evidence of the warrant or authorisation if so required and to give at least 14 days' notice of the intended entry.

CONSTRUCTION IMPACTS

Construction - air quality and dust

1. Section 7 of the draft Code of Construction Practice (CoCP) outlines that the nominated undertaker will require its contractors to manage dust, air pollution, odour and exhaust emission during the construction works in accordance with Best Practicable Means (BPM). This will include the following as appropriate:

- reference to the general site management and good housekeeping procedures (relevant to limiting dust and air pollution);
- controls and measures to control or mitigate the effect of potential nuisance caused by the construction works;
- dust and air pollution monitoring measures to be employed during construction of the project; and
- measures relevant to control risks associated with asbestos dust.

2. Section 6 of HS2 Information Paper D3, Code of Construction Practice, explains how the requirements of the draft CoCP will be passed onto contractors and enforced.

3. HS2 Information Paper G6, Design Development – Detailed Design and the Role of Planning Authorities, explains how engagement with planning authorities is critical to the design development process, and will continue as the process moves forward, with the Promoter engaging on detailed design.

4. Schedule 16 to the Bill establishes a planning regime for the design and construction of the Proposed Scheme. In accordance with Schedule 16, in two-tier local authority areas, if a district council signs the Planning Memorandum it will become a qualifying authority as and when the Bill is enacted. By becoming a qualifying authority, the planning authority will gain powers to determine more than just detailed design approvals for building works under Schedule 16 to the Bill. For example, under powers conferred by the Bill once enacted, these qualifying (district) authorities will be able to consider requests for approval[2] for the design or external appearance of works for the Proposed Scheme such as bridges and viaducts, walls and fences and sight and noise screens.

5. Potential impacts from construction dust will, therefore, be controlled by the effective measures to control dust and dirt set out in the CoCP, and worksites will be screened as set out in the CoCP. There is no reason to believe that crops or livestock will be affected by construction dust, given the measures in place in the CoCP.

6. No air quality monitoring was commissioned in Buckinghamshire to establish the baseline situation. As set out in the Scope and Methodology Report, the national air pollution model was used to establish baseline air quality; where necessary as an input to detailed modelling assessment, use was made of measurements produced by the Local Air Quality Management regime.

7. The impact of the loss of trees and vegetation in relation to existing air quality has not been assessed, because it does not feature in the guidance followed in the UK (as set out in the SMR). It

[2] Requests for approval is the phrase used in Schedule 16 to the Bill to describe the secondary consents which need to be sought from local planning authorities for the design and appearance of buildings and structures and certain construction activities.

does not feature in the guidance because the impacts are too small to quantify at a local level.

Air quality – WHO Guidelines

9. With respect to the WHO Guidelines, so far as these are implemented in UK and EU legislation, the assessment of the air quality impacts during construction has been made with reference to them, and the impacts are considered to the Environmental Minimum Requirements. Measures will be drawn up to demonstrate that the Environmental Minimum Requirements are met through the CoCP. This is likely to be based on the Local Air Quality Management regime set up by Defra, and carried out by Local Authorities. The regime involves a process of measurement, review and assessment, and making an action plan where there is a breach.

Construction - artificial lighting

11. As explained in section 5.4.1 and 5.4.2 of the draft CoCP, site lighting and signage will be provided to enable the safety and security of the construction sites. It will be at the minimum luminosity necessary and use low-energy consumption fittings. Where appropriate, lighting to site boundaries will be provided and illumination will be sufficient to provide a safe route for the passing public. In particular, precautions will be taken to avoid shadows cast by the site hoarding on surrounding footpaths, roads and amenity areas. Where appropriate, lighting will be activated by motion sensors to prevent unnecessary usage. It will comply with the Institution of Lighting Engineers' guidance notes for the reduction of light pollution and the provisions of BS 5489, Code of Practice for the Design of Road Lighting, where applicable.

12. Lighting will also be designed, positioned and directed so as not to unnecessarily intrude on adjacent buildings, ecological receptors, structures used by protected species and other land uses to prevent unnecessary disturbance, interference with local residents, railway operations, passing motorists, or the navigation lights for air or water traffic. This provision will apply particularly to sites where night working will be required. In addition, at construction sites where potentially significant impacts are identified, the lead contractor will develop and implement lighting controls as part of their Environmental Management System.

13. Section 5.3.1 of the draft CoCP also explains that controls on lighting/illumination to minimise visual intrusion or any adverse effect on sensitive ecology.

14. As detailed in the Local Environmental Management Plan (LEMP) template (Annex 3 of the draft CoCP), the general requirement section includes a section for site lighting to identify any sensitive receptors and local control measures. Section 4.2.2 of the draft CoCP states that the nominated undertaker and/or its contractors will engage with the local communities, local authorities and other stakeholders in order to develop the LEMPs.

15. Furthermore, artificial lighting is one of the construction arrangements covered by the planning regime established in Schedule 16 to the Bill. This is explained further in HS2 Information Paper B1, The Main Provisions of the Planning Regime.

16. In respect of lighting arrangements for the maintenance sidings, paragraph 3 of the conditions of deemed planning permission provides that lighting equipment must only be developed in accordance with plans and specifications approved by the relevant qualifying planning authority which in two tier areas would be the qualifying district authority. One of the grounds for refusing to approve lighting equipment is that the design of the equipment, with respect to the emission of light, ought to and could reasonably, be modified to preserve the local environment or local

amenity.

24-hour helpline

17. As HS2 Information Paper D3, Code of Construction Practice also sets out, 'a community helpline staffed 24 hours, 7 days a week will be available during the construction period to handle enquiries from the public. There will also be a small claims procedure to ensure that local people are compensated quickly for any damage to their property caused by the nominated undertaker or its contractors'.

CONSTRUCTION TRAFFIC – EFFECT ON EMERGENCY SERVICES, BUSES ETC

Buses and emergency services routes

1. HS2 Information Paper E5, Roads and Public Rights of Way states that where bus routes are affected by temporary road closures during construction, a diversionary route and, where necessary, temporary bus stops will be identified. In a few cases, where there may be permanent changes to bus routes, the nominated undertaker will work with local authorities and transport operators to develop suitable alternative arrangements. The assessment of impacts on the road network including delay and congestion have been identified within the Transport Assessment (Environmental Statement, Volume 5, Appendix TR-001-000), which includes bus services.

2. Emergency vehicles are able to operate on a blue light system should the need arise. Construction traffic for the Proposed Scheme is not likely to be overly more dominant on the strategic road network than any other type of traffic. Measures set out in the draft Code of Construction Practice (CoCP) are designed to reduce the effects of highway works and construction traffic.

3. A range of traffic management measures will be utilised to mitigate the impact during construction of the Proposed Scheme. Prior to the commencement of the works, the nominated undertaker will ensure that Traffic Management Plans (TMPs) will be produced in consultation with the highway and traffic authorities and the emergency services. The TMP(s) will include, as appropriate:

- site boundaries and the main access/egress points for worksites and compounds;
- temporary and permanent closures and diversions of highways
- the proposed traffic and construction vehicle management strategy.

4. The Promoter's planned future engagement with emergency services is set out in section 6.5 of HS2 Information Paper E13, Management of Traffic During Construction.

Traffic impacts on schools, hospitals, homes etc.

5. The Promoter has set out (see, for example, HS2 Information Paper B1, The Main Provisions of the Planning Regime), how the draft CoCP and supporting Traffic Management Plans will mitigate construction impacts related to the Proposed Scheme. Main construction traffic routes will also be the subject of agreement with the local authority under the planning regime established in the Bill. The nominated undertaker will work with local highway authorities with the aim of developing strategies to mitigate any local traffic issues.

6. The draft CoCP indicates that site specific traffic management measures may include, as appropriate, the avoidance of large good vehicles operating adjacent to schools during drop off and pick up periods (please see the draft CoCP Section 14).

7. HS2 Information Paper E13, Management of Traffic During Construction, provides further details on the measures that will be taken to minimise the impact of construction traffic in relation to the Proposed Scheme.

8. In addition, HS2 Information Paper E13, Management of Traffic During Construction also states that:

'The planning of the works will take into consideration the affected residential, commercial, industrial and farming premises, and specifically their requirements for access and servicing (including delivery, collection and maintenance). Access and servicing will be maintained as far as reasonably practicable, within the constraints of the works and the need to ensure the safety of the public; this may involve diversions, temporary traffic controls and the use of temporary carriageways and footways. However, the Bill includes a general requirement to maintain reasonable pedestrian access to premises'.

CONSTRUCTION TRAFFIC - GENERAL

Minimising the use of roads by construction traffic

1. The Promoter supports the aim of minimising the use of roads for transport to and from construction sites, using the construction corridor and rail where practicable. HS2 Information Paper E13, Management of Traffic During Construction explains the Promoter's approach:

> 'Where it is reasonably practicable to do so:
>
> - excavated material will be moved along the construction corridor (land required for the construction of the railway) of the Proposed Scheme so as to reduce impacts on nearby road networks;
> - elsewhere, excavated material will be transported by public highway along designated construction routes, using A roads and motorways and minimising the use of local roads;
> - rail has also been proposed for the transportation of large quantities of excavated material over long distances - the principle movements would be from the tunnelling operations at Old Oak Common and Ruislip to Calvert in Buckinghamshire and Streethay near Lichfield; and
> - where transporting excavated material would result in levels of traffic leading to major significant adverse environmental effects, the Promoter has proposed sustainable placement. 'Sustainable placement' is the local on-site placement of excavated material to avoid the environmental effects associated with transporting it (see Information Paper E3: Excavated Material and Waste Management)'.

Lorry routes and traffic management

2. The Promoter does not agree there is a need for further assurances or undertakings in respect of lorry routes or traffic management as the Bill provides for a process to approve lorry routes and the Code of Construction Practice (CoCP) and the Traffic Management Plans will include the necessary detailed controls. Paragraphs 4.1-4.6 of HS2 Information Paper E13, Management of Traffic During Construction explains the mechanisms in Schedules 4 and 16 to the Bill and in the draft The Environmental Minimum Requirements (EMRs) for ensuring that construction traffic is controlled:

> 'The Bill includes powers for the control of construction traffic by qualifying planning authorities (see Information Paper B1: The Main provisions of the Planning Regime and E14: Highways and Traffic during Construction - Legislative Provisions).
>
> 'This means that the routes to be used by large goods vehicles must be approved by qualifying planning authorities when the number of large goods vehicles exceeds 24 one-way trips per day, to or from a site. The consent of the relevant highway authority is also required for the provision of any new or altered worksite access to and from a highway, if this is not as shown on the plans deposited with the Bill. The highway authority must be consulted before works affecting highways or traffic can be undertaken and consent must be sought before interfering with any property of the highway authority or, in some cases for construction under the surface of a highway (see Information Paper E14, Highways and Traffic During Construction - Legislative Provisions).'

3. Proposals on construction vehicle numbers, size, routing and hours of operation will be discussed with the local planning authority as part of the approval process. Any decision by a relevant planning authority to refuse an application or apply conditions must be consistent with the

requirements of Schedule 16 Paragraph 6 (5) specifying legitimate grounds for refusal and (6) requiring the nominated undertaker's agreement to conditions. The Promoter will only refuse to agree a condition under sub-section (6) if it is unreasonable or ultra vires. In addition Part 1 of Schedule 4 to the Bill provides the highway authority with power to object to formation of a new means of access or improve an existing assess, within the Bill limits and to approve plans and specifications of the works. This is explained in section 3 of HS2 Information Paper E14, Highways and Traffic During Construction – Legislative Provisions.

4. The EMRs of which the CoCP is part, together with the various controls prescribed in the Bill, are intended to ensure that the impacts of the Proposed Scheme, including those relating to construction traffic, will not exceed the effects assessed in the ES. As part of these controls, the nominated undertaker will require all contractors to ensure that any disruption to local communities from construction traffic is minimised, and that public vehicle access is maintained, where reasonably practicable. It will provide a consistent approach to the management of construction activities throughout Phase One of the Proposed Scheme. The draft CoCP will evolve and will be subject to refinement and amendment as necessary, as the project design, assessment and Parliamentary processes develop. It will be finalised for Phase One when the Bill is enacted. For further information, see HS2 Information Paper D3, Code of Construction Practice

Traffic Management Plans

5. The CoCP will require the nominated undertaker to prepare Traffic Management Plans in liaison with highway and traffic authorities and the emergency services. As appropriate, these will include:

- the local routes to be used by large goods vehicles (approved where applicable), including lorry holding areas, lorry route signing strategy and the means of monitoring lorry use;
- worksite boundaries and main access and exit points;
- temporary and permanent closures and diversions of highways and public rights of way; and
- the strategy for traffic management.

6. The planning of the works will take into consideration the affected residential, commercial, industrial and farming premises, and specifically their requirements for access and servicing (including delivery, collection and maintenance). Access and servicing will be maintained as far as reasonably practicable, within the constraints of the works and the need to ensure the safety of the public; this may involve diversions, temporary traffic controls and the use of temporary carriageways and footways. However, the Bill includes a general requirement to maintain reasonable pedestrian access to premises.

Construction workforce travel plans

7. As set out in section 14.1.2 of the draft Code of Construction Practice (CoCP):

> 'Construction workforce travel plans will be prepared by the lead contractors with the aim of encouraging the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses. The plans will include:

- identification of a travel plan co-ordinator and a description of their responsibilities;
- key issues to consider for each compound/construction site or group of sites;
- site activities and surrounding transport network including relevant context plans;
- anticipated workforce trip generation and how it may change during the construction

process;
- travel mitigation measures that will be introduced to reduce the impact of construction workforce on the transport network;
- target to reduce individual car journeys by the for construction workforce;
- methods for surveying workforce travel patterns; and
- the process for monitoring and reviewing the construction workforce travel plan.'

Consultation on temporary and permanent road closures

8. HS2 Information Paper E13, Management of Traffic During Construction also explains the Promoter's approach to consultation on highway and traffic issues. The nominated undertaker will require contractors to communicate regularly with parties affected by the works. Local residents and businesses will be informed - appropriately and in advance - of the dates and durations of any closures of roads or public right of way, and will be provided with details of diversion routes at least two weeks in advance or when final details are available.

9. Once contractors have been appointed, regular traffic liaison meetings will be arranged with highway authorities, bus operators, taxi and trade representation, as appropriate, and the police. Other emergency services will be included, as appropriate. These meetings will provide an opportunity for contractors to present proposals for future works affecting the highway, including methods of construction and proposed programme, and for a review of the associated traffic management requirements.

10. Paragraph 2 of Schedule 4 to the Bill provides that where highways are to be permanently stopped up and they are listed in Table 2 of Schedule 4 (that is, where a new highway is to be provided in substitution), the highway may not be stopped up until the replacement highway has been provided. Paragraph 6 of Schedule 4 to the Bill also provides that highways may be temporarily stopped up where listed in Table 3 of Schedule 4 to the Bill. HS2 Information Paper E14, Highways and Traffic During Construction – Legislative Provisions explains these, and the approvals and notification process required under the highways schedule, further (see paragraph 3.6 and following).

11. The Highways Sub-Group of the HS2 Planning Forum, which includes representatives from all the local highways authorities affected by the project, acts as a focus for consultation and liaison on highways and traffic issues. It will consider general construction traffic issues and the procedures for obtaining necessary consents once construction commences. Liaison will continue on a more local basis during construction to discuss specific day-to-day issues around construction traffic management as they arise. This is likely to involve the nominated undertaker, the contractor(s) working on the Proposed Scheme, relevant highway authorities, the emergency services, bus operators and also taxi representatives as necessary.

Monitoring and compliance

12. The control of vehicle movements when there is an incident on the highway is a matter for the police and would apply to construction traffic for the Proposed Scheme in the same way as it would any other highway user.

13. Excavated material, equipment and materials that need to be moved along the public highway by large goods vehicles to and from construction sites will be required to follow designated construction routes. This is explained further in HS2 Information Paper B1, The Main Provisions of the Planning Regime. If the number of large vehicles to or from a site exceeds 24 per day, any local

roads used by large goods vehicles must have been approved by the relevant planning authority (that is the unitary authority or county council for the area). This is explained further in HS2 Information Paper E13, Management of Traffic During Construction, HS2 Information Paper E14, Highways and Traffic During Construction – Legislative Provisions, and HS2 Information Paper D3, Code of Construction Practice.

14. It is open to planning authorities to monitor compliance with these requirements, and in doing so they may adopt technology on their own behalf such as CCTV and/or ANPR should they feel it appropriate to do so.

15. As HS2 Information Paper E14, Highways and Traffic During Construction – Legislative Provisions points out, paragraph 11 of Part 3 of Schedule 4 to the Bill 'requires that any new carriageway constructed or existing carriageway realigned, by the nominated undertaker must be carried out in accordance with the plans and specifications approved by the highway authority (with such approval not being unreasonably withheld)'.

Hours of operation

16. Deliveries to and from construction sites will occur up to one hour before and after the working hours of each construction site. Paragraph 5.2.1 of the draft code of construction practice sets out the requirements in respect of Consents under Section 61 of the Control of Pollution Act 1974 for the proposed construction works. Where 24 hour working is required, the CoCP makes a commitment that where reasonably practicable, material needing to be excavated from 24 hour operations (such as tunnelling) will be stockpiled within the site boundary and removed during normal working hours (Paragraph 5.2.6). A control and assurance regarding deliveries to working sites is therefore already provided and the Promoter does not consider that further controls on delivery hours are required. For further information, please see HS2 Information Paper D4, Working Hours.

Size of vehicles

17. In relation to any public highway, the nominated undertaker and their contractors will be required to comply with all highways control measures (including weight, height and width restrictions). Therefore the Promoter does not agree that additional controls will be needed in this regard. The Promoter would reiterate that with respect to the condition relating to road transport, under the planning regime in Schedule 16, one of the reasons for refusing to approve arrangements is that the arrangements ought to be modified to prevent or reduce prejudicial effects on road safety or on the free flow of traffic in the local area.

Remedial works and construction surveys

18. Where the highway network is damaged as a result of its on-going use by construction traffic for the Proposed Scheme which is associated with the project, the protective provision in paragraph 15 of Part 1 of Schedule 31 to the Bill will apply. This requires the nominated undertaker to make good that damage or alternatively compensate the highway authority for the additional costs of doing so. This gives adequate protection to both the highway authority and other road users.

19. The nominated undertaker will work with the local highways authority in carrying out a review of local highways intended to be used by its construction traffic. It is envisaged that a representative from the highways authority will work with a representative from the nominated

undertaker in a common approach to dealing with matters such as condition surveys in a proportionate manner, the format and scope of which will be agreed with the highway authorities under the auspices of the Highways Sub-group of the HS2 Planning Forum.

Strengthening, repairing and maintaining highways

20. It is in the nominated undertaker's interests in terms of avoiding delay that any necessary highway improvements or pre-strengthening work to bridges is carried out well in advance of the relevant construction route coming into use.

21. Part 1 of Schedule 31 to the Bill includes a range of protective provisions relating to highways and traffic, including those in paragraphs 14, 15, 16 and 17 which require the nominated undertaker to make good and reinstate, to the reasonable satisfaction of the highway authority, any part of a highway that has been broken up or disturbed and requires the nominated undertaker to make good, or pay compensation for, any damage to a highway caused by or resulting from constructing the authorised works or any act or omission of the nominated undertaker, its contractors, agents or employees whilst engaged upon such work.

22. This is explained further in HS2 Information Paper E13, Management of Traffic During Construction, HS2 Information Paper E14, Highways and Traffic During Construction – Legislative Provisions, and HS2 Information Paper D3, Code of Construction Practice.

Environmental guidelines for highways in AONB

23. The Promoter will be required, as a result of the highways controls set out in Schedule 4 and Schedule 31 to the Bill, to apply for a number of plans and specifications approvals in relation to highways, or give notice of works. The process put in place by paragraph 10 of Schedule 4 requires the construction or alteration of new highways (otherwise than by carrying out streetworks within the meaning of Part 3 of the New Roads and Street Works Act 1991) to be completed to the reasonable satisfaction of the highway authority. Paragraph 11 requires that the construction or realignment of a highway which is constituted by or comprises a carriageway must be carried out in accordance with plans, sections and specifications approved by the highways authority at the request of the nominated undertaker and such approval is not to be unreasonably withheld.

24. The road layouts underlying the Bill and shown in the Permanent Layout (CT-06 series) drawings of the Environmental Statement have been designed to one of several design bases, depending on the context of each road. These include the Promoter's 'Rural Road Design Criteria' which have been adopted to design the many minor rural roads and country lanes along the route. They are intended to avoid an 'over-engineered' appearance that is not in keeping with the existing character and distinctiveness of the route. This approach is based on the good practice developed with Kent County Council on the Channel Tunnel Rail Link (High Speed 1), and incorporates the lessons learned from other projects where the Design Manual for Roads and Bridges has been used inappropriately for road crossings of linear transport infrastructure schemes in the past. As a result, the Promoter's 'Rural Road Design Criteria' are broadly consistent with the aspirations of the 'Environmental guidelines for the management of highways in the Chilterns AONB'.

24-hour helpline

25. As HS2 Information Paper D3, Code of Construction Practice also sets out, 'a community helpline staffed 24 hours, 7 days a week will be available during the construction period to handle enquiries from the public. There will also be a small claims procedure to ensure that local people

are compensated quickly for any damage to their property caused by the nominated undertaker or its contractors'.

Local impacts

26. Petitioners have expressed concern about the proposed use of small rural roads for construction traffic.

27. Excavated material, equipment and materials that need to be moved along the public highway by large goods vehicles to and from construction sites will be required to follow designated construction routes. If the number of large vehicles to or from a site exceeds 24 per day, any local roads used by large goods vehicles must have been approved by the relevant planning authority (that is the unitary authority or county council for the area) under the planning regime established under Schedule 16 to the Bill. This is explained in HS2 Information Paper E1, Control of Environmental Impacts and HS2 Information Paper B1, The Main Provisions of the Planning Regime.

28. Where necessary, localised improvements to roads will be carried out to ensure they are safe for use during construction. Such improvement works (and reinstatement works, once construction is complete), will be matters to be agreed with the relevant planning authority under Schedule 4 to the Bill. The avoidance of the roads identified by Petitioners would result in additional traffic effects on other roads.

29. In the light of the provisions set out above, the Promoter does not consider that further assurances on the use of specific roads are necessary at this point.

30. The ES, Volume 2, CFA Report 9, Section 12, summarises the likely significant residual effects on traffic and transport in CFA9, as follows. Increased traffic during the most intensive periods of construction will cause additional traffic congestion and delay at a number of junctions in the area including at the A413 London Road with A4128 Link Road; A413 London Road with B485 Frith Hill; B485 Frith Hill/Chesham Road with Frith Hill; King's Lane with Frith Hill/Ballinger Road and Potter Row; B485 Chesham Road with King's Lane and B485 Chesham Road with Hyde Heath Road.

31. Temporary closure of Frith Hill and Hyde Lane during construction will cause some additional delay for users of these roads due to the additional travel distance required by the associated diversions whilst in operation.

32. Increased traffic during the most intensive periods of construction, particularly HGV traffic, will affect non-motorised users crossing and using the A413 London Road/Nash Lee Road, between B485 Frith Hill and B4009 Nash Lee Road; A413, between B485 Frith Hill and A404 Whielden Lane; Potter Row, between Leather Lane and Frith Hill; Frith Hill, between Potter Row/King's Lane and B485 Frith Hill/Chesham Road; King's Lane, between Frith Hill and B485 Chesham Road; B485 Frith Hill/Chesham Road, between A413 and Hyde Heath Road and Hyde Heath Road between B485 Frith Hill and access road to Chiltern tunnel north portal satellite compound.

33. Temporary closure and associated diversion of nine Public Rights of Way (PRoW) and two roads (GMI/79/1 & 2, GMI/12/1, Frith Hill, GMI/80/1, GMI/23/6, GMI/28/1 & 2, GMI/33/3, Hyde Lane and LMI/17/2), during construction will affect non-motorised users due to the increased travel distances required by associated diversions.

34. The ES, Volume 2, CFA Report 10, Section 12, summarises the likely significant residual effects

on traffic and transport in CFA10, as follows. Increased traffic during the most intensive periods of construction, particularly HGV traffic, will affect non-motorised users crossing and using; A4010 Aylesbury Road/Risborough Road; B4009 Nash Lee Road; Small Dean Lane, between A413 and Small Dean viaduct main compound; A413 London Road/ Nash Lee Road, south east of B4009 Nash Lee Road; Rocky Lane between A413 and Rocky Lane underbridge satellite compound; Bowood Lane, north east of Bowood Lane overbridge satellite compound; and King's Lane between Rocky Lane and Bowood Lane.

35. Increased traffic during the most intensive periods of construction will also potentially cause additional traffic congestion and delays at a number of junctions in the area; A4010 Risborough Road with B4009 Nash Lee Road; A413 Nash Lee Road with B4009 Nash Lee Road; A413 Nash Lee Road with Small Dean Lane; A413 London Road with Rocky Lane; A413 London Road with Dunsmore Lane; and A413 London Road with Bowood Lane.

36. Temporary closure of Bacombe Lane and Small Dean Lane during construction will cause some additional delays for users of these roads due to the additional travel distance required by the associated diversions whilst in operation.

37. Temporary closure and associated diversion of 12 PRoW and two roads (WEN/55/1; WEN/15A/2; WEN/6/2; WEN/11/1; WEN/6/3; WEN/11/2; Ellesborough Road; WEN/13A/1; WEN/57/1; WEN/39/2; WEN/36/1; TLE/5/2; Bowood Lane; and TLE/3/1), during construction will affect non-motorised users due to the increased travel distances required by associated diversions.

Frith Hill

38. Paragraph 2.3.50 of the ES, Volume 2, CFA Report 9 indicates that there will be a temporary closure of Frith Hill and a 2.6km diversion of traffic via B485 Chesham Road and King's Lane, for a period of one year and six months to two years, with permanent reinstatement on the existing alignment.

39. Paragraph 2.3.51 indicates that there will be a temporary alternative route for Frith Hill footpath, to the east for a period of approximately one year and six months to two years, adding an additional 400 metres. It will then be permanently reinstated along its existing alignment. Paragraphs 5.4.20 to 5.4.22 of CFA Report 9 reports the assessment of this temporary closure on the communities of South Heath and Ballinger Common, as follows.

40. The closure of Frith Hill to traffic for a period of up to two years has the potential to cause an isolation effect. During this time, traffic using this route will be diverted via Kings Lane and the B485 Chesham Road, with an approximate additional distance of 700m (the total length of the route is 2.6km). Frith Hill also forms part of National Cycle Route 57; cyclists using this route, therefore, will be subject to the same diversion. There will also be a need to accommodate pedestrian users of this road during the construction period. Frith Hill, which has a narrow footpath, links with a subway (underneath the A413) which surfaces in Great Missenden next to Great Missenden Church of England Combined School. During the closure of Frith Hill, there will be a temporary footpath diversion. Just west of the properties on Sibley's Rise, the footpath will be temporarily routed east of Frith Hill and around the South Heath green tunnel construction works, before re-joining Frith Hill near to Orchard Cottage and Firth Hill Farm. This will result in an additional distance for pedestrians of approximately 400 metres.

41. Frith Hill is the principal link connecting the villages of South Heath and Ballinger Common (both to the east of the Proposed Scheme) and the larger community of Great Missenden (to the

west). South Heath and Ballinger Common have very limited community infrastructure and therefore residents need to make daily use of the community infrastructure in Great Missenden, which includes shopping, schooling, medical care, a post office, a library and other recreational and social facilities. Survey results indicate that the footpath is reasonably well used.

42. Given that the additional length of the journey for motor vehicles and bicycles (approximately 700 metres) and pedestrians (approximately 400 metres) is not extensive, this is considered to be a minor adverse isolation effect, which is not significant. On this basis, the Promoter does not intend to provide a temporary road bridge over the construction site on Frith Hill.

A4010/A413

43. The A4010 Risborough Road/Aylesbury Road, (continuing to A4010 Wycombe Road) has been identified as an alternative construction route to the A413. This is to serve the Nash Lee Overbridge Satellite Compound. Trip generation for this compound includes daily two-way flows of between 40-90 HGVs for 40 months. Traffic and transport assessments and effects for the Proposed Scheme covering the AONB are set out in Section 12 of the ES Volume 2 CFA reports for (respectively), CFA 8 (The Chalfonts and Amersham), CFA 9 (Central Chilterns), CFA10 (Dunsmore, Wendover and Halton). Further information on construction lorry routes, construction compound trip generation and traffic impacts have been outlined in Volume 5 Appendix of ES (ES 3.5.0.12.6) Transport Assessment - Part 6 (TR-001-000).

CONSTRUCTION TRAFFIC - NEW A413

1. Some Petitioners have suggested that during the construction phase, a haul road should be built to avoid the existing A413, from the roundabout at the Small Dean end of the Wendover by-pass, to the Wendover Dean viaduct; and that such a road could be converted to normal use after construction to become the new A413.

2. In construction terms, haul routes within construction sites provide the means of transporting construction equipment, materials and workers between work sites and construction compounds. These are temporary routes suitable only for construction vehicles and would not be built to highway standards. To enable such a route to be retained permanently to provide an extension of the Wendover by-pass to link up with the Great Missenden by-pass, as suggested, would require the road to be upgraded significantly after construction of the Proposed Scheme.

3. Such a road would be over 8km in length and would have significant effects on the area, above and beyond those already identified for the Proposed Scheme, which would include:

- A new road would introduce an additional piece of infrastructure in the Chilterns AONB, giving rise to additional environmental effects.
- The road, associated infrastructure, such as earthworks, drainage and mitigation would increase the amount of land required for the Proposed Scheme.
- The proposed route of the road would be more elevated than the existing A413 and likely to increase noise levels and visual impact.
- If the road were to be located close to the Proposed Scheme substantial barriers would be required to prevent errant vehicles affecting the Proposed Scheme.
- Whilst some of the environmental effects associated with the existing A413, which has been in its current location for many years, would be reduced (i.e. due to a reduction in traffic), new effects would arise in proximity to the new A413.
- The existing A413 would need to be downgraded and measures introduced to deter existing through traffic from continuing to use it.
- The increased construction activity associated with the new road would increase construction impacts locally.

4. Considering the above points together with the increased construction programme and costs that would arise, the Promoter does not consider there would be sufficient justification for such a proposal given the short term effects on the A413.

5. Provision of what would effectively be a diversion of the A413 would require the approval of the local highway authority. No such proposals have been promoted by Buckinghamshire County Council in this regard.

CONSTRUCTION – WORKING HOURS

1. As HS2 Information Paper D4, Working Hours, sets out, the core working hours for the Proposed Scheme will be from 08.00 to 18.00 on weekdays (excluding bank holidays) and from 08.00 to 13.00 on Saturdays. As this Information Paper goes on to explain, 'the nominated undertaker will require that its contractors adhere to these core working hours for each site as far as reasonably practicable, or unless otherwise permitted under Section 61 of the Control of Pollution Act 1974'.

2. Deliveries to and from construction sites will occur up to one hour before and after the working hours of each construction site. Paragraph 5.2.1 of the draft CoCP sets out the requirements in respect of Section 61 consents for construction works:

> 'the nominated undertaker's contractors will seek to obtain consents from the relevant local authority under Section 61 of the Control of Pollution Act 1974 for the proposed construction works, excluding non-intrusive surveys (see Section 13). Applications will include details on proposed working hours.'

3. Where 24 hour working is required, the draft CoCP makes a commitment that where reasonably practical, material needing to be excavated from 24 hour operations (such as tunnelling) will be stockpiled within the site boundary and removed during normal working hours (see paragraph 5.2.6).

CONSULTATION AND INFORMATION

Provision of information

1. The Promoter believes that sufficient information has been supplied for Petitioners to assess and comment on the Proposed Scheme.

2. The Bill seeks powers for specified works within the limits set out in the deposited plans and sections. The relevant plans and sections defining the extent of the powers sought are deposited with the Bill. The Proposed Scheme has also been developed in more detail so that its environmental effects can be assessed and all the significant effects identified. This more detailed description of the proposals, including proposed mitigation measures, is set out in the Environmental Statement (ES) for the Proposed Scheme, which fully complies with all UK and EU legal requirements and has been developed in accordance with the accepted best practice methodologies recommended by a range of UK institutional bodies. This approach to environmental assessment has also been subject to a number of legal challenges which the Promoter has successfully defended.

3. The design of the Proposed Scheme to date thus provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations.

4. More detailed designs to enable the railway to be built will not be completed until after the Bill has secured Royal Assent. At the appropriate time, the nominated undertaker will apply to the relevant local planning authorities for approval of details of aspects of the Proposed Scheme specified in Schedule 16 of the Bill. As paragraph 4.1 of HS2 Information Paper B1, The Main Provisions of the Planning Regime sets out, details reserved for subsequent approval include 'matters such as buildings, road vehicle parks, terracing, cuttings, embankments and other earthworks, fences, walls or other barriers, transformers, telecommunication masts, pedestrian access to the railway line, artificial lighting, waste and spoil disposal and borrow pits'. This will enable local planning authorities to ensure that the design of permanent structures fits into the local environment. This is explained in HS2 Information Paper E1, Control of Environmental Impacts and HS2 Information Paper B1, The Main Provisions of the Planning Regime.

5. In the main, the way in which temporary works are carried out is controlled by the draft Code of Construction Practice (CoCP) and related documents. This is explained in HS2 Information Paper D3, Code of Construction Practice.

Consultation and engagement

6. Details of the consultation and engagement process for the Proposed Scheme are explained further in HS2 Information Paper G1, Consultation and Engagement. Consultation and its outputs have been a major influence on the development of the Proposed Scheme, particularly in helping to identify and mitigate local impacts. The initial scheme developed by the Promoter was subject to public consultation between February and July 2011 in response to which a range of options were examined to avoid or reduce impacts on sensitive areas; for example, by re-aligning the route or introducing measures such as green tunnels. The 'post consultation route' (comprising the Proposed Scheme revised line of route maps) was published on 10 January 2012, and formed the basis of the scheme that was to be assessed. Further changes were made as the design was refined and the initial conclusions of the assessment emerged.

7. The ES has also been developed in an open and transparent way with a level of engagement and

consultation that went beyond what was legally required. It was subject to extensive formal public consultation and engagement including with local authorities and statutory environmental bodies. Engagement locally took place through community forums, with NGOs, and with local and statutory authorities. This established a process of dialogue with relevant stakeholder groups, a process that not only enabled the Promoter to explain the proposals, but also to respond to the issues raised. Where necessary, issues of specific concern were explored in more detail. As part of the engagement process the Promoter has consulted on the draft CoCP.

8. As outlined in paragraph 2.5.2 of the ES, Volume 2, CFA9 report, engagement by the Promoter in the Community Forum Area (CFA) of Central Chilterns included a series of community forum meetings and discussions with individual landowners, organisations and action groups. Community Forum meetings were held on:

- 11 July 2012 at Great Missenden Memorial Centre;
- 25 September 2012 at Little Kingshill Village Hall;
- 27 November 2012 at Little Kingshill Village Hall;
- 26 February 2013 at Little Kingshill Village Hall; and
- 17 September 2013 at Little Kingshill Village Hall.

9. In addition, a Great Missenden, South Heath and Wendover Community Forum was held on 20 March 2012 at the Wendover Library Room. The outcome of this Community Forum meeting led to a change in boundaries and the emergence of the Central Chilterns Community Forum.

Code of Construction Practice

10. In its petition, the Petitioner states that it 'expects to be able to consult on the final version of the CoCP'. Consultation on the draft CoCP has already been carried out by the Promoter and it continues to discuss the draft CoCP with the relevant planning authorities before it is finalised.

11. As explained in HS2 Information Paper D3, Code of Construction Practice, the draft CoCP has been produced in conjunction with the ES with the aim of ensuring that likely significant construction effects that are reported in the ES will either be avoided or mitigated. Site specific controls, which will be included in the Local Environmental Management Plans (LEMPs), will be developed during the Parliamentary process and the detailed design stage.

12. Paragraph 1.1.4 of the draft CoCP explains its status as follows:

> 'The CoCP will evolve and is subject to refinement, amendment and expansion as necessary as the project design, assessment and Parliamentary processes develop. Engagement with stakeholders especially through the planning forums, the national environment forum and the community forums will inform its future development. This draft CoCP should not be taken to represent the views of the SoS for Transport until such time as it has been finalised prior to Royal Assent to the hybrid Bill.'

13. The draft CoCP is currently in draft precisely so that if can be refined in discussion with stakeholders. As HS2 Information Paper D3, Code of Construction Practice points out, 'an updated version of the CoCP will be produced should the Bill achieve Royal Assent'. The Promoter continues to engage with line of route authorities on the content of the CoCP through the route-wide Planning Forum. The Petitioner will therefore continue to have the opportunity to discuss and hopefully agree any proposed amendments before the document is finalised.

14. The Promoter has already made a commitment in the draft CoCP to engage further with local communities on construction matters. HS2 Information Paper D3, Code of Construction Practice, paragraph 7.1 states that 'the content of the CoCP will be updated during the Parliamentary process following consultation with interested parties and technical specialists'.

15. In relation to the construction phase, Section 5.1 of the draft CoCP states:

> 'the nominated undertaker and its contractors will produce and implement a stakeholder engagement framework and provide appropriately experienced community relations personnel to implement the framework (…). The nominated undertaker will take reasonable steps to engage with the community, particularly focusing on those who may be affected by construction impacts including local residents, businesses, land owners and community resources, and the specific needs of protected groups (as defined in the Equalities Act 2010).'

16. As stated in paragraph 5.1.2 of the draft CoCP:

> 'Regular meetings will also be held at Community Forum locations between the lead contractor, the nominated undertaker, local authority and representatives of the local community or other stakeholders to discuss construction issues and the forthcoming programme of works. Experienced support for local businesses, land owners, voluntary and community organisations that may be affected by the works will also be provided by the nominated undertaker.'

Local Environmental Management Plans (LEMPs)

17. With respect to the concerns regarding the production of LEMPs, a template for the LEMPs is included in Annex 3 of the draft CoCP. The first draft example LEMPs were shared in May 2014 with members of the HS2 Phase One Planning Forum. The Promoter is currently developing a programme for the production of the remaining LEMPs and has proposed a discussion of the first draft at the Planning Forum for each local planning authority prior to their respective Select Committee dates. Regarding consulting on the LEMPs, the local authority will not be required to do so as this will be done by the nominated undertaker. As explained in paragraph 4.2.2 of the draft CoCP, 'the nominated undertaker and/or its contractors will engage with the local communities, LAs and other stakeholders in order to develop the LEMPs'.

Community engagement

18. As explained in paragraph 2.4 of HS2 Information Paper G2, Community Relations:

> 'The nominated undertaker and other contractors appointed to construct the Proposed Scheme will be contractually required to provide dedicated community relations personnel. They will engage with affected communities and support a 24-hour helpline service to provide appropriate and relevant information, and be the first point of response to resolve concern and complaints.'
>
> 'Furthermore as explained in paragraph 2.5 of HS2 Information Paper G2, 'An independent Complaints Commissioner will be appointed for HS2, to consider complaints during construction that cannot be resolved through the nominated undertaker's complaints process (see HS2 Information Paper G3, Complaints Commissioner).'

19. A community relations strategy will also be put in place which is outlined in paragraphs 3.1 – 3.3

of HS2 Information Paper G2, Community Relations:

> 'The nominated undertaker will develop a community relations strategy, which will include the following responsibilities:
>
> monitoring and managing contractor and sub-contractor compliance with undertakings2 and performance of commitments, local agreements and specific community requirements throughout the project; and
>
> ensuring that local residents, occupiers, businesses, local authorities and parish councils are informed in advance of works taking place locally.
>
> The contractors will be required to produce advance information sheets that:
> - describe the works to be carried out;
> - explain the expected disruption; and
> - explain the measures being taken to minimise or mitigate the adverse impact of the works.
>
> Where it is reasonably possible to do so:
> - these information sheets will be circulated at least two weeks before the construction works start;
> - a liaison plan will be issued to local authorities listing the communications mechanisms and materials to be offered to local communities. A liaison plan will outline who the project will speak to, when and why and will be created to work in conjunction with the Local Environmental Management Plan (LEMP); and
> - in the case of emergency works, the local authority and residents will be advised as soon as reasonably practicable. Potentially affected residents will also be notified of a 24-hour, seven-days-a-week public helpline number.'

Adequacy of the Environmental Statement

20. The ES accompanying the Bill fully complies with all UK and EU legal requirements and has been developed in accordance with the accepted best practice methodologies recommended by a range of UK institutional bodies. The document has satisfied the requirements for Parliamentary deposit and the Bill has secured its Second Reading. The Promoter is satisfied there are no fundamental deficiencies in the ES.

21. The environmental assessment within the ES took account of a broad evidence base. This included existing data obtained, for example, from local biological record centres and local experts and aerial photography, as well as surveys where access allowed and professional judgement. An appropriate baseline was therefore developed to enable assessment to a sufficient level in the ES. The ES is therefore compliant with the requirements of the Environmental Impact Assessment and Parliamentary Standing Order 27A.

22. As explained in paragraph 9.2.2 of the ES, Volume 5, Scope and Methodology Report (SMR) - Addendum report (CT-001-000/2), in order to ensure that all likely significant effects of the Proposed Scheme were identified, a precautionary approach of assuming a 'reasonable worst-case' valuation has been adopted where baseline information was incomplete. This approach was utilised to assign precautionary values to both known receptors and potential receptors based on the best available information. Further details are provided in the Ecological assessment method technical note (Annex D of the SMR Addendum).

Development of the Environmental Statement

23. The ES has been developed in an open and transparent way involving a level of engagement and consultation that went beyond what was legally required. It was subject to extensive formal public consultation and engagement including with local authorities and statutory environmental bodies:

- The approach taken for developing the ES (the Scope and Methodology Report for the Environmental Impact Assessment (EIA)) was consulted on from April to May 2012;
- The draft ES was produced on behalf of the Promoter by a team of independent technical experts with unrivalled experience of environmental assessment on similar projects such as HS1, Crossrail, the Olympics and Thames Tideway;
- The draft ES was itself consulted on from May to July 2013 and responses taken into account before the final ES was submitted to Parliament alongside the Bill in November 2013;
- A further public consultation was held on the ES laid before Parliament; and
- Responses to the above consultation were considered by the independent assessor and a report made to Parliament in April 2014. This is available at: http://www.parliament.uk/documents/commons-private-bill-office/2013-14/HS2-IndependentAssessor-report.pdf.

24. As paragraph 2.2 of HS2 Information Paper E1, Control of Environmental Impacts sets out:

> 'It is important, however, that reassurance is provided that the nominated undertaker will not simply be free to change the design and working practices at will or without control. There are therefore a number of mechanisms within the Bill and supporting the Bill that will control changes to the project and therefore provide reassurance as to the extent of the actual impacts of the construction and operation of the Proposed Scheme'.

Baseline information - traffic assessment

25. The Promoter does not agree that unreliable traffic baseline information has been used to carry out the traffic assessments. Transport surveys and quantitative assessments have been carried out in all locations where the Proposed Scheme can reasonably be considered to have a significant traffic effect.

26. The modelling and assessment work undertaken is robust because it:

- was undertaken respecting applicable guidance;
- used appropriate and suitably robust tools, according to the complexity of traffic effects within the County of Buckinghamshire;
- was subject to appropriate quality assurance checks; and
- used an objective methodology to reach conclusions.

27. Following a request from Buckinghamshire County Council, the Promoter has agreed to carry out further traffic surveys and assessments across the County, at locations considered by the highway authority to be sensitive in terms of congestion and safety.

CRIME AND SECURITY

Security risks

1. The Promoter disagrees that there would be any increased crime risk as a result of the Proposed Scheme being constructed in the area.

2. The Promoter will require the nominated undertaker to ensure that construction sites are kept secure, both in the interests of crime prevention and also ensuring that no-one is injured by inadvertently entering a construction site. The Promoter therefore sees no reason to provide funding for local Police forces at this time.

Worksite security

3. Construction worksites will be under the control of a lead contractor, which has a statutory duty to prevent unauthorised access to the site. Lead contractors will carry out site specific assessments of the security and trespass risk at each site and implement appropriate control measures.

Temporary workforce accommodation

4. Each main construction compound has been sized to cater for an amount of on-site workers' temporary living accommodation. This is the option that the Promoter has taken at this stage in the scheme development and is comparable with many other major construction projects where some workers are resident on site. It reduces the daily travel needs of these workers and in turn reduces local transport impacts and pressure on finding local accommodation. However, this assumption remains under review and will be considered at the next stage in the design development, in consultation with contractors.

5. Schedule 16 to the Bill sets out certain construction arrangements which require approval from the relevant local planning authority (if that authority becomes a qualifying authority) – including construction camps. The siting of construction camps will be a matter requiring approval from the relevant local planning authority. Given this requirement for the approval of construction camps, and the mitigation measures proposed in the Environmental Minimum Requirements (EMRs), the Promoter considers that sufficient controls and mitigation measures are in place in relation to this issue.

6. Moreover, there is no evidence to suggest that the introduction of a construction camp to an area will result in anti-social behaviour. And, as would be normal practice, the nominated undertaker will put in place the necessary measures to ensure that its workforce acts appropriately.

CUDSDENS COURT - B485

1. The Promoter notes Petitioners' concerns about the impact of construction on Cudsdens Court. The ES, Volume 2, CFA 9 report identifies no adverse noise effects for Cudsdens Court during construction (location ID: 374552).

2. The dwellings at Cudsdens Court fall outside the land required for the Proposed Scheme, however the Government is committed to providing fair assistance to those that may be affected by the Proposed Scheme.

3. The general purpose of the statutory framework is to provide fair compensation for a person whose land has been compulsorily taken. Payment of compensation for land compulsorily acquired will be in accordance with the general statutory framework incorporated within the Bill and the general Compensation Code as interpreted by the Courts and the Upper Tribunal (Lands Chamber).

4. The Promoter notes Petitioners' concerns about access to Cudsdens Court. The Proposed Scheme incorporates a widened verge on the B485 to ensure full standards of visibility are met both for vehicles emerging from the access to Cudsdens Court and for vehicles travelling east on B485.

CULTURAL HERITAGE – LISTED BUILDINGS, ANCIENT MONUMENTS

Minimising adverse effects on listed buildings and the historic environment

1. The Promoter fully recognises the importance of listed buildings and heritage assets and the contribution these bring to the wider historic landscape. The design has sought to avoid or minimise the loss of heritage assets and the impact on listed buildings, for example in CFA 9:

- The design of the overbridge on Hyde Lane to avoid physical impacts on the Grade II listed Sheepcotts Cottage;
- The design of landscape earthworks at Mantle's Wood to reduce the Proposed Scheme footprint and to reduce impacts on the ancient woodland;
- The provision of a retained cut for the construction of South Heath green tunnel avoids the demolition of 86 King's Lane, a Grade II listed building;
- The South Heath green tunnel will reduce setting impacts on Briarwood, the granary at Cudsden's Farm, 86 King's Lane and South Heath Farm, all of which are Grade II listed buildings; and
- Woodland planting near South Heath will compensate for the loss of the woodland at Mantle's Wood , Farthings Wood and Sibley's Coppice and will result in a net increase in the extent of woodland.

2. Details of the significant effects on heritage assets arising during construction and operation of the Proposed Scheme are reported in Volume 2 of the Environmental Statement (ES) CFA 8 report: The Chalfonts and Amersham (Ref: ES 3.2.1.8) and CFA09 report : Central Chilterns (see ES 3.2.1.9).

3. There will be no impact on Shardeloes Grade II* registered park and garden or Grade I Shardeloes House (within the grouped Shardeloes asset). Elements of the registered park and garden (built heritage, landscape and archaeology) lie within the 10mm settlement contour for the Chiltern tunnel, however, this will not affect the fabric and the value of the assets will not be affected. This is reported in CFA 08 impact assessment tables: The Chalfonts and Amersham (see volume 5 appendix CH-003-008, ES 3.5.2.8.6).

4. The Promoter is satisfied that satisfactory controls will be established by the Bill and draft Environmental Minimum Requirements (EMRs) relating to the management of and mitigation of impacts upon listed buildings and other cultural heritage assets.

Hyde Farm, Sheepcotts Cottage and Chapel Farm

5. The construction works for the Chiltern tunnel north cutting will take place over two years and six months and those for the South Heath green tunnel will take place over three years and six months. This will affect the setting of the Grade II listed buildings of Hyde Farm and Sheepcotts Cottage, and the non-designated Chapel Farm. The character of their setting, comprising the area around Hyde Lane, King's Lane and the rural agricultural context in which all are set will be altered comprehensively. This will cause a high adverse impact and a major adverse effect to Hyde Farm and Sheepcotts Cottage and an adverse impact and a moderate adverse effect to Chapel Farm.

6. The Grade II listed buildings of Hyde Farm and Sheepcotts Cottage will experience a permanent change in their setting caused by the movement of trains and the associated increase in noise. This will constitute a medium adverse impact resulting in a moderate adverse effect. In combination with the permanent construction impacts of the Proposed Scheme, this will result in a medium adverse impact resulting in a moderate adverse effect.

7. The Promoter fully recognises the importance of listed buildings and heritage assets and the contribution these bring to the wider historic landscape. The Promoter has sought to avoid direct physical impacts on all heritage assets and the impacts on listed buildings (and other heritage assets) have been assessed in the Cultural Heritage topic assessment in the ES.

8. The impacts on the heritage assets at Hyde End are reported in Volumes 2 and 5 of the ES and addressed in specialist assessments, notably that for Cultural Heritage, Landscape and Sound, Noise and Vibration. In terms of Hyde Farm and Chapel Farm, the cultural heritage assessment reports that significant impacts would occur during construction activities and the presence of the Proposed Scheme will alter the rural and agricultural character of the locality and therefore the historic setting of these buildings. Changes to the setting will cause a temporary major adverse effect to the listed buildings at Hyde Farm and a temporary moderate adverse effect to the non-designated Chapel Farm. The cultural heritage construction impact at both properties will reduce once construction activities are completed and planting matures, resulting in a permanent minor adverse effect for Chapel Farm and a permanent moderate adverse effect for Hyde Farm.

9. Hyde Farm and Chapel Farm will experience a change in their setting caused by the movement of trains and the associated increase in noise. In combination with the permanent construction impacts of the Proposed Scheme this will result in a moderate adverse effect on the Grade II listed buildings at Hyde Farm and a minor adverse effect on the Chapel Farm non-designated heritage asset.

Setting

10. There are a number of controls in place to ensure that due regard is given to the setting of heritage assets during both construction works and the development of the detailed design of permanent works. In addition to the requirements of the Environmental Minimum Requirements (EMRs), including the Heritage and Environment Memorandums, the nominated undertaker will be contractually bound to comply with other controls that include, but are not limited to, the planning approvals that will be required under Schedule 16 to the Bill.

11. Schedule 16 to the Bill establishes the planning regime under which certain details of the HS2 works will require approval from the relevant local planning authority. For certain of these approvals the grounds which the authority may take into account when considering whether to approve, condition or require a modification to a request for approval include 'to preserve a site of archaeological or historic interest or nature conservation value'. This will ensure that heritage assets will be considered through the planning process that will apply to the HS2 works.

12. The nominated undertaker will be required under the Planning Memorandum to engage in forward discussions with local planning authorities about prospective requests for approval. This will ensure that although deemed planning permission for the Proposed Scheme is granted by Parliament, the local planning authority will be able to have an appropriate level of input into and approve the detailed design, thereby ensuring that the design and appearance of permanent structures fits into the local context and environment. Further details of the planning regime are set out in HS2 Information Paper B1, The Main Provisions of the Planning Regime.

13. The draft Environmental Memorandum sets out the approach to landscape and visual mitigation which takes account of the historic environment, including listed buildings. The design of new and modified structures, landscape works and noise mitigation will be developed during detailed design. It is recognised that this work may have implications for the setting of nearby heritage

assets, notably designated assets, and appropriate regard will be given to this. Mitigation measures will be developed in consultation with other disciplines.

14. This is explained further in HS2 Information Paper E1, Control of Environmental Impacts and HS2 Information Paper D3, Code of Construction Practice. The latest version of the Draft Code of Construction Practice (CoCP) can be found at: - www.gov.uk/government/uploads/system/uploads/attachment_data/file/259617/Vol5_draft_code_of_construction_practice_CT-003-000.pdf

Future viability

15. As explained in paragraphs 9.7.8 and 9.7.9 of the ES, Volume 1 Introduction to the Environmental Statement and the Proposed Scheme report:

> 'Mitigation measures have been developed in consultation with other disciplines, notably landscape, to ensure that heritage assets have been incorporated into mitigation works such as sympathetic design to the local landscape. Further discussion with other disciplines will be undertaken during detailed design to identify any further measures that can be incorporated to avoid or reduce impacts on cultural heritage assets.
>
> Where there may be an effect on the viability of an asset, potentially leading to dereliction or changes in managements affecting heritage assets, mitigation will be addressed on a case by case basis with the community and any other relevant stakeholders. Mitigation measures will take account of the range of effects that have been identified in the ES.'

16. Listed or historic buildings that are required for construction will be acquired under the relevant Bill powers or schemes and appropriately managed. For all properties, route-wide professional property management agents have been appointed by the Promoter to manage the estate. The property management agents are contracted to comply with all relevant Statutory requirements in the management, maintenance, letting, security and selling of these properties. Properties that are not required for the operation of the Proposed Scheme will be disposed of in accordance with the Land Disposal policy (see HS2 Information Paper C6, Disposal of Surplus Land). As explained in the Information Paper, property owners may be offered the opportunity to buy back such property at the open market value.

17. In addition to these schemes there are a number of provisions in the Bill and the draft EMRs that address Petitioners' concerns. Measures set out in the draft CoCP, which forms part of the EMRs, are designed to manage impacts during construction and this includes setting out measures to manage the impact of construction works on heritage assets, including listed buildings, ensuring measure are in place to protect the visual amenity of rural and urban areas and setting out measures in relation to noise and vibration to ensure that 'Best Practicable Means' will be applied during construction works to reduce noise and vibration at neighbouring residential properties and other sensitive receptors. The draft CoCP builds on direct experience from other major infrastructure schemes such as HS1, Crossrail and the London 2012 Olympics, which all followed a similar approach.

18. The Promoter does not accept open ended undefined liability as the compensation and protection measures above are sufficient to protect the historic and listed buildings that may be affected.

Hunts Green Farm

19. Impacts on the Hunts Green Farm complex would occur during construction activities and the subsequent presence of the operational railway will alter the rural and agricultural character of the locality and therefore the historic setting of this complex.

20. The construction of the South Heath cutting approximately 500 metres to the south east of Hunt's Green Farm. An area of proposed sustainable placement will extend to within 100 metres of the farm complex. The Leather Lane overbridge satellite compound will be located on the north side of Leather Lane 350 metres to the south and the use of the access track through the farm complex to the construction works will also be required. Views downslope to the west will be affected by construction activity and there will be significant changes to the soundscape of the complex during construction. There will be a noticeable change in the historic setting of this historic farm complex affecting its historic significance.

21. As the buildings will be retained, the Promoter does not consider that there is a need to record the historic complex in advance of construction. Hunts Green Farm will remain in use during the construction process.

Schedule 17 - listed buildings

22. Paragraph 1 of Schedule 17 to the Bill disapplies controls under the Planning (Listed Buildings and Conservation Areas) Act 1990 in relation to listed buildings which are directly affected by works for the Proposed Scheme and identified in Table 1 of that Schedule. Column (3) of Table 1 specifies the extent of the works to be carried out in exercise of the powers under the Bill and these works would be of a type that would usually require listed building consent. Glebe House and Shepherd's Furze Farmhouse (both grade II) will be demolished. In addition there will be partial demolition of perimeter estate wall of Hartwell House relating to realignment of A418. These are listed in Table 1 of Schedule 17.

23. It is proposed that a Heritage Agreement will be made with each affected local authority and with Historic England, in respect of the listed buildings set out in Table 1 of Schedule 17 to the Bill, setting out the specific arrangements for each of the listed buildings identified. These Heritage Agreements will ensure that appropriate mitigation measures are in place and that any works undertaken are appropriate to the special architectural or historic interest of the listed building and its significance as a heritage asset. The nominated undertaker will liaise with the local authority and Historic England during the preparation of the methodology for the works.

24. Paragraph 2 of Schedule 17 to the Bill disapplies some of the legislation under the Planning (Listed Buildings and Conservation Areas) Act 1990 for those listed buildings specified in Table 2 of that Schedule, specifically for works to maintain or restore their character and for fixing of monitoring apparatus to the buildings. This has the effect of removing the need for listed building consent for works to protect the listed building from adverse effects, such as ground settlement as a result of Proposed Scheme works. The disapplied legislation is replaced by an alternative mechanism to protect listed buildings. Twenty eight listed buildings within Buckinghamshire are named in table 2 of Schedule 17 to the Bill.

25. It is proposed that a Heritage Agreement will be made with each affected local authority and with Historic England, in respect of these works, setting out the process by which protective works to listed buildings will be approved and the specific arrangements for each of the listed buildings identified. These Heritage Agreements will ensure that appropriate mitigation measures are in

place and that any works undertaken are appropriate to the special architectural or historic interest of the listed building and its significance as a heritage asset. The nominated undertaker will liaise with the local authority and Historic England during the preparation of the methodology for the works.

26. Draft Model Heritage Undertakings and model Heritage Agreements were circulated for comment to the Heritage Sub-group to the Planning Forum, which Buckinghamshire County Council attends, in September 2014. No specific comments were received from Buckinghamshire County Council in relation to these draft model documents.

Environmental Minimum Requirements

27. The Environmental Minimum Requirements (EMRs) for the Proposed Scheme include a draft Heritage Memorandum setting out how the historic environment, including heritage assets and their setting, will be addressed during the design and construction of the Proposed Scheme. The Heritage Memorandum is the commitment made by the Secretary of State to the historic environment. It provides a framework for the nominated undertaker, Historic England, local authorities and other stakeholders to work together to ensure that the design and construction of the Proposed Scheme works are carried out with due regard for heritage considerations.

28. The Promoter has committed to continued discussion regarding the EMRs and at the July 2014 Planning Forum, the timetable for review of the EMRs, which include the draft Environmental Memorandum and draft Heritage Memorandum, was communicated.

29. The draft Code of Construction Practice (CoCP), notably Section 8, Cultural Heritage, requires the nominated undertaker to ensure that the works are carried out in such a way so that disturbance to all heritage assets is managed in accordance with accepted industry practice and, where disturbance cannot reasonably be avoided, is controlled and limited as far as reasonably practicable, including in relation to:

- designated assets: scheduled monuments; listed buildings, registered parks and gardens; conservation areas and registered historic battlefields; and
- non-designated assets: archaeological and palaeo-environmental remains including geological deposits that may contain evidence of the human past, historic landscapes and historic buildings and the built environment and locally designated assets.

30. Buckinghamshire County Council provided comments on the draft CoCP on 20 January 2015, and these will be considered as part of the timetable for review of all EMRs.

Design and setting

31. The Promoter agrees that the Proposed Scheme should be designed sympathetically with special regard to the impact on the surrounding areas.

32. The draft CoCP (notably Section 8 Cultural Heritage) requires the nominated undertaker to ensure that the works are carried out in such a way as to ensure that disturbance to all heritage assets is managed in accordance with accepted industry practice and, where disturbance cannot reasonably be avoided, is controlled and limited as far as reasonably practicable.

33. The draft Environmental Memorandum sets out the approach to landscape and visual mitigation which takes account of the historic environment, including listed buildings. The design

of new and modified structures, landscape works and noise mitigation will be developed during detailed design. It is recognised that this work may have implications for the setting of nearby heritage assets, notably designated assets, and appropriate regard will be given to this. Mitigation measures will be developed in consultation with other disciplines.

34. Schedule 16 to the Bill establishes the planning regime under which certain details of the Proposed Scheme works will require approval from the relevant local planning authority. For certain of these approvals the grounds which the authority may take into account when considering whether to approve, condition or require a modification to a request for approval include 'to preserve a site of archaeological or historic interest or nature conservation value'. This will ensure that heritage assets will considered through the planning process that will apply to the Proposed Scheme works. Further details of the planning regime are set out in HS2 Information Paper B1, The Main Provisions of the Planning Regime. See also HS2 Information Paper D1, Design Policy.

35. The Promoter 'is committed to high quality design that is sensitive to the character of the local area and avoids and minimises effects as much as possible' (draft Environmental Memorandum paragraph 4.6.1). Landscape design should be appropriate to the local landscape and ecological character along the route. Trees and vegetation on temporary worksites which are lost as a result of construction will be replaced. Except for ornamental or specimen planting, preference will be given to native species typical of the area that are resilient to disease and appropriate to climate change. Where reasonably practicable structures, fencing, bunding and acoustic screening will be sensitively designed to be both effective and sympathetic to the local environment.

36. As HS2 Information Paper D1, Design Policy, sets out, amongst other design policies:

> 'The Promoter and the nominated undertaker will seek to ensure that:
>
> - the design contributes to the government's pursuit of sustainable development, as set out in the National Planning Policy Framework, which involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life;
> - the design of all visible elements of the built and landscaped environment are sympathetic to their context, environment and local setting'.

37. Furthermore, as HS2 Information Paper B1, The Main Provisions of the Planning Regime outlines, 'the design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations.

38. The level of detailed design necessary to enable the Proposed Scheme to be constructed has yet to be carried out, and will not be completed until after the Bill has secured Royal Assent. Once complete the nominated undertaker will need to apply for approval of the detailed design of a range of parts of the Proposed Scheme from local planning authorities along the route. This will ensure that although planning permission for the Proposed Scheme is granted by Parliament, local planning authorities will be able to ensure that the design of permanent structures fits into the local environment, Local planning authorities will also be able to input into the approval of certain construction matters and have a level of control over their enforcement.

Archaeological investigation

39. Route-wide approaches will be developed by the nominated undertaker in discussion with Historic England and local authorities via the Heritage sub-group of the Planning Forum, which the

Buckinghamshire County Council archaeologist attends. A route-wide generic written scheme of investigation (WSI) is being prepared setting out the general principles for design, evaluation, mitigation, analysis, reporting and archive deposition to be adopted for the design development and construction of the Proposed Scheme. The draft generic WSIs for archaeology and built heritage were circulated for comment to the Heritage Sub-group to the Planning Forum, in September 2014. Buckinghamshire County Council has provided comment on the draft Generic WSI for Archaeology (20 January 2015). These comments and those received for other Heritage Sub-group members are being collated and will be reported to the Heritage Sub-Group.

40. A site-specific WSI will be developed for each area or site-specific cultural heritage works. These documents will be developed in consultation with Historic England and the local authorities. The results of desk based assessment and any specialist assessment will be used to design a programme of investigation and archaeological buildings recording for each asset, or where appropriate specific groupings of asset. The requirements and specification for such a programme will be set out in a site specific WSI.

41. All cultural heritage works will be undertaken in accordance with the generic and site-specific WSIs.

42. Volume 5 of the ES, Cultural Heritage, sets out a list of evidence and reports incorporated into the baseline report to inform its assessment of:

- Geophysical surveys – a non-intrusive survey technique that detects buried remains;
- Light Detection and Aerial Ranging (LiDAR) – laser-based high resolution remote sensing technology, undertaken from the air and used to create a three-dimensional model;
- Hyperspectral surveys – a technology that examines thermal anomalies enabling the presence of structures and hollows below the surface of the ground to be determined; and
- Aerial photographs.

Protection of heritage assets during construction

43. Before enabling and construction works begin, the research undertaken for the ES will be reviewed. Where required, for the purposes of delivering archaeological works, additional detailed desk-based assessment and/or field evaluation will be carried out and this will inform the development of location specific mitigation works (a location specific WSI). These documents will be developed in discussion with Historic England and the relevant local authority and will follow the principles set out in the generic WSI. The nominated undertaker will develop an integrated programme (the heritage investigation programme) to deliver the archaeological mitigation works outlined in the ES and developed during the detailed design process. The programme will set out the key stages of investigation, for example:

- Detailed desk-based assessment;
- Field evaluation (to inform location specific mitigation);
- Location specific mitigation; and
- Post excavation.

44. The heritage investigation programme will be developed in light of, and in conjunction with, the overall construction programme and will be reviewed and updated, as appropriate to allow the management of the works.

45. Works may include the protection and preservation of assets in-situ (which may be achieved through design), investigation and recording in advance of enabling and construction, and/or the implementation of investigation and recording during enabling and construction works.

46. The Buckinghamshire County Council archaeologist is aware of the on-going programme of geophysical survey works undertaken in 2014, where access was granted. The Written Scheme of Investigation for that work was discussed with Buckinghamshire County Council.

47. The Promoter is satisfied that appropriate mechanisms and controls will be established upon Royal Assent in order to address historic environment matters.

48. Further details about the approach to archaeological works are set out in HS2 Information Paper E8, Archaeology.

Grim's Ditch

49. The Proposed Scheme would directly physically affect Scheduled Monument- Grim's Ditch in the AONB. This is reported in CFA 10, specifically Environmental Statement (ES), Volume 2, Chapter 6 and ES, Volume 5, Cultural Heritage (environmental topic report and map book).

50. The Proposed Scheme will be in cutting as it passes through Grim's Ditch requiring removal of approximately 150 metres of the monument. This will entail disturbance of known and potential remains of high value. The setting of the surviving elements of the monument will be severed, causing a high adverse impact resulting in a major adverse effect.

51. Since deposit of the Bill, the Promoter has undertaken further survey and been in discussion with Historic England regarding the extent of Grim's Ditch to the east. It is now understood that the Ditch did not extend so far east. As a result the proposed mitigation planting in the Bill to replicate the alignment of the Grim's Ditch Scheduled Monument will not be provided. The assessment of the impact on the setting of the monument is not affected by this new information. The direct physical impact on the scheduled monument due to the cutting required for the Proposed Scheme, remains unchanged.

52. Paragraph 1 of Schedule 18 of the Bill disapplies controls under the Ancient Monuments and Archaeological Areas Act 1979 in relation to scheduled monuments which are affected by works for the Proposed Scheme.

53. It is proposed that a Heritage Agreement will be made with Historic England and this agreement will cover the site specific arrangements for scheduled monuments in respect of the works for the Proposed Scheme and which would usually be of a type that would normally require scheduled monument consent. This agreement will ensure that appropriate mitigation and safeguarding measures are in place. The nominated undertaker will liaise with Historic England during the preparation of the methodology for the works.

DESIGN OF CUTTINGS

1. In relation to cuttings, these are part of the scheduled works set out in Schedule 1 to the Bill, in relation to which an Environmental Assessment has already been conducted. This identifies the likely significant effects that will arise from the construction and operation of the Proposed Scheme and the range of mitigation measures that could be used to reduce or eliminate these effects. Where an Environmental Impact Assessment is legally required, works will not take place unless they have been assessed already as part of the Environmental Statement (ES) or are subject to a further Environmental Impact Assessment and consent process.

2. The design of the Proposed Scheme to date thus provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations.

3. More detailed designs to enable the Proposed Scheme to be built will not be completed until after the Bill has secured Royal Assent. At the appropriate time, the nominated undertaker will apply to the relevant local planning authorities for approval of details of aspects of the Proposed Scheme specified in Schedule 16 of the Bill. As paragraph 4.1 of HS2 Information Paper B1, The Main Provisions of the Planning Regime sets out, details reserved for subsequent approval include 'matters such as buildings, road vehicle parks, terracing, cuttings, embankments and other earthworks, fences, walls or other barriers, transformers, telecommunication masts, pedestrian access to the railway line, artificial lighting, waste and spoil disposal and borrow pits'. This will enable local planning authorities to ensure that the design of permanent structures fits into the local environment. This is explained in HS2 Information Paper E1, Control of Environmental Impacts and HS2 Information Paper B1, The Main Provisions of the Planning Regime.

4. In the main, the way in which temporary works are carried out is controlled by the draft Code of Construction Practice (CoCP) and related documents. This is explained in HS2 Information Paper D3, Code of Construction Practice. The latest version of the draft Code of Construction Practice can be found at www.gov.uk/government/uploads/system/uploads/attachment_data/file/259617/Vol5_draft_code_of_construction_practice_CT-003-000.pdf.

5. Schedule 16 to the Bill establishes a streamlined planning process for the design and construction of the railway. In accordance with Schedule 16, if a local authority signs the Planning Memorandum it will become a qualifying authority when the Bill is enacted. By becoming a qualifying authority, the planning authority will gain powers to determine (amongst other things) the detailed design and appearance of landscape earthwork works under Schedule 16. Within the powers of the Act, these qualifying authorities will be able to refuse 'requests for approval' for the design or external appearance of relevant works where the design or external appearance would not 'preserve the local environment or local amenity'. This is explained in HS2 Information Paper E1, Control of Environmental Impacts and Information Paper B1, The Main Provisions of the Planning Regime.

ECOLOGY

No net loss to biodiversity

1. In relation to compliance with Section 85 of the Countryside and Rights of Way Act (CRoW Act) 2000, the Promoter considers that its existing commitments and assurances within the draft Code of Construction Practice (CoCP) and the draft Environmental Memorandum, are sufficient to ensure that biodiversity impacts are properly managed and monitored through the construction process, in line with best practice and consistent with the Code of Practice for Planning and Development BS4020: 2013 and relevant statutory requirements. In its evidence to the Environment Audit Committee, the Department for Food and Rural Affairs acknowledged that the objective of seeking no net loss to biodiversity is very challenging for a major infrastructure project such as the Proposed Scheme and that this aim would be ambitious as for any similar infrastructure project worldwide. The duty will apply to the nominated undertaker because a relevant authority for the purposes of Section 85 includes statutory undertakers, and the nominated undertaker will be a statutory undertaker for this purpose.

2. As HS2 Information Paper E2, Ecological Impacts, sets out, while there is no legal requirement to do so, the Proposed Scheme has the objective of seeking to ensure no net loss to biodiversity:

> 'To measure losses and gains of habitats an adapted version of the Department for Environment, Food and Rural Affairs (Defra) Biodiversity Offsetting Metric was developed in consultation with Defra and Natural England. It will be used to compare the biodiversity value of the habitats created and the habitats lost. Details of the methodology and metric are set out in the Scope and Methodology Report (SMR) addendum (Volume 5 Appendix CT-001-000/2) of the Environmental Statement (ES) submitted with the Bill.'

Ecology standards

3. It is important to note that the offsetting metric has not been used to determine mitigation and compensation measures. The approach used for mitigation and compensation is set out in an appendix to the ES (Ecological Principles of Mitigation in Volume 5, Appendix, SMR Addendum Section 9: CT-001-000/2). There are no set ratios for habitat creation; rather the approach relies on professional judgement in each context and was developed as part of an iterative design process appropriate to the specific area. The Promoter will continue to engage with Natural England on this as the project develops.

4. The six key approaches, as set out in the Lawton Review ('Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network', 2010), are standard ecological principles, which have been considered when developing mitigation and compensation measures for the Proposed Scheme. For example, the Promoter has sought to increase the size of existing woodlands by planting areas of new woodland adjacent to them, and sought to join up fragments of woodland wherever practicable.

5. There are a number of places where planting will result in renewed connectivity between blocks of ancient woodland that have been separated for many decades or centuries. For example, the Tilehouse Lane woodland creation area. This new area of woodland will in fact increase the connectivity between three ancient woodlands – Juniper Wood, Little Halings Wood and Great Halings Wood.

Biodiversity offsetting areas

6. Much of the mitigation described in the Environmental Statement (ES) provides multi-functional benefits. For example, an earth bund proposed for the primary reason of reducing noise from the railway will be likely to provide benefits such as a reduction in visual impact and planted with trees will help integrate the railway into the surrounding landscape. In many cases ecological mitigation has been specifically chosen to address multiple impacts of the scheme on a range of receptors. As such, piecemeal changes to the location of mitigation features described in the ES could result in significant effects or trigger the persistence of some residual effects that were previously accounted for in the ES as being mitigated.

7. Changes to the location of areas proposed for habitat mitigation in the ES could result in small areas of existing habitat being retained adjacent to the railway that may be less viable, for instance because they will become less attractive to wildlife, could link less to existing habitats and landscape features and will also become less easy to maintain. In many cases is often important to ensure that new habitat mitigation areas are proposed in proximity to those existing habitats affected by the railway proposals. This ensures that impacts are dealt with locally and any new habitats created will provide the similar conditions, such as soil and hydrological conditions, that are appropriate for the habitats being developed or translocated. Proposals to provide mitigation at a distance from the source of impact could reduce the likelihood of new habitats and translocation being successful as well as possibly as affecting the 'favourable conservation status' of European Protected Species which has implications for obtaining licences under the Habitats Regulations. When considered on a strategic basis, rather than an individual landholding basis, moving mitigation areas to locations away from the affected ecological feature would result in significant additional land take requirements. This additional land take will almost exclusively be agricultural land and would in itself trigger additional significant effects to existing land use and could reduce the ecological benefits of mitigation.

Mitigation planting

8. In relation to landscape design, the Promoter can confirm that, as set out in HS2 Information Paper D1, Design Policy, the Promoter and the nominated undertaker will seek to ensure that the design 'of all visible elements of the built and landscaped environment are sympathetic to their context, environment and social setting'.

9. In particular, in relation to ancient woodland compensation planting, HS2 Information Paper E1, Ecological Impact, explains that 'to compensate for the loss of ancient woodland the nominated undertaker will use best practice measures such as re-using the ancient woodland soils and creating 280ha of new mixed deciduous woodland. However, it is acknowledged that it is not possible to replace ancient woodland'.

10. Furthermore, as HS2 Information Paper E1, Ecological Impact sets out, 'the Proposed Scheme has the objective of seeking to ensure no net loss to Biodiversity'. An adapted version of the Department for Environment, Food and Rural Affairs (Defra) Biodiversity offsetting metric will be used to compare the biodiversity of the habitats created and habitats lost.

Establishment of habitats/landscaped areas

11. The Petitioner should note that, as is set out in HS2 Information Paper E16, Maintenance of Landscaped Areas, in the case of planting of ancient woodland and screen planting, the initial planting is likely to comprise a mix of small trees (transplants) with some larger trees. Initially

'some faster growing species are likely to be used' to create either 'the shaded conditions needed by the seed in soil brought from donor sites' (in the case of ancient woodland), or to help planting 'and screen the Proposed Scheme' (in the case of screen planting). An overview of the ways in which differing landscape types would be established and maintained is included in HS2 Information Paper E16, which covers woodland planting (including ancient woodland), screen planting, hedgerow planting, grassland and ponds and wetland habitats.

12. The Promoter recognises the importance of tree provenance and the need to minimise the risk of tree disease. It has established a Tree Working Group to advise on the tree procurement process, which includes the Petitioner as well as other organisations such as the Forestry Commission and the Tree Council in drawing up an appropriate tree procurement strategy.

Hedgerows and woodland

13. The ES Volume 3 sets out that within the AONB it is proposed that there will be reinstatement and introduction of hedgerow planting to reconnect severed lengths of hedgerows and to break up the linear alignment of the Proposed Scheme, integrating it into existing vegetation patterns. It should be noted that the plans accompanying the hybrid Bill and the ES do not show the full extent of hedgerows that will be created as part of the planting as this is a level of detail that cannot be defined at this stage. Development of the hedgerow planting proposals will form part of the detailed landscape planting design that will follow Royal Assent.

14. In order to restore, recreate and enhance the habitat connectivity provided by hedgerows, many of the replacement hedgerows will fall within the zone required for construction. There will be phased restoration of land that is temporarily required and hedgerows will be planted as soon as possible. Where necessarily, for example to retain an important bat commuting route, temporary replacement features that can be moved during the main construction works will be used.

15. In relation to woodland areas within the AONB, approximately 50ha of new woodland planting is proposed to replace areas of lost woodland and to introduce new areas of woodland to break up the linear alignment of the Proposed Scheme, integrating it into the existing vegetation patterns

Connectivity

16. Ecological connectivity has been a key consideration in the approach to the design of the ecological mitigation. Sections 9.4 and 9.5 of the EIA Scope and Methodology Report (CT-001-000/1) explain that connectivity and habitat severance are issues that are considered in the ES. It is confirmed that the ability of species to move through the landscape after construction of the Proposed Scheme has been a major consideration.

17. Section 9.4.1 recognises loss or degradation of ecological corridors and networks, with a resulting decline in habitat connectivity as a potential issue that is considered in the assessment. Section 9.5.6 confirms that the assessment included the effects on landscape-scale ecological features, including habitat connectivity.

18. The key approaches set out in the Lawton Review have been considered when developing mitigation and compensation measures. In particular, the Promoter has sought to increase the size of areas of existing priority habitat by creating new areas of habitat adjacent to them, and sought to join up fragments of habitat wherever practicable. There are a number of places where planting will result in renewed connectivity between blocks of ancient woodland, for example, that have been separated for many decades or centuries.

19. Safe crossing points for animals are also proposed where the railway crosses watercourses on viaducts and overbridges. Route-wide, green bridges and underpasses have been included in the design to create connectivity wherever appropriate for maintaining populations of protected species. The design of the Proposed Scheme includes a number of green bridges along the line of route and although they have primarily been designed for bats, they will also provide safe passage across the route for other species. At detailed design stage the need for specific mammal underpasses will be considered, taking account of all available information.

20. In the section of the scheme between South Heath and Wendover Dean viaduct the South Heath green tunnel will provide habitat connectivity for a 1.2km long section of the Proposed Scheme. The tunnel will be extensively planted as part of a larger compensation package for the loss of ancient woodland, and will also provide for the movement of species across the alignment. Ecological assessment has been undertaken which has guided the identification of wildlife crossing points. In addition to the green tunnel other examples in this section of the proposed route where provision for crossing points have been made include:

- the landscape planting and habitat creation close to the Chiltern tunnel north portal which will link the fragmented southern and western parts of Mantle's Wood Local Wildlife Site (LWS) with the remaining parts of Hedgemoor and Farthings Wood LWS; and
- the planting of the embankments of PRoW and farm accommodation bridges at Hyde Lane, Leather Lane and near Havenfield Wood, which will allow bats to cross the route of the Proposed Scheme.

21. The Promoter considers that the connectivity provided in the Proposed Scheme is sufficient and that no additional measures are required to maintain ecological connectivity at the locations specified.

22. Measures such as the provision of green bridges have been considered at sensitive locations along the route. Such measures have been proposed where it was considered that other means of addressing significant effects would not be effective. Whereas they may be of benefit for road schemes, the Promoter does not believe that amphibian and reptile underpasses are appropriate or necessary for a railway project.

23. Through the measures discussed above the Proposed Scheme includes the appropriate connectivity measures to maintain populations of species.

Barn owls

24. Whilst the ES Volume 3, Section 2 does recognise that there will be 'significant adverse effects' on the barn owl population, including the possibility of train impacts, it also acknowledges that:

> 'to offset the likely loss of barn owl from the vicinity of the Proposed Scheme, opportunities to provide barn owl nesting boxes in areas greater than 1.5km from the route will be explored with local landowners. As the availability of nesting sites is a limiting factor for this species, the implementation of these measures would be likely to increase numbers of barn owl within the wider landscape and thus offset the adverse effect. If the proposed mitigation measures for barn owl are implemented through liaison with landowners, the residual effect on barn owl would be reduced to a level that is not significant'.

Bats

25. A standard approach to surveying bats was undertaken as described in the HS2 report 'Field Survey Methods and Standards', which forms part of the technical appendix to Volume 5 of the ES. Survey approaches for all species, including bats, were agreed with Natural England.

26. The ES was informed by bat surveys undertaken during 2012 and 2013. Further bat surveys were undertaken during 2014 in areas where access was granted too late to undertake surveys in 2013, or to provide additional information in areas of significant bat populations. Additional surveys will be undertaken as appropriate to inform EPS licence applications in due course. This will include any necessary surveys after Royal Assent in areas where no access is obtained prior to that date.

27. Surveys are being undertaken to understand how bats move within the landscape, not just at crossing points, although access is causing constraints on this in some locations.

Red kites

28. A full and detailed assessment of the red kite population in the Chilterns area was undertaken. Species specific surveys were carried out, following the Gilbert et al. (1998) methodology. The survey results can be found in the ES, Volume 5, Technical Appendices, CFA7-15 Colne Valley to Lower Boddington, Ecological baseline data report: amphibians, reptiles and birds, EC-002-002. The value of the population and subsequent assessment was developed by the Promoter. This is reflected by the inclusion of red kites in the baseline section of the Volume 2 reports of the ES.
29. However, whilst the assessment found that red kites would be affected to some extent by the Proposed Scheme (for example, through loss of some foraging sites and disturbance), it was found that these birds were adaptable and had abundant foraging and nesting sites in the wider Chilterns area. No significant impact to the conservation status of red kites was therefore identified such that this would be reported in the ES.

Maintenance of ecological mitigation/created habitats

30. HS2 Information Paper E16, Maintenance of Landscaped Areas explains that the nominated undertaker will manage new habitats and areas of landscape planting, 'for a period of time, to ensure they become established and are properly maintained. This period of initial maintenance will vary depending on the habitat or feature and the complexity and objectives for the landscape type. Tree planting for the purpose of screening will likely require up to five years maintenance'.

31. The draft Environmental Memorandum includes a commitment to an appropriate monitoring and environmental management regime. This is a commitment made by the Secretary of State to Parliament and the nominated undertaker and contractors will be bound by it. In regard to created habitats, there is a commitment to monitoring and managing new habitats for an appropriate period to ensure that the objectives of the habitat creation are met. As outlined above, for habitats that are relatively easy to create a five year period may be appropriate. At the other end of the scale, ancient woodland compensation areas will need to be monitored and managed for much longer.

32. The appropriate period for different habitats will be determined in consultation with Natural England. Indicative details on these periods in respect of the establishment period are set out in HS2 Information Paper E26, Indicative Periods for the Management and Monitoring of Habitats Created for HS2 Phase One. As this Information Paper sets out, an Information Paper on

'management, maintenance and monitoring prescriptions, durations and frequencies beyond the point where establishment goals have been met (i.e. longer-term commitments)' 'will be published in due course'.

33. HS2 Information Paper E26, Indicative Periods for the Management and Monitoring of Habitats Created for HS2 Phase One indicates that, even in relation to the establishment period, monitoring management, monitoring and maintenance durations may vary between five years for example, for open mosaic habitats on previously developed land and 10-50 years for woodland, including screening planting. Furthermore:

> 'the duration, exact nature and frequency of maintenance, management and monitoring works for individual locations will be developed during detailed design. The durations (...) will be used as a guide and in exceptional cases (for example, where there is a reason to believe that a habitat will be particularly difficult to create), there may be deviation from the figures provided in Table 1. In consultation with Natural England, the Promoter intends to identify measurable goals (or 'success criteria') for all habitat areas to be created. Monitoring during the establishment of new habitats will track progress towards these goals. If monitoring shows that these goals have not been achieved within the indicative monitoring and maintenance periods stated in Table 1, the duration may need to be extended, for example, in response to unusual weather conditions such as prolonged drought. Similarly, if it can be confirmed that the required goal has been met earlier than expected, the standard monitoring period may be shortened. The frequency of monitoring will generally decrease with time where establishment towards the agreed objectives is progressing in line with expectations'.

34. HS2 Information Paper E26, Indicative Periods for the Management and Monitoring of Habitats Created for HS2 Phase One quotes paragraph 4.8.5 of the draft Environmental Memorandum in stating that 'the nominated undertaker will maintain or make provision to maintain and monitor the new or managed habitat for a sufficient period to ensure that the nature conservation objectives of the proposals are achieved'. However, the specific approaches for monitoring (including in relation to who will conduct such monitoring and how this would be funded) have yet to be agreed.

35. Further details are available in HS2 Information Paper E26, Indicative Periods for the Management and Monitoring of Habitats Created for HS2 Phase One.

Enforcement in relation to assurances

36. As is set out in paragraph 8 of Schedule 16 to the Bill, the nominated undertaker will need to apply to local planning authorities to confirm that the Promoter's proposed mitigation has been properly incorporated into the Proposed Scheme under bringing into use (BIU) proposals.

37. As HS2 Information Paper E1, Control of Environmental Impacts sets out:

> 'Counsel for the Promoter confirmed on Day 1 of the Committee proceedings that the Environmental Minimum Requirements (EMRs) would be made contractually binding on the nominated undertaker. Counsel also gave an undertaking to Parliament on behalf of the Secretary of State concerning their enforcement:
>
> - "Insofar as the Environmental Minimum Requirements are not directly enforceable against any person appointed as the nominated undertaker, the Secretary of State

will take such steps as he considers reasonable and necessary to secure compliance with those requirements".

Assurances (including those relating to the EMRs) will be enforceable against any person appointed as the nominated undertaker through the Secretary of State's undertaking set out above. This means that in the event of a failure to comply with an assurance, recourse will be through the Secretary of State, and the Secretary of State is answerable to Parliament for securing compliance.

If it is felt that a contractor undertaking works authorised by the Bill is not meeting the requirements of the EMRs then there are steps that can be taken to ensure there is an investigation and if any corrective action is needed it is taken. These are:

- Report to the nominated undertaker – the first step is to report any breach to the nominated undertaker. The nominated undertaker will implement the necessary corrective action.
- Report to the Secretary of State – if unsatisfied by the nominated undertaker's response the issue can be reported to the Department for Transport, which can direct the nominated undertaker to implement corrective action;
- Report to Parliament – if unsatisfied with the Department for Transport's response, the issue can be reported to the Speaker in the House of Commons or, if it relates to an undertaking given to or accepted by the House of Lords Select Committee then to the Chairman of Committees in the House of Lords under Standing Order 130.'

ENCLOSURE ON VIADUCTS AND EMBANKMENT

1. The enclosure of the Wendover Dean and Small Dean viaducts would require significant additional engineering works. In particular, the size of the enclosure to provide the required aerodynamic performance would require an increase in bridge width and a much more substantial support structure. Enclosure of the viaduct would in effect create a tunnel and would require inclusion of appropriate measures to mitigate pressure waves created by trains. Enclosure would increase construction complexity and time, with increased construction and ongoing maintenance costs for the structure.

2. The increased size and visual appearance of an enclosed structure would be difficult to mitigate with the result that the visual intrusion of a covered viaduct would be more significant than the impacts from the viaduct that is proposed. Particularly within the setting of Chilterns AONB, the visual appearance of the structure will be an important aspect of the final design adopted.

3. With regard to noise effects, a covered structure would reduce potential noise impacts for the length of the viaduct. However, the Proposed Scheme incorporates earthworks and noise fence barriers to provide noise attenuation without the permanent visual impacts and additional costs of a covered structure.

4. For these reasons the Promoter does not consider that enclosing these viaducts will provide the visual and noise benefits described by Petitioners.

HEALTH IMPACTS

Health Impact Assessment

1. The Health Impact Assessment (HIA) Report that was produced to support the Bill presents the assessment of the potential health effects resulting from the construction and operation of the Proposed Scheme. This approach is consistent with established guidance and HIAs undertaken for other infrastructure projects.

2. The HIA was undertaken as part of the design and planning process for the Proposed Scheme, prior to submission of the Bill. It qualitatively assesses the potential effects of construction and operation of the scheme on a range of social, economic and environmental factors that are known to influence health. The HIA does not describe the health effects on individuals as an individual's response to such changes depends on many factors, including e.g. their existing health status.

3. The HIA identifies reasonably practicable measures to prevent or to reduce adverse health effects, or to provide mitigation or compensation to those affected. In respect of the requirements of the National Planning Policy Framework, the Bill, once enacted, will granted deemed planning permission for the works for the Proposed Scheme. There is no statutory requirement to produce a HIA; however as good practice the Promoter has produced an HIA alongside the Bill.

Amersham Hospital and the Chilterns Crematorium

4. Amersham Hospital was assessed in the Environmental Statement (ES) and the ES, Volume 2, CFA 8 report does not identify any significant effects of the Proposed Scheme in relation to the hospital. The Chilterns Crematorium was not considered a sensitive receptor in terms of environmental effects and therefore there will be no likely significant effects from the Proposed Scheme.

Health of construction workers

5. Paragraphs 5.8.4 to 5.8.6 of the HIA explain that during the construction phase in rural areas, temporary workers from outside the local area will reside in the vicinity of the Proposed Scheme, either in construction workers' accommodation near the main construction sites or within the community in rented accommodation, bed and breakfasts etc.

6. It is considered likely that the majority of these workers will continue to be registered with their existing GPs rather than registering with a GP in the local area. The small minority who may choose to relocate to the area and register with a GP will be accommodated within the existing healthcare funding systems, which allocates funds to local health authorities on the basis of population size. Workers choosing to live in the local area for the purpose of accessing construction employment will remain in the area on a temporary basis for the duration of the works, and will not contribute to long-term population growth.

7. It is expected that the nominated undertaker will provide occupational health care to temporary workers, including health assessment, health monitoring, preventative treatment where necessary, and first aid. This is expected to help to reduce additional demand for local services, including A&E services.

8. The nominated undertaker and other contractors will comply with the draft Environmental Minimum Requirements (EMRs) which will set out commitments to mitigate the environmental

impact of the Proposed Scheme and sit alongside the environmental controls contained in the Bill (see HS2 Information Paper E1, Control of Environmental Impacts). They will prepare and operate an Environmental Management System appropriate to the scale and nature of the construction works as part of the Local Environment Management Plan (LEMP), to be prepared in accordance with the Code of Construction Practice.

9. LEMPs will include any specific measures relevant to the local community and to any assurances and undertakings given during the passage of the Bill. LEMPs will set out how the contractor will adapt and deliver the required environmental and community protection measures within each community area.

10. To improve liaison with the regulatory authorities a contact person will be identified for each construction compound. This is explained further in HS2 Information Paper D3, Code of Construction Practice (CoCP).

LAND ACQUISITION/CLAUSE 47

Clause 47

1. When pursuing regeneration and development opportunities in relation to infrastructure projects, amongst other factors, local authorities will need to ensure there is appropriate provision of land in the surrounding vicinity of stations and depots and that it is appropriately packaged to achieve the wider ambitions of the area. Access to the required land can normally be achieved through commercial negotiation with landowners. However, there are circumstances where such land assembly can prove challenging, particularly where land ownership is highly fragmented or where land parcels straddle one or more local authority areas. In such cases, commercial negotiation can fail to secure all the land required. This has the potential to significantly frustrate local development leading to delays, cost increases or the desired regeneration simply not occurring.

2. To surmount these barriers, local authorities have power under Part 9 of the Town and Country Planning Act 1990 to compulsorily acquire land within their area to facilitate development, redevelopment or improvement. There may, however, be circumstances where local authorities are unable or face very challenging practical difficulties in using their compulsory purchase powers, for example, where the required land falls within the boundaries of more than one authority.

3. Clause 47(1) of the Bill therefore enables the Promoter to compulsorily acquire land to facilitate regeneration and development in connection with the Proposed Scheme. This provision is based on the equivalent powers mentioned above under Part 9 of the Town and Country Planning Act 1990 for local authorities.

4. Clause 47(1) is a backstop power to assist in unlocking or optimising a development or regeneration scheme where other avenues have failed and the importance of realising the regeneration benefits are considered significant enough to warrant its use. The Promoter would only expect to use this power with the support and collaboration of the relevant local authorities. The power to make a compulsory purchase order (CPO) under clause 47(1) is subject to the same procedures and safeguards as apply to the making of other CPOs. A CPO may be made only if there is a compelling case in the public interest to justify its use. Landowners and other interested persons affected by a proposed CPO have the right to object to its confirmation. If such objections are raised, the case for and against the proposed CPO must be examined by an independent planning inspector at a Public Inquiry or public hearing. As part of his examination the Inspector must consider the proportionality of making the proposed CPO, in the light of its impact on affected landowners and other interested persons.

5. In summary the following principles govern the circumstances in which the Promoter would consider using clause 47(1):

- The power will only be used after other options have been fully considered including commercial agreement between parties to acquire land; or local authorities using their own compulsory purchase powers;
- Where there is a compelling case that the use of compulsory purchase is required in the public interest. Promotion of a CPO to acquire property for regeneration purposes will not be used only because it would be expedient to do so; and
- The power will be applied for the regeneration and development of land in the vicinity of station sites and depots which arise as a result of the construction and operation of Phase One of the Proposed Scheme.

6. The use of clause 47(1) of the Bill is also explained in HS2 Information Paper C11, Regeneration, Compulsory Purchase Policy and Over Site Development.

7. Clause 47(2) of the Bill provides a power – again for use only in exceptional circumstances - to promote an order to compulsorily purchase an alternative site in order to reduce the risk of total extinguishment of a business displaced by the proposed scheme occurring, by securing the planned and timely relocation of that business. As is explained separately in HS2 Information Paper C7, Business Relocation, the Secretary of State would only expect to exercise this power where the following three criteria were met:

a) As a result of the exercise of any power under the Bill, the site on which the whole or any part of the business has previously been carried on is no longer reasonably capable of being used for the purposes of the business;

b) There is a significant risk that the business will face total extinguishment as all other options for relocation, within the timescales of the Proposed Scheme on reasonable market terms, have been exhausted; and

c) The Secretary of State considers that it is in the public interest that the business is relocated because the relocation will secure the retention of key community assets or facilities, or the business is otherwise of strategic or regional importance.

8. The proposal to use the power and related supporting business case would be considered by an independent expert commissioned by the nominated undertaker who will report to the Secretary of State making a recommendation. Further details are available in HS2 Information Paper C7, Business Relocation.

9. The powers in clause 47 are intended to be flexible so as to enable such an approach to be undertaken and to enable the best solution possible to be delivered. It would be inconsistent with the underlying purpose of clause 47 for the Promoter at this stage to make any commitments about the potential use of the powers afforded by clause 47.

Extent of land take

10. As HS2 Information Paper C4, Land Acquisition Policy, sets out, 'the Bill generally includes full land acquisition powers' to ensure sufficient flexibility in the detailed design of the Proposed Scheme. In any individual case however, 'the exercise of these powers will operate on the basis that the Secretary of State will acquire no greater amount of land that appears to him to be reasonably required following the detailed design of the Proposed Scheme'.

11. Schedule 5 of the Bill states that 'The purposes for which the land specified in the following table may be acquired under section 4(1) include (but are not limited to) the purpose specified in relation to that land in the third column of the table'. In fact, clause 4 allows the land specified in Schedule 5 to be acquired for 'Phase One purposes' as defined in clause 62 of the Bill. It is not therefore the case that permanent powers are being sought for land required only for temporary uses.

12. As is set out in paragraph 4.1 of HS2 Information Paper C4, Land Acquisition Policy, 'the Bill contains permanent acquisition powers to acquire the freehold interests in worksites due to the length of time they will be occupied'. However, the Information Paper goes on to make clear in

paragraph 4.2 that the Promoter will be prepared to consider, in appropriate circumstances, taking the land required for worksites only temporarily. This would need to be considered on a case-by-case basis.

Crichel Down Rules

13. If land is acquired for the construction of the Proposed Scheme and is subsequently found no longer to be required, it will be sold subject to the Crichel Down Rules (the 'Rules'), as applied by HS2 Information Paper C6, Disposal of Surplus Land.

14. The basic principle behind the Rules is that where Government wishes to dispose of land to which the Rules apply, former owners will be given first opportunity to re-purchase this land at current market value, provided it has not 'materially changed' in character since acquisition. The Rules (see Part 2 of the Memorandum to ODPM Circular 06/2004) will be applied when considering the question of 'material change'.

15. It should also be noted the requirement to offer land back is not unqualified, but subject to limitations and exceptions, as set out in the Rules themselves. In particular, as HS2 Information Paper C6, Disposal of Surplus Land sets out, by virtue of Rule 10, 'there will be no obligation to offer land back to the former owner where the land has materially changed in character,' but the general rule is that the former owners will be given first opportunity to re-purchase the land at current market value.

LANDSCAPE, AMENITY AND ECONOMY

Landscape

1. The Proposed Scheme includes a long tunnel and a comprehensive package of measures to avoid and mitigate detrimental effects on the environment, the landscape and recreational opportunities. This has been assessed extensively as reported in the Environmental Statement (ES), Volume 2, CFA8 and CFA9 reports and in Section 2 of Volume 3.

2. As paragraph 2.5.3 of Volume 3 of the ES sets out, 'as is commonplace with major infrastructure works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. Such effects are temporary and vary over the construction period depending on the intensity and scale of the works at the time. The assessment of landscape and visual effects has been based on the activities occurring during the peak construction phase, which is defined as the period during which the civil engineering works will take place'.

3. However, whilst recognising these effects, the ES also sets out the series of proposed mitigation measures of particular relevance to the wider landscape assessment of the AONB at paragraph 2.6.2 as follows:

- an approximately 9.6km long bored tunnel for the southern portion of the Proposed Scheme within the AONB, with only vent shafts and associated infrastructure visible above ground;
- two green tunnels (total length 2.5km), allowing the reinstatement of the landscape above the Proposed Scheme adjacent to the South Heath and Wendover communities;
- presence of the majority of the remainder of the Proposed Scheme in cutting north of the Chiltern tunnel;
- the use of earthworks to integrate the Proposed Scheme into the landscape through the AONB, providing visual screening and noise attenuation;
- integration of embankment landforms into the natural topography, including earthworks associated with road diversions, and road and pedestrian bridges;
- the reinstatement and introduction of hedgerow planting to reconnect severed lengths of hedgerows and to break up the linear alignment of the Proposed Scheme, integrating it into existing vegetation patterns;
- the use of approximately 50ha of planting to replace areas of lost woodland and to introduce new areas of woodland to break up the linear alignment of the Proposed Scheme, integrating it into the existing vegetation patterns; and
- the Promoter is in discussion with Historic England about the need to provide mitigation at Grim's ditch in the light of further information they have provided on the location of the monument.

4. The ES assesses that, taking into account avoidance and reduction of effects on the AONB through the implementation of proposed mitigation measures, including permanent alterations to landscape character and natural beauty, the magnitude of change, assessed alongside the high sensitivity of the AONB will result in a 'moderate adverse' effect during year one of operation, which will be reduced by year 15, though not to a sufficient level to alter the overall assessment findings. However, by year 60 of operation the Proposed Scheme will be further integrated into the AONB, and at this stage, 'the effects of the Proposed Scheme on the special landscape qualities, natural beauty and landscape character and setting of the wider AONB … will reduce such that it is not considered to be significant'.

Effects on businesses and tourism

5. The ES considers any significant effects of the proposed scheme on individual businesses and the wider economy and identifies a range of mitigation measures that could be used to reduce or eliminate these effects. In addition, the draft Code of Construction Practice (CoCP) sets out a series of measures and standards that the Promoter and the contractors appointed to deliver the Proposed Scheme will be required to meet for the duration of the construction of the Proposed Scheme. This will ensure that potential impacts are kept to a practicable minimum.

6. Whilst the ES does not report any significant and widespread impacts on businesses in this area and the Promoter is not aware of any evidence supporting Petitioners' claims that businesses will suffer a widespread down-turn, it does report some specific effects.

Community effects – economy and business

7. HS2 Information Paper C7, Business Relocation, sets out the Promoter's approach to helping businesses and other organisations that will have land taken for the construction or operation of the Proposed Scheme. Businesses displaced by the Proposed Scheme will be compensated under the Compensation Code.

8. Where businesses are displaced from their existing premises by compulsory purchase of those premises for public works, the Compensation Code recognises the importance to those businesses of being able to relocate to another site. In addition to payment of the open market value of the interest in the land acquired compulsorily, the Compensation Code normally provides for the cost of such relocation to be taken into account under the heading of disturbance compensation.

9. A Small Claims Scheme is also being introduced to deal with small claims up to £7,500 for physical damage caused by works. A small claims administrator will investigate and determine an award, informally, quickly and at minimal cost. If the complainant is not satisfied the case can be escalated to the Complaints Commissioner (see Information Paper G3, Complaints Commissioner).

Visual impact and tourism

10. The Promoter does not agree that the Proposed Scheme will have such a major visual impact in the Chilterns district that it will have any significant impact on the county's tourism and small business economy.

11. Just over 20km of the Proposed Scheme route lies across the Chilterns Area of Outstanding Natural Beauty (AONB), of which 12km will be in tunnel and over 5km will be in cutting. The remaining 3km includes two viaducts, one of which is in order to cross a major transport corridor south of Wendover (the Chiltern Main Line and the A413). No public rights of way in the AONB will be severed, though some will need to be diverted. The longest diversion during construction is 2.2km for 6-9 months (WEN57 at Small Dean) and the longest permanent diversion is 750 metres (GMI/13 near Great Missenden. (ES, Volume 3, sections 2.4 and 2.5).

12. Whilst it is not impossible that there may be some visitors who will be deterred from visiting during construction, only a very small part of the AONB will be affected so it is much more likely that such visitors will merely visit another part of the AONB. The only significantly affected tourist related business in Buckinghamshire identified in the ES is the Denham Grove Hotel, located outside the AONB at the northern end of the Colne Valley viaduct.

13. Construction of the Proposed Scheme will create over 1200 full time equivalent jobs (i.e. sufficient work for a job lasting ten years). The Proposed Scheme will offer considerable opportunities to businesses and residents along the line of route to supplying goods and services and obtain employment. The Promoter is committed to working with its suppliers to build a skilled workforce that fuels further economic growth across the UK.

14. The Promoter is currently in discussion with Buckinghamshire County Council as local highways authority in respect of construction traffic and effects on junctions.

Socio-economics: business communications strategy

15. The Promoter has already made a commitment in the draft CoCP to engage further with local communities on construction matters. Paragraph 5.1.1 of the draft CoCP requires the nominated undertaker and its contractors to produce and implement a stakeholder engagement framework and provide appropriately experienced community relations personnel to implement this.

16. As the draft CoCP sets out, the nominated undertaker must take reasonable steps to engage with the community, particularly those who may be affected by construction impacts including local residents, businesses, land owners and community resources, taking into account any specific needs of protected groups (as defined in the Equalities Act 2010).

17. Regular meetings will also be held between the lead contractor, the nominated undertaker, the local authority and representatives of the local community or other stakeholders to discuss construction issues and the forthcoming programme of works. Expert support for local businesses, land owners and voluntary or community organisations that may be affected by the works will also be provided by the nominated undertaker.

Impact of highway works on economy

18. The Transport Assessment for the Proposed Scheme has identified the significant traffic and highway effects of implementation and operation of the Proposed Scheme and the socio-economic assessment has considered the impacts of traffic and highway effects on businesses, both route wide (ES Volume 3) and locally (Volumes 2 and 5). There are also safeguards in the Environmental Minimum Requirements and the provisions in the Bill for subsequent approval of details or alterations to the proposals which include:

- Lorry routes on all roads (excluding trunk roads, motorways and other 'special roads') where the number of large goods vehicle flows (whether to or from the site) on any day exceed 24
- Road closures or diversions not specified in Tables 1 and 2 of Schedule 2.

19. The route wide socio-economic assessment in Volume 3 of the ES considers the impact of construction of the Proposed Scheme on existing businesses. This includes:

> 'Socio-economic resources affected by a change in amenity as a result of construction and operation of the Proposed Scheme. Amenity of resources may be affected by a combination of factors such as: sound, noise and vibration; air quality/construction dust; HGV traffic flows; and visual impacts. An adverse change in amenity could lead to a possible decline in trade for the affected resources.'

20. Impacts of the Proposed Scheme on businesses in Buckinghamshire are set out in the relevant

CFA reports in Volume 2 of the ES.

21. Measures set out in the draft Code of Construction Practice (CoCP) are designed to reduce the effects of highway works on the economy. The CoCP will provide a consistent approach to the management of construction traffic and will require the nominated undertaker to prepare Construction Traffic Management Plans, in consultation with local highway and traffic authorities, as well as emergency services. These plans will include, as appropriate, details of:

- the local routes to be used by large goods vehicles including lorry holding areas, lorry route signing strategy and means of monitoring lorry use;
- worksite boundaries and main access/egress points;
- temporary and permanent closures and diversions of highways and public rights of way; and
- the strategy for traffic management.
- Reasonable access for pedestrians going to and from premises abutting a highway affected by the nominated undertaker's works.
- Vehicular access to property and land affected by the nominated undertaker's works.

22. Prior to the commencement of the works, the nominated undertaker will ensure that Traffic Management Plans (TMPs) will be produced in consultation with the highway and traffic authorities and the emergency services. TMPs will include, as appropriate, temporary and permanent closures and diversions of highways and Public Rights of Way, such as footways and other pedestrian routes.

23. HS2 Information Paper E13, Management of Traffic During Construction also explains the Promoter's approach to consultation on highway and traffic issues. The nominated undertaker will require contractors to communicate regularly with parties affected by the works. Local residents and businesses will be informed - appropriately and in advance - of the dates and durations of any closures of roads or public right of way, and will be provided with details of diversion routes at least two weeks in advance or when final details are available.

24. Once contractors have been appointed, regular traffic liaison meetings will be arranged with highway authorities, bus operators, taxi and trade representation (as appropriate), and the police - other emergency services will be included, as appropriate. These meetings will provide an opportunity for contractors to present proposals for future works affecting the highway, including methods of construction and proposed programme, and for a review of the associated traffic management requirements. These traffic liaison meetings will enable local community notification to be discussed as appropriate for temporary road closures or diversions.

25. In addition, the socio-economic impact of construction will be mitigated over time as the UK and regional economies grow and new opportunities for employment come forward. The Proposed Scheme will enhance these opportunities through increased investment and economic activity above the baseline.

26. The jobs in Buckinghamshire created by the Proposed Scheme will exceed those being displaced. Construction of the Proposed Scheme will create over 1200 full time equivalent jobs (that is, sufficient work for a job lasting ten years), and the Calvert Infrastructure Maintenance Depot will employ an estimated 290 permanent staff, as well as supporting jobs in local businesses serving the depot and firms and organisations providing local services for employees.

Measures to control construction effects

27. As HS2 Information Paper D3, Code of Construction Practice sets out, the Promoters' aim is to design and construct the Proposed Scheme in such a way that the effects of construction on communities and the environment is reduced as far as is reasonably practicable. The draft Code of Construction Practice (CoCP) sets of a series of measures and standards that the Promoter and the contractors appointed to deliver the proposed scheme will be required to meet for the duration of construction. It will also ensure that potential impacts on people and the natural environment are kept to a minimum.

28. As set out in HS2 Information Paper C1, Information for Property Owners and HS2 Information Paper G2, Community Relations, once the Bill receives Royal Assent the Secretary of State will undertake a continuing communications exercise with the owners and occupiers of property which is expected to be subject to compulsory acquisition for the Proposed Scheme.

29. However, where someone is unhappy in respect of an aspect of construction, a range of measures are being put in place to help address their concerns.

30. The Promoter already operates a formal complaints system, which is explained on the gov.uk website and involves an initial response from the relevant business unit with escalation to the Chief Executive, Department for Transport Complaints Assessor, MP and Parliamentary Ombudsman, if the complainant is not satisfied. This is to be augmented by the following:

- as HS2 Information Paper C8, Compensation Code for Compulsory Purchase sets out, 'In the event that a compensation claim cannot be settled by negotiation between the parties and their respective agents and advisors (this is unlikely in the vast majority of cases), the parties may refer the case for consideration by alternative dispute resolution. Alternatively, it may be referred to the Upper Tribunal (Lands Chamber). Any application to the Upper Tribunal (Lands Chamber) must be made within a six year limitation period beginning on the date when the right to compensation arises;
- a Complaints Commissioner service (as set out in HS2 Information Paper G3, Complaints Commissioner). The Commissioner will be independent of the nominated undertaker and will operate to specific terms of reference. This service will be operable by the start of construction and provide a mediation and arbitration service for resolution of small claims that are not otherwise resolved. (note that property compensation claims are not covered by this service); and
- a Small Claims Scheme (as set out in HS2 Information Paper C10, Small Claims Scheme) is also being introduced to deal with small claims up to £7,500 for physical damage caused by works. A small claims administrator will investigate and determine an award, informally, quickly and at minimal cost. If the complainant is not satisfied the case can be escalated to the Complaints Commissioner.

Construction traffic

31. Construction traffic impacts will be managed by the CoCP and the provisions set out in Schedule 4 to the Bill. Where the number of large vehicles to or from a work site exceeds 24 per day, any local roads used by large goods vehicles will be approved by the relevant planning authority (that is the unitary authority or county council for the area) under the planning regime established under Schedule 16 to the Bill.

32. Working with the highway authority, the Promoter's aim is to develop these strategies to

mitigate local traffic issues as far as reasonably practicable. HS2 Information Paper E13, Management of Traffic During Construction, provides further details on the measures that will be taken to minimise the impact of construction traffic.

Construction compounds

33. As HS2 Information Paper D2, Selection of the Location of Construction Compounds sets out, construction compounds will generally be situated alongside or adjacent to the relevant proposed works. The location of each construction compound was considered against standard criteria including topography, proximity to; the site works, highways, utilities, employment and sensitive environmental receptors. The appraisal of environmental receptors was taken into account as part of this assessment, including, amongst other factors, the proximity of the compound to communities.

34. Moreover, there is no evidence to suggest that the introduction of a construction camp to an area will result in anti-social behaviour. As would be normal practice, the nominated undertaker will put in place the necessary measures to ensure that its workforce acts appropriately.

35. The Promoter's approach to Environmental Minimum Requirements provides further assurance that the environmental effects of construction camps, as with other aspects of the Proposed Scheme, will be minimised. HS2 Information Paper E1, Control of Environmental Impacts describes:

> 'the controls contained in the Bill and in general legislation which, along with undertakings given by the Secretary of State, will ensure that impacts which have been assessed in the ES will not be exceeded, unless any new impact or impacts in excess of those assessed in the ES:
>
> - results from a change in circumstances which was not likely at the time of the ES; or
> - would not be likely to be environmentally significant; or
> - results from a change or extension to the project, where that change or extension does not itself require environmental impact assessment under either (i) article 4(1) of and paragraph 24 of Annex 1 to the EIA Directive; or (ii) article 4(2) of and paragraph 13 of Annex 2 to the EIA Directive; or
> - would be considered as part of a separate consent process (and therefore further EIA if required)'.

36. As HS2 Information Paper D2, Selection of the Location of Construction Compounds points out, the nominated undertaker will require its contractors to apply and comply with the requirements of the CoCP and will ensure measures are adopted to minimise the effect of the construction site on the local environment.

24-hour helpline

37. As HS2 Information Paper D3, Code of Construction Practice also sets out, 'a community helpline staffed 24 hours, 7 days a week will be available during the construction period to handle enquiries from the public. There will also be a small claims procedure to ensure that local people are compensated quickly for any damage to their property caused by the nominated undertaker or its contractors'.

Impacts on business

38. HS2 Information Paper E13, Management of Traffic During Construction, describes the consultation which is proposed in relation to the management of traffic during construction:

> 'The nominated undertaker will require contractors to communicate regularly with parties affected by the works. Local residents and businesses will be informed - appropriately and in advance - of the dates and durations of any closures of roads or public right of way, and will be provided with details of diversion routes at least two weeks in advance or when final details are available.
>
> 'Once contractors have been appointed, regular traffic liaison meetings will be arranged with highway authorities, bus operators, taxi and trade representation (as appropriate), and the police - other emergency services will be included, as appropriate. These meetings will provide an opportunity for contractors to present proposals for future works affecting the highway, including methods of construction and proposed programme, and for a review of the associated traffic management requirements'.

39. Construction of the Proposed Scheme will create over 1200 full time equivalent jobs (i.e. sufficient work for a job lasting ten years), and the Calvert Infrastructure Maintenance Depot in Aylesbury Vale District will employ an estimated 290 permanent staff, as well as supporting jobs in local businesses serving the depot and firms and organisations providing local services for employees.

40. The Proposed Scheme will offer considerable opportunities to businesses and residents along the line of route to supplying goods and services and obtain employment. The Promoter is committed to working with its suppliers to build a skilled workforce that fuels further economic growth across the UK.

LIGHTING – OPERATIONAL

Lighting from trains and overhead wires

1. The Promoter will meet the requirements set out in BS EN 50367 which requires an arcing (flashing) percentage of less than 0.2 percent at full line speed. Modern high speed catenary systems are designed to minimise arcing by ensuring that the contact wire remains at a constant height and is tensioned to a level which reduces contact wire to a minimum.

2. The dynamic performance of the catenary system and it's interaction with rolling stock is verified during testing and commissioning to ensure that the arcing rate is within acceptable limits and suitable maintenance regimes are used to ensure the system characteristics are kept within specified ranges.

LIMITS OF DEVIATION

Vertical and horizontal limits of deviation

1. The Provision of horizontal and vertical limits of deviation is normal practice for private and hybrid railways Bills. The Bill has to contain sufficient horizontal and vertical limits of deviation to allow for refinement of the preliminary design, on which the Bill plans are based, during detailed design, and to maintain construction tolerances.

2. The horizontal limits of deviation shown on the deposited plans define the maximum extent of the railway and ancillary works listed in Schedule 1 to the Bill. In addition, there are vertical limits of deviation which are generally standard; not exceeding three metres upwards and to any extent downwards. In many cases deviation to the full extent permitted is not a practical possibility and where it is, this has been assessed in the Environmental Statement. In relation to depots, stations and shafts where maximum heights are shown on the deposited sections, it is not permitted to deviate above these levels.

3. The limits of deviation are needed to ensure that the Promoter can have reasonable flexibility to develop the design of the scheme. Taking into account the complexity of the Proposed Scheme alignment and its sensitivity to change, the limits are considered the minimum that could be applied to the design. A three metre limit of deviation is standard in railway projects – see section 1(5) (b) of the Crossrail Act 2008 by way of example.

4. It is not proposed to reduce these limits. The use and need for limits of deviation is explained in the HS2 Information Paper B2, Limits on Parliamentary Plans.

LOCAL AUTHORITY MONITORING - FUNDING

1. In their Petitions local authorities are seeking funding for monitoring whether or not the nominated undertaker or its contractors have complied with the requirements of the Code of Construction Practice (CoCP). Were a local authority to decide to monitor this activity, they would be doing this at their discretion rather than because there was a requirement for them to do this. This is because the nominated undertaker will be legally bound to ensure it meets the requirements in the CoCP and does not breach any controls within it. Accordingly the nominated undertaker will put it place appropriate monitoring practices. The Promoter therefore does not consider it appropriate or necessary to reimburse local authorities for this activity.

2. Following the enactment of the Bill, local authorities will be paid for determining requests for approval for works in line with Schedule 16 to the Bill. Paragraph 17 of Schedule 16 confirms that a Fee Regulation will be made following enactment which will detail the fees that a local authority will receive. This will be similar to the arrangements for Crossrail and the Channel Tunnel Rail Link (HS1).

3. The Promoter has also reaffirmed the commitment in the draft Planning Memorandum that the nominated undertaker will normally undertake pre-submission engagement with local authorities and that it will seek to put in place a mechanism allowing a local authority to seek reimbursement for this. As the first of these early discussions is unlikely to take place much before Royal Assent and as construction is not likely to begin before 2017, the proposed level of reimbursement has not been finalised at this stage.

4. Please see HS2 Information Paper C13, Local Authority Funding and New Burdens Arising from the Proposed Scheme, for an explanation of the Promoter's approach to local authority funding costs both during and prior to the construction of the Authorised Works under the Proposed Scheme.

MAINTENANCE LOOP AT STOKE MANDEVILLE

1. The maintenance strategy for the Proposed Scheme comprises one infrastructure maintenance depot at Calvert, centrally located between London and the West Midlands. The frequency of the proposed train services limits the opportunity to undertake maintenance work to the infrastructure during the hours when trains are running and maintenance activity would disrupt services. Thus maintenance must take place during the night closure period or in limited periods at the beginning or end of the day when trains are less frequent. Maintenance loops are proposed so that trains can lie up during the day on "loops" (sidings alongside the track) nearer to the work and then resume the following night without having to return to the depot. This reduces the travel distance required and maximizes the amount of work than can be done in a night time period.

2. The Design Refinement Consultation document (paragraphs 7.2.1-7.2.3).published in May 2013 explained the need for maintenance loops to enable maintenance trains to reach work sites on the track quickly in the limited night closure period, and the reasoning behind locating the loops at Stoke Mandeville and Wormleighton as follows:

> 'The frequency of the train service limits the opportunity to undertake maintenance, which must take place during the night time closure period or in limited periods at the beginning and end of the day when the service is less frequent. To maximise the amount of work undertaken during this night shift, maintenance trains would need to arrive quickly at their work sites. As a result, HS2 Ltd has recommended a maintenance loop be located at Stoke Mandeville, approximately half way between the maintenance depot at Calvert and Euston station, and also one at Wormleighton in Warwickshire, approximately half way between Calvert and Birmingham.
>
> 'The principal function of the loops is to allow maintenance trains to be kept securely during the day, in readiness for maintenance work during the night. The trains can then reach the location for their maintenance work quickly and optimize the maintenance approach for the railway. A second function is as a safe stopping location for any passenger train that develops a fault
>
> 'The maintenance loop sites need to be largely flat, straight and located next to a straight section of the main line with sufficient space to for connections to both sides as well as good road access. The length of the loops needs to be approximately 1.25km to allow passenger trains to be parked clear of the main line if necessary. The track corridor width of the loops is approximately 16m wider that the two track sections of the route to allow for a loop on either side of the tracks. When in use the site would be lit at night by low level lighting.'

3. The mid-point between Calvert and Euston is within the Chiltern Tunnel. This limited the potential sites to Stoke Mandeville, Denham, Hyde Heath and between Grim's Ditch and Wendover Dean. Hyde Heath and Denham were discounted because it would not be possible for the loops to be connected to both tracks for the Proposed Scheme, and the combination of a prominent location within the Chilterns AONB and the probable loss of the entire section of Grim's Ditch in this area meant this location was deemed to be unsuitable for the maintenance loop.

4. Noise and light pollution would be minimal, as the loops would be used infrequently and only for parking trains while passenger services are running and would be lit by low level lighting to avoid light spillage.

NOISE AND VIBRATION

1. The Promoter's policy on assessing and controlling the noise and vibration impacts likely to be caused by the construction and operation of the Proposed Scheme is set out within the relevant HS2 Information Papers[3]. The policy was developed through a detailed process and reviewed by professionals able to provide an independent and experienced perspective through the Promoter's review groups and represents the Promoter's interpretation of the Government's Noise Policy Statement for England (NPSE). The setting of Lowest Observable Adverse Effect Levels (LOAELs) and Significant Observable Adverse Effect Level (SOAELs) also underwent consultation with relevant Departments (such as the Department for the Environment, Food and Rural Affairs (DEFRA)) prior to the Environmental Statement (ES) being published. Accordingly, the Promoter's setting of values for LOAELs and SOAELs had due regard to established practice, research results, guidance in national and international standards, guidance from national and international agencies and independent review by academic, industry and Government employees, along with the Promoter's representatives on the review groups.

2. The LOAELs set by the Promoter include 40 dB for the 2300-0700 LpAeq and 60 dB for the LpAFmax (façade) to assess the impact of airborne noise caused by the operation of the Proposed Scheme on permanent residential buildings. The second of these parameters is used to assess the impact of noise from individual train pass-bys. The use of these parameters, and the values assigned to them have been derived with consideration of the WHO guidelines for community and night noise. As required by Government noise policy all reasonable steps will be taken to design, construct, operate and maintain the Proposed Scheme so that these levels are not exceeded. Further details can be found in HS2 Information Paper E20, Control of Airborne Noise from Altered Roads and the Operational Railway.

3. The LOAELs set by the Promoter also include Vibration Dose Values of 0.1 $m/s^{1.75}$ night 2300-0700 and 0.2 $m/s^{1.75}$ day 0700-2300 (indoors, near the centre of any dwelling room on the ground floor) and a ground borne noise level of 35 dB LpASmax (measured in any habitable room). The use of these vibration parameters, and the values assigned to them have been derived with consideration of the British Standard BS6472-1 Guide to evaluation of human exposure to vibration in buildings. Vibration at or below these values would suggest a low probability of adverse comment and ground-borne noise levels at or below 35 dB LpASmax would be expected to result in a low level of annoyance. As required by Government noise policy all reasonable steps will be taken to design, construct, operate and maintain the Proposed Scheme such that, in all reasonably foreseeable circumstances, ground-borne noise and vibration does not exceed these levels. Further details can be found in HS2 Information Paper E21, Control of Ground-borne Noise and Vibration from Temporary and Permanent Railways.

4. The LOAELs set by the Promoter also include 65 dB for the 0800-1800 LpAeq and 45 dB for the 1 hour LpAeq during 2200-0700 to assess the impact of airborne noise caused by the construction of the Proposed Scheme on permanent residential buildings. The use of these parameters, and the values assigned to them have been derived with consideration of the British Standard BS5228: Code of practice for noise and vibration control on construction and open sites. As required by Government noise policy all reasonable steps will be taken so that these levels are not exceeded. Further details can be found in HS2 Information Paper E23, Control of Construction Noise and

[3] HS2 Information Paper E20, Control of Airborne Noise from Altered Roads and the Operational Railway, HS2 Information Paper E21, Control of Ground-Borne Noise and Vibration from the Operation of Temporary and Permanent Railways, HS2 Information Paper E22, Control of Noise from the Operation of Stationary Systems, and HS2 Information Paper E23, Control of Construction Noise and Vibration.

Vibration.

5. The LOAELs and the SOAELs are derived from evidence base for the effects of noise on people. The health and quality of life effects caused by noise from the Proposed Scheme are not dependent on effects caused by the existing ambient sound environment. The Promoter has taken into account the Explanatory Note appended to NPSE by applying different LOAELs and SOAELs for different noise sources, for different receptors, and at different times.

6. Dwellings where the noise level is forecast to exceed a SOAEL have been identified individually in the Environmental Statement as being likely to experience a significant adverse noise effect. This is an indication that noise insulation will be offered as a means of aiming to avoid any significant noise adverse effect on the health and quality of life of those living there caused by airborne operational or construction noise.

7. With respect to the effects of noise on outdoor recreational and leisure spaces and facilities including bridleways, footpaths, canal towpaths, sports grounds, racecourses, golf courses, show grounds, nature reserves, principally because of the transitory nature of their use, no likely significant adverse noise effects on people, wildlife, horses and livestock have been identified. There is further detail in the ES, Volume 5, Sound, Noise and Vibration: Methodology, Assumptions and Assessment (route-wide), Appendix SV-001-000, ES 3.5.0.10 Annexes F and G. Such facilities and spaces may benefit collaterally from measures provided to reduce impacts at dwellings and other noise sensitive receptors in the vicinity.

Vibration effects on buildings

8. Rayleigh waves, vibration effects on buildings and so called tunnel boom are concerns that are also raised from time to time. These phenomena are well understood and the Proposed Scheme is able to design out such effects. There is further detail in the ES, Volume 5, Sound, Noise and Vibration: Methodology, Assumptions and Assessment (route-wide), Appendix SV-001-000, ES 3.5.0.10.

9. In accordance with the draft Code of Construction Practice (CoCP), the contractors appointed to construct the Proposed Scheme will be required to employ 'Best Practicable Means' as defined by the Control of Pollution Act 1974 to control noise and vibration. The measures proposed will be detailed in the prior consent application to the relevant local authority under Section 61 of the Control of Pollution Act 1974. Monitoring will be undertaken as necessary to demonstrate compliance with the commitments made.

Noise and vibration: impact on listed buildings

10. If specific mitigation or monitoring is necessary for listed buildings during construction this will be for consideration by the nominated undertaker and the local authority as part of the Section 61 process described above. In relation to monitoring, paragraphs 8.3.1-8.3.2 the draft CoCP state:

> 'Risk assessments, appropriate structural or condition surveys and vibration monitoring will be undertaken at sites of archaeological or built heritage interest adjacent to the construction site prior to, during and following construction works. The risk assessments will include, but not be limited to, specific buildings identified in the ES.
>
> The nominated undertaker will require its contractors to implement appropriate monitoring of the consequences of construction work on all cultural heritage assets

(designated and non-designated) to ensure the effectiveness of management measures and compliance with agreed approaches to construction activities and cultural heritage assets.'

11. Any alterations to listed buildings not listed in schedule 17 to the Bill will require the consent of the local planning authority.

Noise in relation to stationary systems (including transformers and ventilation shafts)

12. The method of assessing and controlling noise from the operation of stationary systems, including transformers and ventilation shafts, is set out in the ES, Volume 5, Sound, Noise and Vibration: Methodology, Assumptions and Assessment (route-wide), Appendix SV-001-000, Annex E, (Ref ES 3.5.0.10). Please also see HS2 Information Paper E22, Control of Noise from the Operation of Stationary Systems.

Noise barrier design

13. The design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations. The level of detailed design necessary to enable the Proposed Scheme to be constructed has yet to be carried out, and is unlikely to be completed until after the Bill has secured Royal Assent. Once complete the nominated undertaker will need to apply for approval of the detailed design for various elements of the Proposed Scheme from local planning authorities along the route under the planning regime established under Schedule 16 to the Bill. This will ensure that although deemed planning permission for the Proposed Scheme is granted by Parliament, local planning authorities will be able to approve the detailed design thereby ensuring that the design of permanent structures fits into the local environment. This is explained in HS2 Information Paper E1, Control of Environmental Impacts and HS2 Information Paper B1, The Main Provisions of the Planning Regime.

14. HS2 Information Paper G6, Design Development – Detailed Design and the Role of Planning Authorities explains how engagement with planning authorities is critical to the design development process, and will continue as the process moves forward, with the Promoter engaging on detailed design.

15. In two-tier local authority areas, it will be the district planning authority (where this is a qualifying authority) that will approve the design and appearance of noise screens under paragraph 3 of Schedule 16, but it is open to the district planning authority to consult the upper tier authority.

Noise – local effects

16. Taking into account both the route-wide control measures proposed in the ES, for example in the draft CoCP, trains that would be quieter than the relevant current European Union specification, and those for this section of the route, for example the deep bored tunnel, green tunnel near South Heath, cuttings and landscaping/noise fence barriers of effective height up to 13 metres, and recognising that as the design progresses these proposals will be reviewed in order to ensure that the Promoter's noise and vibration policy aims are met, the ES identifies that:

- at South Heath, in the vicinity of Potter Row, at about 10 permanent residential buildings, the Proposed Scheme is unlikely to cause a significant adverse noise effect during operation.

- at Hyde End, in the vicinity of Hyde Lane, at about five permanent residential buildings, the Proposed Scheme is unlikely to cause a significant adverse noise effect during operation.
- at Sheepcotts Cottage, Hyde Lane, Hyde Heath, represented by location ID 376359, the Proposed Scheme is likely to cause a significant adverse noise effect during operation. This means that qualifying buildings will be offered noise insulation as described in Section 5 of Hs2 Information Paper E20, Control of Airborne Noise from Altered Roads and the Operational Railway,.
- at about 50 permanent residential buildings on Sibley Rise, Bayleys Hatch and Frith Hill, South Heath the Proposed Scheme is unlikely to cause a significant adverse noise effect during construction.
- at two permanent residential buildings, a dwelling on Kings Lane and a dwelling on the B485 Chesham Road, the Proposed Scheme is likely to cause a significant adverse noise effect during construction. This means that qualifying buildings will be offered noise insulation as described in Appendix B of Hs2 Information Paper E23, Control of Construction Noise and Vibration.

ST MARY'S CHURCH

St. Mary's Church, Wendover

1. The Environmental Statement (ES), Volume 2, CFA 10 report, chapter 6, assesses the impact of the Proposed Scheme on heritage assets. Paragraph 6.4.7 discusses the construction activities required and records that there would be a significant noise impact on the historic setting of the listed church and its associated heritage assets during construction. This impact on its historic setting would remain during operation.

2. Proposed mitigations as set out in the ES Volume 2, CFA 10 report, paragraph 2.2.10 include the following:

- areas of landscape planting to the east and west of the Proposed Scheme to provide visual screening of the Proposed Scheme and to integrate it into the landscape; and
- noise fence barriers 4 metres high on the east and west side of the Proposed Scheme as it passes St Mary's Church.

3. Further work is being undertaken to investigate sound levels outside and inside the church, and the Promoter will continue to seek reasonably practicable measures to further reduce or avoid significant residual noise effects on the church. The Promoter, in agreement with the church, has already undertaken ambient noise surveys to better understand the use of the church, and has met the church's representatives to discuss these issues.

PRINCIPLE OF THE BILL – BUSINESS CASE

1. The Select Committee is unable to consider 'in principle' objections to the Bill, since the principle of the Bill was determined by the House of Commons at Second Reading.

2. The economic case for the Proposed Scheme and related opportunity costs, have been investigated at length elsewhere and are outside the scope of the Bill. The Promoter refers Petitioners to The Strategic Case for HS2 issued in October 2013, available on the Government's website (www.gov.uk). The alternatives considered and reasons for choices are described in the Environmental Statement (ES) Volume 5: Alternatives Report (ES 3.5.0.18) and summarised in HS2 Information Paper A1, Development of the Proposed Scheme, which provide further information on these matters.

3. For the reasons set out in the HS2 Strategic Case, the Promoter does not agree that the Proposed Scheme is poor value for money or that the proposals to upgrade the West Coast Main Line as proposed by the 51m Group have a better business case.

PUBLIC RIGHTS OF WAY

1. HS2 Information Paper E5, Roads and Public Rights of Way, explains the Promoter's approach to preserving and maintaining the public rights of way (PRoW) network. Where the railway crosses footpaths bridleways and byways they are generally carried over or under the railway by means of a bridge or underpass. Where a number of routes are affected then some may be conjoined at a crossing of the railway to utilise a bridge or a cut and cover tunnel. In a few cases, users will be re directed using a reasonably convenient alternative route to a nearby public right of way or road if suitable to non-motorised users. These solutions may give rise to alternative routes being longer that the original public rights of way, but not by any great distance, and where possible this has been avoided.

2. Where a temporary or permanent realignment or diversion of a public right of way is unavoidable, the shortest practicable route has normally been adopted. In a few cases, users will be redirected using a reasonably convenient alternative route to a nearby public right of way, with appropriate signing. Where several nearby public rights of way are affected during construction, any temporary closures will be phased, where reasonably practicable, to help maintain public access.

3. The intention is that any new, realigned or diverted routes should retain similar characteristics to other local public rights of way. Public rights of way will also be re-established to maintain access where cut and cover tunnelling techniques are used to create the proposed green tunnels. This is further explained in HS2 Information Paper E5, Roads and Public Rights of Way.

4. In relation to specific public rights of way, PRoW LM1/17 will be temporarily re-routed for up to one year. However, it is proposed that the additional length of the footpath during this period will only be 450 metres. It is also proposed that LM1/21 will be permanently stopped up.

5. GMI /33 is proposed to be stopped up and diverted because the route crosses the Proposed Scheme where it goes into deep cutting. The footpath is diverted alongside the Proposed Scheme but for only 200 metres after which it crosses a bridge at Hyde Lane. This diversion presents a safer option and avoids a longer routing along the B485 Chesham Road, this diversion has not been identified as being a specific concern by the highway authority. The diverted route affords distant views across the cutting over Hyde Lane and Farthing Wood. The diverted route joins its original alignment just across the Hyde Lane overbridge.

6. GM/12 and GM /13 located near to Potters Row both cross the railway. GM/12 will still cross on its original alignment over a new footbridge. GM/13 has been the subject of discussion with the highway authority, which is considering proposals for it to be routed away from the Proposed Scheme towards and over the portal of the South Heath green tunnel. This will reduce the length of the diversion and provide a more scenic view over Jenkins Wood and west to Frith Hill Farm. Discussions continue with the highways authority about other parts of the highways network.

RAIL SERVICES - LOCAL SERVICES/HS1 LINK

Rail services

1. The Bill seeks powers to construct the Proposed Scheme and to amend the existing rail network directly to facilitate the construction of HS2 infrastructure, such as at Euston, Old Oak Common and Handsacre Junction. There is no authorisation to carry out other changes to the existing rail network. The Bill does not seek powers to operate HS2 classic compatible services on the existing railway network, and the timetabling of such trains will be the subject of normal industry processes.

2. Any final operating train service specification will be established in accordance with standard railway industry processes. HS2 Information Paper A2, Future Train Service Patterns on the West Coast Main Line, provides further information on how wider railway industry processes operate.

The Wycombe single line

3. The proposals for Old Oak Common include building platforms on the Great Western Main Line (GWML) and a consequent realignment of the tracks to provide an interchange between HS2, Crossrail and other GWML and Heathrow services. In order to maintain the capacity of the lines, eight platforms are needed for the four GWML tracks, which must be re-aligned to the north in order to create space for these platforms. For this re-alignment it will be necessary to close the Acton and Northolt Line (also known as the Wycombe single) at its eastern end. This line is currently used as a diversionary route for Chiltern trains into Paddington. In support of this diversionary route, a one train per weekday (both directions) passenger service currently operates non-stop between South Ruislip and Paddington. Following closure of the Wycombe single this functionality could be maintained as the trains could be rerouted via the West Ealing Loop from Greenford, subject to path availability. Chiltern trains already has diversionary track access rights for this route. The Environmental Statement (ES) (Volume 2 CFA4 report, paragraph 12.5.28) reported this effect as not significant as there are alternative routes.

4. When Crossrail becomes operational in 2018, track access will be allocated by the normal industry processes, with the Office of Rail and Road ultimately approving the train services, but it is expected that there will be little spare capacity on the GWML Relief (slow) lines into Paddington. As part of their revised train services, Crossrail are proposing that the current half hourly Greenford to Paddington service will be replaced by a four per hour Greenford to West Ealing shuttle. When HS2 becomes operational in 2026, it is proposed that the fourteen (peak hour) Crossrail trains terminating at Paddington will terminate at Old Oak Common instead.

5. The new interchange station at Old Oak Common will create the potential for Old Oak Common to become a major employment location as envisaged by the Mayor of London, the local authorities and the new Old Oak and Park Royal Development Corporation. Such a major development is likely to require and justify additional transport infrastructure and train services.

6. At this early stage it is not possible to anticipate precisely what will be needed, nor whether there would be a case for any new train service from the Chiltern lines to Old Oak Common. But if so, there are a range of options. They include services on the Wycombe single, with or without reconnecting to the GWML. There are also possibilities for providing services that would interchange with Crossrail at West Ealing. Amongst other things, their relative merits will depend on the scale of the employment and other development at Old Oak Common, demand for services, the availability of capacity on the networks and the cost of any necessary infrastructure.

7. At the appropriate time, any proposal requiring public investment will need to be supported by a viable business case and must undergo the usual industry processes of timetable development and performance modelling by Network Rail, and approval by the Office of Rail and Road. However, severing the Wycombe single is not likely to inhibit a future rail access to Old Oak Common for Chiltern Line residents.

Impact of construction on service performance

8. The ES recognises that there will be some disruption to rail services during the construction of the Proposed Scheme. HS2 Information Paper D12, Track Possessions for Phase 1 Engineering Work, explains that as much as possible of these works will be undertaken in the normal night time and weekend maintenance periods so as to minimize disruption to passenger and freight services. Where major works cannot be accommodated within these maintenance periods, weekend possessions of 24-72 hours will be booked in accordance with standard industry processes. Where possible, disruption to train services will be minimized by planning the possessions to coincide with times when the railway lines are closed in any event for other maintenance or renewal work.

9. The assumed number of modelled conventional rail services at Euston station are set out in tables 6-8 and 6-9 on pages 6-27 and 6-28 of Volume 5 – Technical Appendices – Transport Assessment (TR-001-000) – Part 3: London assessment ref: ES 3.5.0.12.3.

10. These numbers have been established following consultation with experienced railway personnel, taking into account the proposed layout of Euston station and its approaches. At this stage in the process, we believe this level of train service to be credible without anticipated impact on future train performance. However, it will be a matter for normal industry processes to establish a train service specification for the classic railway, which will meet appropriate performance targets.

Additional station

11. It is inevitable that there will be construction, environmental and operational impacts arising from a project on the scale of the Proposed Scheme. The Promoter has sought to carefully align the route, and then sought to design out such impacts wherever possible, and is proposing a range of mitigation measures in order to control and reduce such impacts where possible. The Environmental Statement (ES) Volume 5 Technical Appendices Alternatives Report (CT-002-000) report describes the evolution of the Proposed Scheme proposal. It summarises the objectives and requirements of the new high speed line, the options considered and choices made from the highest level strategic alternatives to the elements of the scheme and the route between London and the West Midlands.

Clause 39

12. The need for clause 39 is set out in HS2 Information Paper B6, Railway Powers in the Hybrid Bill as follows:

> 4.7 In the Railways Act 2005, sections 22-31 and section 37 set out statutory closure provisions for services and stations. Among other things, they require an assessment of whether a closure meets the criteria set out in guidance, and consultation on proposed closures.
>
> 4.8 Clause 39 of the Bill provides that these statutory provisions may be disapplied by the Secretary of State for any closure necessary or expedient for the construction or operation of Phase One, at any time before it is ready for commercial use.

4.9. The assessment, consultation and other elements of the provisions are not relevant, as the decision to construct Phase One will have been approved by Parliament.

4.10. There are no station closures planned as part of the construction and operation of Phase One. The only line that would close is the eastern end of the Northolt and Acton Line (also known as the "Wycombe Single") between Old Oak Common and Park Royal. This currently carries one weekday passenger service from London to West Ruislip.

HS1 link

13. The Promoter said in a Written Ministerial Statement on 17 March 2014 following the publication of Sir David Higgins' 'HS2 Plus' report:

> 'Our priority must be to get the benefits to the Midlands and the North as soon as possible. Our proposals must stand the test of time and we must put our money where it will do the most good. Sir David is clear that he does not think the existing proposals for the HS2-HS1 link meet those tests. His report concludes that the link proposed in the High Speed Rail (London – West Midlands) Bill has not secured a consensus. The link, in his view, requires too many compromises in terms of impacts on freight, passengers and the community in Camden. I, therefore, intend to take the necessary steps to remove the link from the Bill and withdraw the safeguarding of this section of the route as soon as possible. I will also commission a study into ways to improve connections to the continent that could be implemented once the initial stages of HS2 are complete'.

14. When the necessary amendments and associated documents to remove the link from the Proposed Scheme have been prepared, they will be deposited in Parliament. After Second Reading the House of Commons resolved that the Select Committee considering the Bill should not hear petitions either for or against the link, as it is now no longer part of the Government's proposals. The Chair of the Select Committee explained the approach the Committee proposed to take on the issue in his announcement of 12 June 2014, saying:

> 'On the formerly-proposed HS1/HS2 link, there is an instruction from the House that the Committee not hear petitions for or against a link. We can clarify that we will not treat this exclusion as extending to petitions which merely argue for passive provision: i.e. for not building the railway in a way that would prevent a future such link. However, the Committee will not hear arguments on the actual merits, or otherwise, of potential future links'.

15. The Promoter and Network Rail intend to produce the study into international connectivity referred to above before the end of 2015. The implications of the study's conclusions for the detailed design of the Proposed Scheme will be assessed then. The Promoter is not prepared to give commitments on international connectivity until the study has been completed, and any commitment will be dependent on the outcome of that review.

SPEED OF TRAINS

1. The principle of the Bill, as established at Second Reading, specifies '…provision of a high speed railway…'. Though a 300kph railway would fall within the definition of 'high speed', the Promoter does not agree that a reduction in design speed is necessary or desirable.

2. Alternative speed specifications were considered over several years before the Government decided to promote a railway that would operate at up to 360kph on infrastructure designed to allow trains running up to 400kph in the future, should there be a commercial justification for doing so. The options considered and the reasons for the choices are described in Section 5 of Environmental Statement (ES) Volume 5, Alternatives Report.

3. The options for 300kph examined in 2011/12 included a 300kph route maximum design speed, and selective reductions in speed to 300kph on sections of the route where environmental concerns had been expressed and where there was potential to alter the route alignment.

4. Reducing maximum speed to 300kph is estimated to increase journey times between London and Birmingham by 4½ minutes and the Phase One benefit:cost ratio by 15 percent (Regional Spatial Strategy, paragraphs 4.3.4-5). For both phases of the Proposed Scheme, the time penalty would be even greater as journeys to Manchester and Leeds would take ten minutes longer.

5. On only approximately half the route between London and Birmingham, the section between Amersham and Birmingham Interchange, could trains reach the maximum design speed. Six areas were identified for a reduction in maximum speed; three to 360kph and three to 300kph. The analysis concluded that any environmental benefits could most advantageously be achieved by realigning and mitigating without the need to reduce design speed, and in three areas they could be achieved through mitigation only. The analysis concluded:

> 'The only environmental improvements delivered by a lower maximum design speed would be a marginal reduction in noise impacts, which would be outweighed by a substantial reduction in economic benefits. We consider that mitigation of the consultation route, the approach we have taken, is a more appropriate way of reducing environmental impacts, particularly noise. This would also be the case for a line designed at a conventional speed. Adopting a lower business value of time would not alter our conclusions.' (Route Selection and Speed, Executive Summary paragraph 8)

6. The ES, Volume 3, Routewide Effects, considers the effect of reducing design speed on the operational carbon footprint. A reduction in maximum speed to 300kph would reduce the total operational carbon footprint by 7 percent and would affect total carbon footprint by an even smaller proportion (page 55, paragraph 5.5.32 and Table 3).

SUSTAINABLE PLACEMENT

1. Sustainable placement is defined in the Environmental Statement (ES) as the on-site placement for disposal of surplus excavated material to avoid causing environmental effects (e.g. transport) that would otherwise be associated with the off-site disposal of that material. On-site in this context means within the land required for the purposes of the Proposed Scheme and off-site means external land (or landfill site) which is not specifically required for the purposes of the Proposed Scheme.

2. Three sustainable placement areas (a total of six sites; one area has four individual sites) have been selected on the basis of their suitability for the disposal of surplus excavated material. This will reduce the quantity of inert surplus excavated material to be disposed off-site to landfill by approximately 6.9 million tonnes. Further detail on these sites is provided in HS2 Information Paper E19, Sustainable Placement of Surplus Excavated Material.

3. As HS2 Information Paper E19, Sustainable Placement of Surplus Excavated Material sets out, the construction of the Proposed Scheme will generate a significant amount of excavated material. The Promoter:

> 'has taken an integrated design approach to, as far as reasonably practicable, use this excavated material elsewhere within the design of the scheme. For example, where material is required to form embankments and landscaping on various parts of the route'.

4. HS2 Information Paper E3, Excavated Material and Waste Management, further explains that the Promoter will reduce, as far as reasonably practicable, the amount of waste that is disposed to landfill. The waste hierarchy sets out the Proposed Scheme's preferred approach to the management of waste, from waste prevention to re-use, recycling, and energy recovery, with landfill disposal being a last resort. The Proposed Scheme therefore aims to:

> 'achieve efficient use of material resources, reduce the amount of waste produced (or otherwise increase its value as a resource) and reduce, as far as reasonably practicable, the amount of waste that is disposed to landfill'.

5. HS2 Information Paper E19, Sustainable Placement of Surplus Excavated Material, provides further details of the Promoter's approach to sustainable placement as part of this approach.

6. The two sites in Buckinghamshire (South Heath and Calvert) identified for sustainable placement are set out in HS2 Information Paper E19, Sustainable Placement of Surplus Excavated Material as follows:

> *'South Heath*
>
> 'A sustainable placement area will be used to permanently dispose of surplus excavated material from the adjacent South Heath cutting and from cuttings in the central Chilterns area (CFA 9). The area will be approximately 1.3km long, up to 450m wide and up to 5m in height. It will be located on four fields immediately to the east of the Proposed Scheme, between Hunt's Green Farm, King's Lane and the South Heath cutting/ route.
>
> 'The sustainable placement area will form an extension to the landscape mitigation earthwork and will achieve an equivalent height of up to 5m but with gentler slope profiles. Following reinstatement to agricultural use, the visual and landscape impact will be

negligible, notwithstanding its position within the AONB.

'Sustainable placement in this area will avoid approximately 240,000 lorry movements in the Central Chilterns area.

'Calvert

'The sustainable placement area in Calvert will be used for the disposal of surplus excavated material from the bored tunnels in the London Metropolitan area. The area will be up to 800m long, up to 600m wide and up to 5m in height and will be located to the east of the Proposed Scheme, north of Calvert. On completion, hedgerows will be reinstated on their former position, modified land drainage will be provided and the land returned to agriculture.

'Sustainable placement in this area will avoid approximately 250,000 road lorry movements.'

7. Buckinghamshire County Council, as the Minerals and Waste Planning Authority will be consulted on restoration plans for the sustainable placement sites and the Promoter will continue to liaise with the Council to identify whether any alternative location could be justified.

8. The Promoter is reviewing its excavated materials management strategy and investigating opportunities for increasing the proportion of excavated material that would be used for construction of the Proposed Scheme in conjunction with any additional provisions, thereby reducing the extent of sustainable placement in the Area of Outstanding Natural Beauty (AONB).

Waste strategy, estimated arisings and capacity at disposal sites

9. Section 14 of Volume 3 of the Environmental Statement (ES) includes estimates of hazardous, non-hazardous and inert waste arising from building Phase One of the Proposed Scheme as well as the capacity of current land fill sites. The figures are presented by region as it is not realistic to be more precise at this stage of development of the Proposed Scheme. The Promoter's design and mitigation approach is as follows (ES Volume 3 paragraphs 14.1.17-22):

'An integrated design approach has been developed that seeks to minimise the quantity of surplus excavated material generated, reuse that which is generated to satisfy the necessary engineering and environmental mitigation earthworks requirements for the Proposed Scheme and minimise off-site disposal to landfill. This includes reuse of all topsoil and agricultural subsoil as close to the point of excavation as practicable.

'A CL:AIRE Code of Practice Materials Management Plan will also be prepared in advance of the implementation of the integrated design approach. This will enable suitable excavated material to be used as a resource within the construction of the Proposed Scheme with the additional benefit of reducing the quantity of imported fill required.

'For the surplus excavated material which cannot be beneficially reused for the earthworks of the Proposed Scheme, the nominated undertaker will seek to provide surplus excavated material for:

- use in other local construction projects where opportunities arise at the time of construction; and/or

- use for restoration of mineral sites, where the transportation of that material does not result in significant environmental effects.

'Where the transportation of that material would result in significant environmental effects, sustainable placement will be used.

'Sustainable placement is the on-site placement for disposal of surplus excavated material to avoid causing environmental effects (e.g. transport) that would otherwise be associated with the off-site disposal of that material.

'Sites for sustainable placement have been selected on the basis of their suitability for the disposal of surplus excavated material.'

10. An Excavated Materials Management Strategy has been developed that describes how an integrated design approach has been developed to use excavated material to satisfy the fill material requirements wherever reasonably practicable. The strategy also states that excavated material will only be disposed of as an option of last resort if no other on or off-site use can be found. This strategy will be updated as the design develops and more detail becomes available, particularly from the ground investigation works which are scheduled to start in 2015.

11. Specific sites for the potential disposal of surplus excavated material or inert waste have not yet been identified. If disposal at sites within Buckinghamshire is required it is likely this will be agreed with the disposal site operator on a commercial basis by the contractor appointed by the nominated undertaker. If the transportation of waste material to that site requires the use of a route that has not been covered by the ES or the permissions obtained by the disposal site operator, consent from the local highway authority will be sought. This will be in accordance with the requirement that the consent of the relevant highway authority is required for the provision of any new or altered worksite access to and from a highway, if this is not as shown on the plans deposited with the Bill.

UTILITIES

1. In line with established practice in relation to similar schemes, the Bill makes specific provision for maintenance and protection of public utilities in private land (Parts 2 and 3 of Schedule 31 to the Bill). This sets out a general principle (by way of example, in relation to electricity, gas, water and sewerage, at paragraph 19 of Part 2 of Schedule 31) that apparatus is not to be moved under the powers of the Bill until replacement apparatus has been provided and is in operation. Further details can be found in HS2 Information Paper D9, Maintenance of Public Utilities.

Electricity cable diversions

2. Diversion and re-routing of local utilities infrastructure connected with the Proposed Scheme remains, fundamentally, the responsibility of the utility companies concerned. However, the Promoter remains in discussion with utilities companies on these matters.

Schedule 31 – protective provisions

3. Part 2 of Schedule 31 to the Bill sets out the protective provisions which will be in place to protect the position of electricity, gas, water and sewerage companies, who have statutory obligations to their consumers. Part 3 of Schedule 31 sets out similar provisions for telecommunications providers.

4. The general principle of the protective provisions in Part 2 of Schedule 31 to the Bill is that a supply cannot be diverted away from existing supply apparatus that is to be removed until alternative apparatus is in place and in operation to the utility company's satisfaction. The protective provisions are therefore designed to secure continuity of supply. Consumers can therefore expect that any diversion works will be carried out in the same way as the routine maintenance and diversion works regularly carried out by utility undertakers.

5. The utility company that provides the electricity supply has a statutory duty to maintain the supply of power. In the event that, as a result of the construction of the Proposed Scheme, damage is caused to the utilities' apparatus or there is an interruption to the service provided by any of the utility undertakers, paragraph 29 of Part 2 of Schedule 31 provides that the nominated undertaker must:

a) Bear and pay the cost reasonably incurred by the utility company in making good such damage or restoring the supply;
b) Make reasonable compensation to the utility company for loss it has sustained by reason of such damage or interruption; and
c) Indemnify the utility company against claims, demands, proceedings and damages which may be made or taken against, or recovered from the utility company by reason of such damage or interruption.

6. Sub-paragraph c) above includes claims for loss made by consumers.

7. The effect of these provisions is that if, contrary to expectation, any disruption to the Petitioner's power supply were to occur during construction, the Petitioner would seek compensation through the utility company knowing that if the problem is caused by the nominated undertaker, the utility company will be indemnified against any claim made by the Petitioner.

Overhead power lines placed under ground

8. It has been suggested that all instances of diverted high voltage power lines should be placed underground. The reason stated is that placing overhead pylons underground will always result in a beneficial landscape impact. Whilst the undergrounding of power lines may have some beneficial landscape impacts, high voltage power lines buried underground require adequate separation between the cables and as a result, over the length of the diversion, can require construction work trenches of up to 50 metres wide. This can have a greater impact on other environmental considerations such as ecology, archaeology and agriculture. In addition, at the transition between overground and underground cables, additional structures are required known as cable sealing end compounds, which are often larger and more intrusive than an individual pylon.

9. The scheme design for the Proposed Scheme, as prepared by the Promoter and National Grid, involves more than 20 separate diversions of National Grid overhead power lines. These diversion proposals are assessed on a case-by-case basis. It is recognised that, for new pylon routes, undergrounding solutions on average cost approximately 10 times the cost of overhead pylon routes. For alterations to an existing overhead line the ratio can increase further.

10. The Visual Impact Provision funding has been made available for a limited number of projects within National Parks and Areas of Outstanding Natural Beauty (AONBs). The Stakeholder Advisory Group has identified initial priorities for the use of the Visual Impact Provision but decided not to select the potential project for the Chilterns AONB.

11. The Proposed Scheme contains three diversions of high voltage overhead power lines in the AONB. A diversion will be required at South Heath to achieve the required clearances over the Proposed Scheme. The diversion has been planned to follow as closely as possible the existing overhead line route. To facilitate this, an existing tower will need to be removed and replaced with a taller tower in the same location. The diversion is described in paragraph 2.3.52 of the Environmental Statement (ES), Volume 2, CFA 9 report.

12. Two diversions will be required at Wendover to achieve the required clearances over the Proposed Scheme. One will be on the west side of the route to the north of the Small Dean Viaduct. This will move the overhead line by up to 60 metres to the west and involve the removal of two existing towers and replacement with three taller towers. Please see map CT-06-038 in the ES, Volume 2, CFA 10 Map book on which the three taller towers are shown as red squares. An illustration of how the proposed diversion may look can be seen in Figure No. LV-01-051 photomontage in the ES, Volume 2, CFA 10, Map book.

13. The other diversion will be on the west of the line north of the Wendover green tunnel north portal. As explained in paragraph 2.3.57 of the ES, Volume 2, CFA 10 report, this diversion will move the overhead line temporarily by up to 70 metres to the south for a period of approximately two years. This diversion will involve the removal of an existing tower (located in a Proposed Scheme cutting) and replacement with a taller tower approximately 100 metres to the west. The ES does not report that the overhead line diversions will result, on their own, in a significant landscape and visual effect.

VISUAL IMPACT

Zone of Theoretical Visibility

1. In terms of landscape and visual assessments of the effects of the Proposed Scheme on the AONB, this is set out in Section 9 of the Environmental Statement (ES) Volume 2, CFA reports for (respectively), CFA 8 (The Chalfonts and Amersham), CFA 9 (Central Chilterns), CFA10 (Dunsmore, Wendover and Halton) and an assessment of effects on the character of the Chilterns AONB as a whole is presented in Volume 3 of the ES, Section 2. A separate, but related assessment of effects on the setting of heritage assets is included in Section 6, Cultural Heritage. Further details on the landscape and visual assessment, including engagement, baseline information and assessment findings, are presented in the ES Volume 5, Appendix LV-001-008.

2. As the ES sets out, the extent of the landscape and visual study area, distribution of visual receptor viewpoints and location of verifiable photomontages was discussed with Chiltern District Council, South Bucks District Council, Buckinghamshire County Council, Three Rivers District Council and The Chilterns Conservation Board.

3. The Zone of Theoretical Visibility (ZTV) has been produced in line with the methodology described in the Scope and Methodology Report (SMR) Addendum (Volume 5: Appendix CT-001-000/2). The ZTV helps to determine the study area for the landscape and visual assessment and also supports the assessment of effects on the setting of cultural heritage assets. The ZTV shows the extent to which elements of the Proposed Scheme may be visible, but does not show the extent over which landscape and visual effects may be experienced, since the latter requires consideration of the extent to which visibility of the Proposed Scheme would beneficially or adversely affect a view from a particular receptor.

4. Cranes have been excluded from the construction phase ZTV and overhead line equipment from the operational phase on the basis that these indicate widespread visibility but rarely give rise to significant effects if they are the only elements visible. With the exclusion of cranes, the construction phase ZTV gives a better indication of the possible spread of significant effects and therefore better informs the assessment process. The change in the extent of the ZTV between the draft and final ES was due to the development of design detail and, in particular, as a result of additional information added to the ground model, such as belts of existing trees.

Lower the level of the Proposed Scheme

5. The Promoter does not agree that the Proposed Scheme will have such a major visual impact on the Chilterns AONB and should be lowered further.

6. Just over 20km of the route lies across the AONB, of which 12km will be in tunnel and over 5km will be in cutting. The remaining 3km includes two viaducts, one of which will allow the Proposed Scheme to pass over the Marylebone to Aylesbury line and the A413.

Tree planting for screening

7. At least two million trees will be planted to integrate the Proposed Scheme into the landscape and to provide visual screening. These areas will be planted with suitable tree species that will be in keeping with the existing local tree scape.

Planting in advance of construction

8. Section 12.3.1 of the draft CoCP states that:

> 'Planting and other landscape measures will be implemented as early as is reasonably practicable where there is no conflict with construction activities or other requirements of the Proposed Scheme. The nominated undertaker will require its contractors to consider where measures can be implemented early and programme the landscape works accordingly. Locations for landscape measures will relate to the findings of the ES, and will be aimed at the protection and mitigation of adverse effects on sensitive and valued landscape features and characteristics'.

9. The Promoter will continue to be guided by the Forestry Commission in these respects and further detail in these areas will be developed at the detailed design stage.

Design issues

10. HS2 Information Paper D1, Design Policy sets out the Promoter's general design policy for the Proposed Scheme which includes aesthetics and quality. As stated in paragraph 3.1 of this Information Paper, the Promoter and the nominated undertaker will seek to ensure that:

a) 'the design is safe, efficient, and meets with the requirements of whole life operation and maintenance alongside initial buildability;
b) the design contributes to the government's pursuit of sustainable development, as set out in the National Planning Policy Framework, which involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life;
c) the design of all visible elements of the built and landscaped environment in both rural and urban areas are sympathetic to their local context, environment and social setting;
d) the design cohesion is achieved through a strong aesthetic ethos and a recognisable architectural language;
e) the design is developed through engagement to seek peoples' views and ideas on the aesthetic design of the visible buildings and permanent structures;
f) the design has a culture of cost awareness to give cost/quality decisions which achieve best value for the funders;
g) the design innovation is encouraged to generate best value to funders, users and those affected by the railway; and
h) the design considers the passenger experience.'

11. Please see also the Promoter's document, HS2 Design Vision – Preview Publication, March 2015.

12. HS2 Information Paper G6, Design Development – Detailed Design and the Role of Planning Authorities explains the Promoter's approach to design development how engagement with planning authorities is critical to the design development process, and will continue as the process moves forward, with the Promoter engaging on detailed design:

> *'Detailed design and role of Planning Authority*
>
> 'The design of the Proposed Scheme to date provides the level of detail necessary for the

purposes of the Bill and the requirements of the Environmental Impact Assessment in accordance with the Standing Orders of Parliament. The level of detailed design necessary to enable the Proposed Scheme to be constructed has yet to be carried out and, although detailed design development may commence as the Bill progresses through Parliament, it will not be completed until after the Bill has secured Royal Assent. Once the design is complete the nominated undertaker will need to apply for approval of the detailed design of a range of elements of the Proposed Scheme from planning authorities along the route, as set out in Schedule 16 of the Bill.

'This will ensure that although deemed planning permission for the Proposed Scheme is granted by Parliament, planning authorities will be able to ensure that the design of permanent structures fit into the local environment.

'A planning authority that becomes a qualifying authority under Part 2 of Schedule 16 will be required to approve plans and specifications for matters such as buildings and road vehicle parks, terracing, cuttings, embankments and other earthworks, fences, walls or other barriers, transformers, telecommunication masts, pedestrian access to the railway line, artificial lighting, waste and spoil disposal and borrow pits. Information Paper B1: The main provisions of the planning regime provides further detail.

'The planning authority can only refuse to approve (or impose conditions in respect of) the plans and specifications on the grounds specified in Schedule 16.

'*Engagement on detailed design*

'Ongoing engagement with planning authorities is critical to the design development process. It will ensure the detailed design of the Proposed Scheme has regard to planning authority aspirations, and fits within the local environment. For example, at station locations where there are opportunities to maximise regeneration and growth, HS2 Ltd has engaged with planning authorities in the development of the Bill design through station working groups and bilateral discussions. This level of engagement will continue as the process moves forward, with HS2 Ltd working with planning authorities in the preparation of their planning frameworks, establishing the vision for the station locations, while engaging in the detailed design of the stations.

'With regard to other key design elements such as viaducts, bridges and retaining walls, the Planning Forum[4] will consider common designs for certain structures. Discussions between the nominated undertaker and the relevant planning authority will determine the appropriateness of the common designs to the local environment.

'The Planning Memorandum, currently in draft, provides the commitment that the nominated undertaker will engage in pre-submission discussions with planning authorities, whenever reasonably practicable. Recognising constraints on local planning authority resources, the Department for Transport has agreed the principle of funding pre-submission discussions with local planning authorities. The details of these funding arrangements are yet to be determined, and will be discussed at the Planning Forum.

[4] See http://www.hs2.org.uk/developing-hs2/forums/planning-forums for more information.

'Design Panel

'The Secretary of State, through the commitment to develop an independent Design Panel, will ensure that designs of major stations and structures and other related design aspects of the new railway will complement local aspirations and contribute to the natural and built environment. HS2 Ltd is seeking to appoint a Chair of the Design Panel. Once appointed, a pool of expertise will be sought to independently assist the design challenge. The Design Panel will assist HS2 Ltd through advice, and HS2 Ltd will work in partnership with a range of organisations, including planning authorities. The aim will be to deliver a high standard of design that is also cost-effective and sustainable.'

13. The Promoter considers that there are sufficient mechanisms for local authorities to be adequately engaged on the detailed design of the Proposed Scheme. The planning regime established by Schedule 16 to the Bill is similar to that used by other hybrid Bill projects. Given the design panel, design policy and engagement on design outlined above in relation to the detailed design stage, the Promoter does not consider it necessary to agree to a further design manual or code.

14. As explained previously in an assurance letter sent to Chilterns District Council in February 2015, the Promoter recognises the importance and special character of the Chilterns Area of Outstanding Natural Beauty (AONB). The assurance outlined how the Promoter considers that there is merit in establishing a set of design principles that could reasonably be applied to the design and appearance of Proposed Scheme works in the Chilterns AONB that will fall to it to approve under Schedule 16 to the Bill when enacted.

Agreeing planning conditions

15. The provision in sub-paragraph 2(7) of Schedule 16 to the Bill extends the provision that was in the Crossrail Act 2008 to for 'construction arrangements' to plans and specifications approvals. This provision does not alter the grounds on which planning authorities may impose conditions, which are set out in sub-paragraph 2(5) of Schedule 16. As with the provision in the Crossrail Act the purpose is to avoid ultra vires or unreasonable conditions being imposed. If the Petitioner were to seek to impose a condition it considered reasonable and within the scope of the Schedule, and the nominated undertaker would not agree to it, then the local planning authority could refuse the request for approval.

Substations and autotransformer stations

16. Power supply to the railway will be supplied from the National Grid 400kV or 275kV network via feeder stations, located at Ickenham, Quainton and Burton Green. Each feeder station will comprise two distinct and separate compounds: a National Grid substation; and an auto-transformer feeder station for the Proposed Scheme.

17. Auto-transformer stations (ATSs) will be provided along the route at approximately five km (three mile) intervals. The power supply provisions for these auto-transformer stations are described in more detail in Volume 1 of the ES in chapter 5.17.

18. The Proposed Scheme incorporates a variety of visual mitigation measures, including cuttings, earthwork bunds and screen planting, to effectively conceal and integrate the substations and ATSs into the landscaping.

19. Whilst the ES reports that, due to the introduction of infrastructure into the rural environment, including that associated with the auto-transformer feeder stations and National Grid substations, there will be will a 'major adverse effect' in year one of operation, proposed mitigation planting established adjacent to the Proposed Scheme will mature, providing screening for these elements of the Proposed Scheme. This will reduce effects over time, and by year 60 of operation, the ES considers that they will be reduced to a point where they are 'not significant'.

Green bridges

20. As explained in HS2 Information Paper E15, Green Bridges have been designed to maintain safe movement and dispersal of animals and plants from one side of the Proposed Scheme to the other and are proposed as mitigation measures for specific requirements identified in the ES. These structures will also allow species to move freely in response to changing climatic conditions in the future. The main difference between a standard bridge and a green bridge is the increased width to allow vegetation, typically a hedgerow, to be planted along the structure on one or both sides of the bridge.

21. The design of the Proposed Scheme includes a number of green bridges along the line of route and, although they have primarily been designed for bats, they will also provide safe passage across the route for other species.

22. The baseline ecological survey information, including the flight paths of rare bats across the route for the Proposed Scheme, have been identified is summarised in Table 9, paragraph 7.3.28 of ES, Volume 2, CFA 12 report, and Table 11, paragraph 7.3.34 of the ES, Volume 2, CFA 13 report.

23. In addition to the green tunnels at South Heath and Wendover, five of the sixteen proposed green bridges are in Buckinghamshire. They are mostly at locations in the Bernwood Forest area – two at Finemere Wood north of Quainton and three in the vicinity of Decoypond Wood at Calvert where. They will be designed specifically for the bat populations and will be capable of supporting growth of native trees and shrubs to maturity.

24. In order to encourage species to use green bridges, plants that attract them (e.g. fruit producing shrubs) will be located at the entrances to the bridge linking into the existing habitats. Hedgerows, including a range of local/native species, will be established along the bridge to convey animals safely to the other side.

25. Typically, green bridges would be unlit to ensure that light sensitive species, such as bats, are not discouraged from using them.

26. In the case of the green bridges in the Calvert area they are proposed to be approximately 30 metres wide and will be designed for the passage of wildlife, in particular, the use bat populations Paragraph 7.4.48 states that planting on the green bridges will comprise a double row of tall scrub that will provide a sheltered habitat corridor suitable for commuting bats. A network of planted areas on either side of the Proposed Scheme will guide bats to crossing points and link existing woodlands.

27. As well as providing safe passage and habitat linkages, the addition of vegetation would also assist to integrate the bridge into the landscape.

28. The safe movement of species between habitats will also be supported by other design elements such as tunnels, viaducts, underpasses and culverts.

29. For further information see HS2 Information Paper E15, Green Bridges

Green tunnels

30. Green tunnels often known as cut-and-cover tunnels are constructed either in an open excavation or a retained excavation. Examples of typical cut-and-cover tunnels are shown in HS2 Information Paper D7, Tunnel Construction and Methodology and the ES, Volume 1 Chapter 6.12 and the Petitioner is referred to these documents for further information. Two main construction methods are likely to be used, specifically, open excavation and excavation within retaining walls. The open excavation method involves excavating from the surface, including the use of temporary support as required. Once the final depth is reached, the tunnel floor is constructed, followed by the walls and roof to form a twin-cell box to enable tracks to be separated for safety reasons. This box is then buried by back-filling with the previously excavated material and restoring the land so it blends into the landscape.

31. The retained excavation method is likely to be used where there are spatial constraints, such as urban areas. First the walls are constructed using diaphragm walling or bored piling. Then the ground is excavated between the walls, down to the top of the roof of the box. One option is then to form the roof and continue the excavation of the remainder of the tunnels, from the open ends of the box, and construct the floor slabs and dividing walls. The box is then backfilled to the surface. The second option is to continue the excavation down to the floor slab, construct floor slab, walls and roof, and then backfill to the surface.

32. Depending on the vertical clearances or the consideration of other constraints it is anticipated that the land surface above the green tunnel can be reinstated to the original land use, where practicable. More information regarding the construction and design of green tunnels is given in HS2 Information Paper D7, Tunnel Construction and Methodology and the ES, Volume 1, Chapter 6.12

33. The Promoter does not consider that any more green bridges or tunnels are justified.

Ventilation shafts

34. Section 5.7 of Volume 1 of the ES describes the requirement for ventilation shafts on the tunnel sections of the route. They need to be spaced every 2-3 km of tunnel. In achieving Royal Assent, the location of the vent shafts will have been approved by Parliament and will be constructed within their specified limits.

35. Schedule 16 to the Bill provides that the design and external appearance of external structures must be approved by the relevant planning authority. In this case it would be the district authority, should they chose to be a qualifying authority. Furthermore, as explained above, the Promoter has offered Chiltern District Council an assurance on design and landscaping in the Area of Outstanding Natural Beauty in February 2015.

36. Paragraph 19(2) provides that any work that is not a scheduled work, planning permission is not deemed to be granted if:

- the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location.
- the development is not exempt development within the meaning of the

environmental impact assessment regulations, and
- the development is not covered by an environmental assessment in connection with the Bill.

37. With respect to design, Paragraph 2 of Schedule 16 to the Bill (Conditions of deemed planning permission) requires that building works must be carried out in accordance with plans and specifications for the time being approved by the relevant planning authority. Within Buckinghamshire this would be the district authorities.

Ventilation shafts - design

38. Each shaft head house will be considered in its own context. As HS2 Information Paper D1, Design Policy sets out, the Promoter and nominated undertaker will seek to ensure 'that the design of all visible elements of the built and landscaped environment are sympathetic to their context, environment and social setting'. Specifically, HS2 Information Paper D8, Tunnel Shafts and Portals summarises the design approach for tunnel shafts as follows:

'The shafts will be designed to be:

- safe, efficient, and consistent with the requirements of whole-life operation and maintenance alongside initial buildability;
- sympathetic to their context, environment and social setting; and
- consistent with the requirements for the control of noise from stationary systems, as set out in Appendix SV-001-000, Annex E of the Environmental Statement.

'The tunnel shafts have buildings on the surface, called headhouses, which will be openly visible and will be designed in accordance with the above principles.

'The final designs of the tunnel headhouse buildings will be approved by local authorities in accordance with the planning regime established in the Bill.'

Chalfont St Peter vent shaft

39. The Chalfont St Peter vent shaft will be located approximately 50m from Chesham Lane to the south of Ashwell's Farm. Proposed mitigation for the vent shaft as set out in the ES, Volume 2, CFA 8, section 2.2.7, report includes the following:

- landscape earthworks curving along the northern and western side of the vent shaft compound to integrate it into the landscape;
- areas of planting along the northern and western edges of the vent shaft compound to screen views from the surrounding residents in Chalfont St Peter and Chalfont St Giles; and
- an area of grassland habitat creation along the eastern boundary of the vent shaft compound mitigating the potential loss of great crested newt habitat.

The Chalfont St Giles vent shaft

40. The Chalfont St Giles vent shaft (at Upper Bottom House Farm) is set in a rural location with one farm – Upper Bottom House Farm - in the vicinity. The vent shaft location is set in the dip of a field adjacent to two existing blocks of woodland, which will screen views of it from Upper Bottom House

Farm. Proposed mitigation for the vent shaft as set out in the ES, Volume 2, CFA 8, report, section 2.2.8, includes the following:

- planting along the northern, western and eastern boundaries of the vent shaft compound to screen views from the surrounding residents; and
- landscape earthworks located at the north side of the vent shaft compound to integrate it into the landscape.

41. There will be a permanent widening of Bottom House Farm Lane along the south side, to a four metre width road, including the provision of passing bays. Hedgerow planting will be reinstated on both sides of the widened Bottom House Farm Lane where existing hedgerows will be removed.

Amersham vent shaft

42. The Amersham vent shaft will be located in the isolated parcel of land at the junction of the A404 Whielden Lane and the A413, south of Amersham Hospital. As set out in the ES, Volume 2, CFA 8 report, section 2.2.9, proposed mitigation for the vent shaft at Amersham will include:

- planting around the outer perimeter of the vent shaft compound for visual screening; and
- a strip of planting along the northern edge of the A404 between the Chiltern Crematorium and the A413 for visual screening.

Little Missenden vent shaft

43. The Little Missenden vent shaft is proposed to be located in an arable field adjacent to the A413 with few residential receptors in the vicinity. Proposed mitigation for the vent shaft as set out in the ES, Volume 2, CFA 9 Report, section 2.2.8, include:

- landscape earthworks curving along the access road and the northern side of the vent shaft compound to integrate it into the landscape;
- tree planting along the northern, western and southern boundary of the vent shaft compound to screen views from the residents of Little Missenden and including those closest on Keepers Lane and integrate the structure into the surrounding landscape; and
- an existing screening belt of mature vegetation along the field boundary with the A413 of approximate 5-6m high which will provide further screening.

WATER AND FLOOD RISK

Flood risk assessment

1. HS2 Information Paper E4, Water Resources and Flood Risk, describes how it is the design aim for no increase in the risk of flooding for vulnerable receptors including residential property (defined as more/highly vulnerable and essential infrastructure in Table 2 of the National Planning Policy Framework) during the lifetime of the Proposed Scheme, taking projected climate change impact into account. The Promoter has held a number of meetings with Buckinghamshire County Council as the Lead Local Flood Authority and dialogue in relation to these issues is ongoing.

2. A comprehensive assessment of the effect of the Proposed Scheme on surface water drainage and flood risk was undertaken and detailed within Volume 5 Water Resources Flood Risk Assessment , CFA 11, of the Environmental Statement (ES). This included an assessment of changes in runoff as a result of construction and operation, as well as changes to surface water flow paths and drainage ditches resulting from the presence of the Proposed Scheme as a linear feature intersecting natural surface water drainage ditches and flow paths. The Environmental Statement assesses catchments and surface water flow paths in the baseline and post development case. Where necessary, further surveys, ground investigation and monitoring will be undertaken as the design and implementation details are developed.

3. In relation to the control of surface water runoff during operation and construction HS2 Information Paper E4, Water Resources and Flood Risk explains how the design of the Proposed Scheme includes Sustainable Drainage Systems (SuDS) to control the rate, volume and quality of run-off from the rail corridor and other infrastructure, taking projected climate change impacts into account. These systems will help to avoid an increase in flood risk and will help to maintain natural flow regimes by encouraging storm water to soak into the ground or, where that is not reasonably practicable, will discharge it into watercourses or surface water/combined sewers at a controlled rate. This will be undertaken by implementation of SuDS which include balancing ponds, swales, infiltration trenches and other forms. Where possible, these drainage systems will also help to avoid having an adverse effect on the quality of the water which the run-off flows into by allowing sediments to settle out.

4. In addition the protective provisions, under Part 5 of Schedule 31 to the Bill require approval by the appropriate drainage authority for any works likely to affect the level, flow or quality of surface water (further explained in HS2 Information Paper E25, Authorising Works Affecting Watercourses).

Chilterns chalk aquifer

5. The ES identifies a potential major impact on several groundwater abstractions from raised turbidity due to tunnelling, pilling/diaphragm wall construction resulting in a significant effect. The impact upon the wider aquifer from these activities was assessed as minor, which, despite the fact that Mid Chilterns Chalk is considered a high value receptor would mean this would be a slight effect and overall not significant. This was determined based upon the scale of the aquifer and its attenuation and dilution capacity with regard to turbidity.

6. Potential impacts to Affinity Water's groundwater abstractions (and hence their ability to supply potable water) were identified within the ES. The Promoter continues to work with both the Environment Agency and Affinity Water to develop a Management Strategy to mitigate this potential impact.

7. The protective provisions, under Part 5 of Schedule 31 to the Bill, require the approval for any works likely to affect groundwater flows, level or quality, by the appropriate body, prior to undertaking any works. The appropriate body in relation to groundwater is the Environment Agency. Therefore, no works affecting groundwater can be undertaken until the Environment Agency is satisfied that the impacts from construction are properly understood and that any mitigation and monitoring is adequate.

Effect on River Misbourne and River Colne

8. The ES Volume 2 report for CFA 8 identifies the potential impact from settlement due to tunnelling underneath the River Misbourne and Shardeloes Lake. In section 13.4 of the report, mitigation measures are proposed to reduce any settlement and that additional mitigation measures could be considered, should ground investigation identify different conditions to those within the ES and settlement be significant. Paragraphs 13.4.39 to 13.4.42 explain why the assessment concludes negligible impact.

9. The draft Environmental Memorandum states that the environmental effects may not be worse than the effects reported in the ES. Therefore, the impact on the River Misbourne and River Colne is constrained by this requirement. Further investigations, such as surveys and ground investigation, are planned to better constrain which, if any, of the mitigation measures detailed within the ES are required to achieve the effects reported within the ES.

10. The protective provisions, under Part 5 of Schedule 31 to the Bill, require the approval for any works likely to affect groundwater or surface water flows, level or quality, by the appropriate body, prior to undertaking any works. The appropriate body in relation to groundwater is the Environment Agency. As both the River Misbourne and Colne are main rivers, the appropriate body is also the Environment Agency (further explained in relation to watercourses in HS2 Information Paper E25, Authorising Works Affecting Watercourses). Therefore, no works affecting the flow, level or quality of groundwater or the River Misbourne and Colne can commence until the Environment Agency is satisfied that the impacts from construction are properly understood and any required mitigation is adequate.

Selection of appropriate water infrastructure

11. Selection of vertical route alignment and hence watercourse crossings types has considered design, construction, operation and environmental factors. Maintaining flow conveyance for flood risk purposes and minimising impact on channel morphology for Water Framework Directive requirements has been a key factor in the initial section and design of each watercourse crossing. The design principles of the Proposed Scheme required online crossings to be considered first with culverts considered only where there is insufficient clearance for an underbridge. Options significantly affecting hydromorphology such as siphons, drop-inlet culverts and aqueducts have only been considered where unavoidable due to track alignment requirements and land levels either side of the crossing.

12. Again, as referred to above, the protective provisions, under Part 5 of Schedule 31 to the Bill require approval, by the appropriate drainage authority for any works likely to affect the level, flow or quality of surface water, further explained in HS2 Information Paper E25, Authorising Works Affecting Watercourses. Works will be constructed in accordance with the approved plan and any model conditions applied to the approval.

Monitoring

13. Section 16.4 of the draft Code of Construction Practice states that:

> 'The nominated undertaker will require surface water and groundwater monitoring plans to be implemented as part of the lead contractors' environmental management system (EMS).
>
> 'The nominated undertaker will require its contractors to consult the EA regarding water quality, flow and level monitoring to be undertaken for watercourses and groundwater that will be affected by construction works or discharge of surface water run-off, which will include the following, as appropriate:
>
> - pre-construction monitoring to establish baseline water quality conditions for watercourses and groundwater;
> - monitoring during construction works to enable the effectiveness of mitigation measures to limit pollution risk to be monitored and any pollution incidents to be identified; and
> - monitoring of watercourses or groundwater receiving surface water runoff during construction to enable the effectiveness of treatment and other sustainable drainage systems measures to be determined and to ensure that an unacceptable rise in groundwater levels does not occur'.

Impact on drainage patterns

14. The protective provisions under Part 5 of Schedule 31 to the Bill, require the approval for any works likely to affect groundwater or surface water flows, level or quality, by the appropriate body, prior to undertaking any works. The appropriate body is the Environment Agency in regard to groundwater and further explained in relation to watercourses in HS2 Information Paper E25 Authorising Works Affecting Watercourses.

Maintenance

15. Section 5 of HS2 Information Paper E27, Land Drainage, explains that:

> 'After construction of the Proposed Scheme is complete, much of the land acquired to construct the landscape earthworks will be offered back to landowners for return to agricultural use as part of the land compensation discussions. Except where the nominated undertaker needs to retain full control of the land drainage arrangements (e.g. to protect the new railway from flooding), these will be transferred to the landowner as part of the package of land.
>
> 'Once returned, such land drainage arrangements will become the sole responsibility of the landowner. Maintenance requirements will generally be consistent with normal farming practice, with any operations capable of being carried out by hand or using standard agricultural machinery. However, where appropriate, indicative maintenance plans will be provided by the nominated undertaker to landowners for guidance purposes.
>
> 'Should a landowner decide at some stage in the future to alter the land drainage arrangements constructed by the Proposed Scheme, they will be responsible for any loss of agricultural productivity, any increased risk of flooding to their own land or premises, and

any impacts to neighbours or other third parties'.

Chalfont St Giles and Amersham vent shafts

16. The ES, Volume 2, CFA 8 report, summarises mitigation with respect to managing surface water flood risk at the Chalfont St Giles and Amersham Vent shaft sites both during construction (13.4.23) and during operation (13.4.24). Detail of the risk to the vent shafts, subsequent change in surface water flows paths and proposed mitigation is detailed in the Flood Risk Assessment, presented in Volume 5: Water Resources, of the ES for CFA 8 (for mitigation, see sections 8.3.4 to 8.3.8).

WENDOVER CRICKET CLUB

1. The Promoter has engaged with the Wendover Cricket Club for over two years and is aware of the club's concerns in relation to the anticipated impact as a result of the construction of the Wendover green tunnel. The Club and the Promoter's agents have been working constructively together to identify a satisfactory solution to enable the Club to continue operating and this work is ongoing.

WENDOVER GREEN TUNNEL

1. Green tunnels, often known as cut-and-cover tunnels, are constructed either in an open excavation or a retained excavation. Information regarding the construction and design of green tunnels can be found in HS2 Information Paper D7, Tunnel Construction and Methodology and in the Environmental Statement (ES) accompanying the Bill (see Volume 1, Chapter 6.12). Two main construction methods are likely to be used, specifically, open excavation and excavation within retaining walls. The open excavation method involves excavating from the surface, including the use of temporary support as required. Once the final depth is reached, the tunnel floor is constructed, followed by the walls and roof to form a twin-cell box to enable tracks to be separated for safety reasons. This box is then buried by back-filling with the previously excavated material and restoring the land so it blends into the landscape.

2. The retained excavation method is likely to be used where there are spatial constraints, such as urban areas. First the walls are constructed using diaphragm walling or bored piling. Then the ground is excavated between the walls, down to the top of the roof of the box. One option is then to form the roof and continue the excavation of the remainder of the tunnels, from the open ends of the box, and construct the floor slabs and dividing walls. The box is then backfilled to the surface. The second option is to continue the excavation down to the floor slab, construct floor slab, walls and roof, and then backfill to the surface.

3. Depending on the vertical clearances or the consideration of other constraints it is anticipated that the land surface above the green tunnel can be reinstated to the original land use, where practicable.

4. The January 2012 announced scheme included a revision and lowering of the route alignment by Wendover allowing the green tunnel past Wendover to be extended northwards by 800m. This provided effective noise and visual screening alongside the main residential area of Wendover and allowed existing road infrastructure to be reinstated over the tunnel.

5. Local groups subsequently proposed additional options for extending the green tunnel at Wendover and four alternatives were considered:

- a green tunnel of 1.2km adjacent to Wendover, consistent with the Janaury 2012 announced scheme;
- an extended green tunnel to the west, past where Nash Lee Lane would cross the Proposed Scheme;
- an extended green tunnel to the east, in the direction of Small Dean; and
- an extended green tunnel east of the Small Dean crossing of the A413.

6. These options were evaluated and the ES (Volume 2, paragraphs 2.6.40-47[5]) reports that it was considered that the scale of the potential benefits of extending the tunnel as requested by local stakeholders were not justified by the disbenefits. We will continue to consider minor changes as part of our ongoing design work to ensure that the green tunnels meet the operational criteria set

[5] https://www.gov.uk/government/publications/hs2-phase-one-environmental-statement-volume-2-community-forum-area-reports-and-map-books/hs2-phase-one-environmental-statement-volume-2-community-forum-area-reports-and-map-books

out in the ES, however we remain of the view that a significant extension of the green tunnel at Wendover is not warranted.