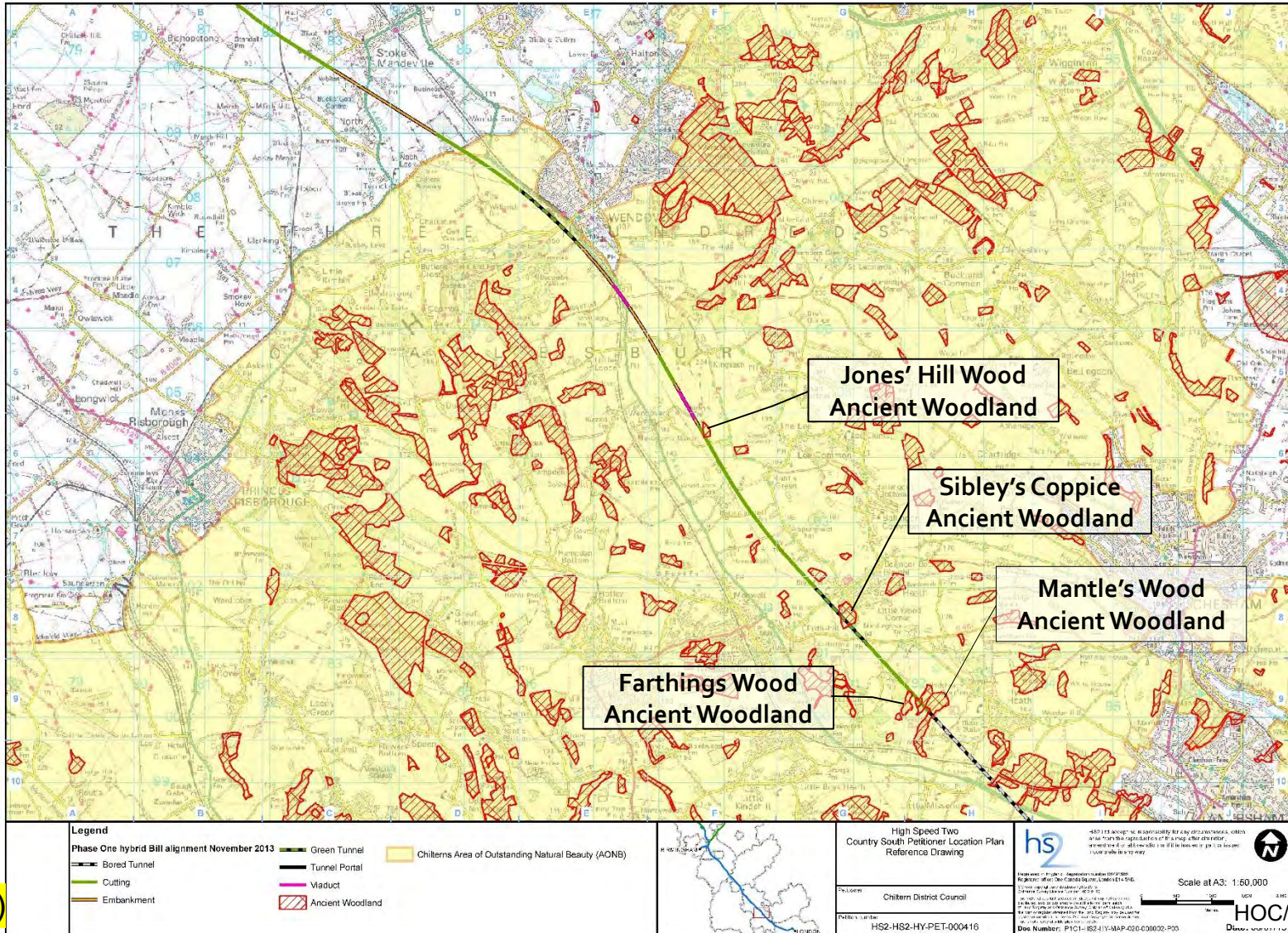
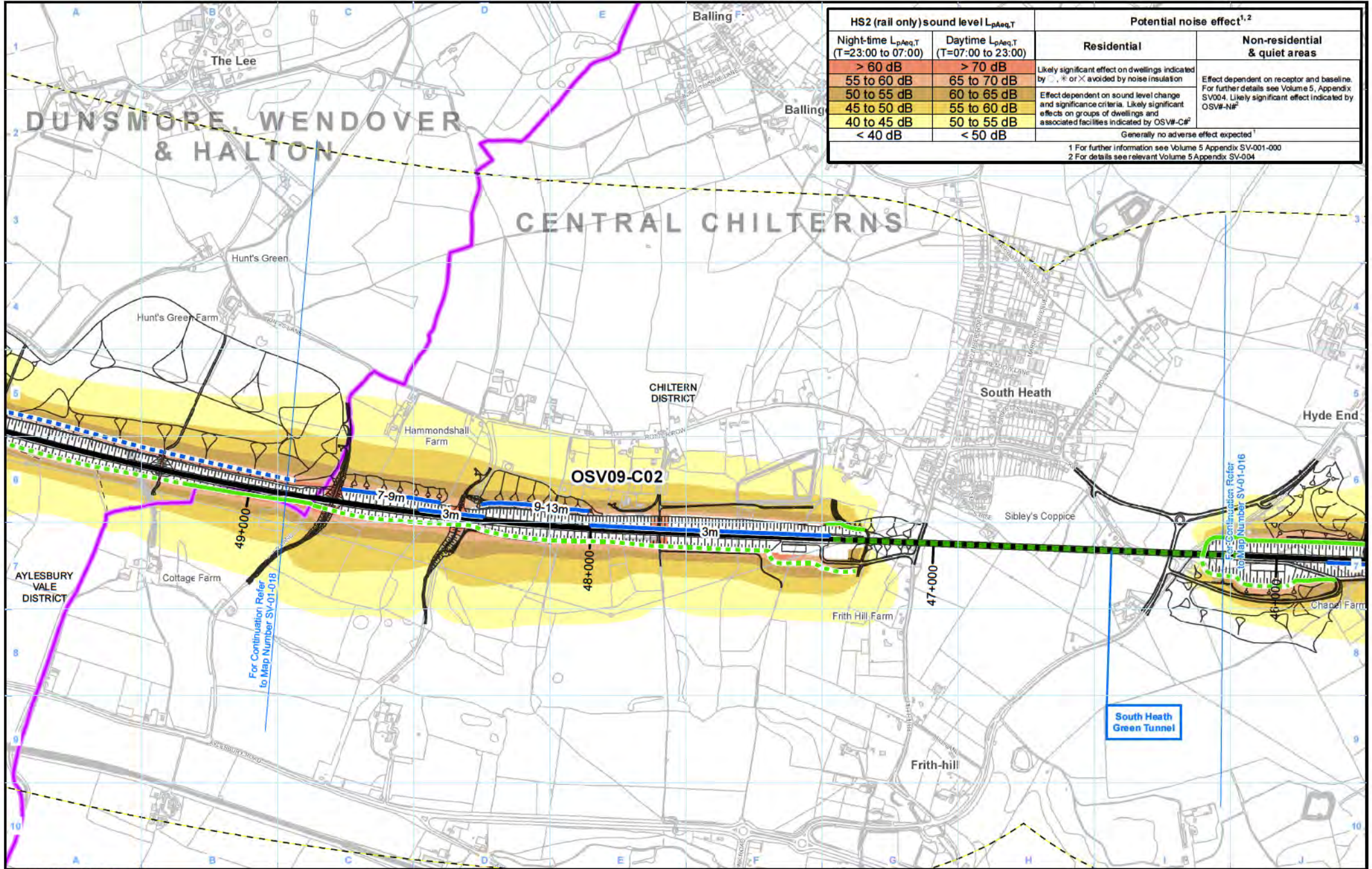


Effects on Ancient Woodland within the Chilterns AONB





HS2 (rail only) sound level $L_{pAeq,T}$		Potential noise effect ^{1,2}	
Night-time $L_{pAeq,T}$ (T=23:00 to 07:00)	Daytime $L_{pAeq,T}$ (T=07:00 to 23:00)	Residential	Non-residential & quiet areas
> 60 dB	> 70 dB	Likely significant effect on dwellings indicated by ., * or X avoided by noise insulation	Effect dependent on receptor and baseline. For further details see Volume 5, Appendix SV004. Likely significant effect indicated by OSV-N# ²
55 to 60 dB	65 to 70 dB		
50 to 55 dB	60 to 65 dB	Effect dependent on sound level change and significance criteria. Likely significant effects on groups of dwellings and associated facilities indicated by OSV-N-C# ²	
45 to 50 dB	55 to 60 dB		
40 to 45 dB	50 to 55 dB		
< 40 dB	< 50 dB	Generally no adverse effect expected ¹	

1 For further information see Volume 5 Appendix SV-001-000
2 For details see relevant Volume 5 Appendix SV-004

- Legend - General features**
- Route in bored tunnel
 - Route in green tunnel
 - Route on surface
 - Depot, station, headhouse or portal building
 - Community forum boundary

- Engineering earthworks:**
- Embankment
 - Cutting
- Non engineering earthworks:**
- Embankment
 - Cutting

- Legend - Sound related features**
- Envisaged mitigation to avoid / reduce significant noise effects:
 - Landscaping and/or fence barriers*
 - Engineering e.g. cuttings (green tunnels separately marked)
 - Envisaged measures further reducing noise effects:
 - Other environmental e.g. landscaping
 - Engineering e.g. cuttings

- Airborne sound study area
 - Potential additional noise insulation (triggered by maximum sound levels at night)¹
 - Potential additional noise insulation (triggered by WHO Night Noise Guidelines Interim Target)²
 - Potential noise insulation (triggered by Noise Insulation Regulations 1996)³
- * Labelled with total barrier height above rail level

Map Number: SV-01-017

Map Name: Operational Sound Contour Maps and Likely Significant Effects

Community Forum Area CFA09: Central Chilterns

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Doc Number: C250-ARP-EV-MAP-000-003559

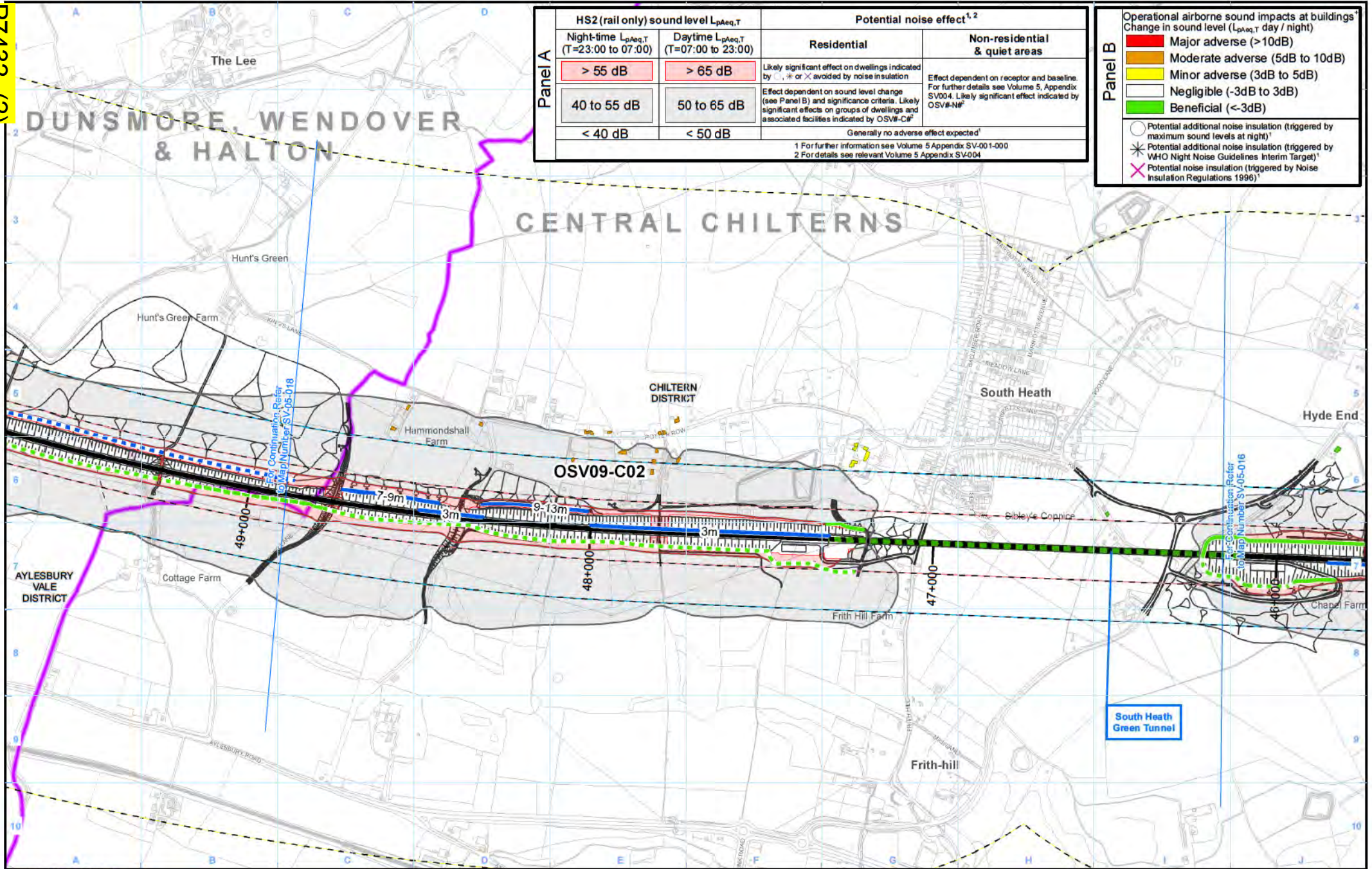
HOC/10043/0284

P7433 (2)

Panel A	HS2 (rail only) sound level L _{pAeq,T}		Potential noise effect ^{1,2}	
	Night-time L _{pAeq,T} (T=23:00 to 07:00)	Daytime L _{pAeq,T} (T=07:00 to 23:00)	Residential	Non-residential & quiet areas
	> 55 dB	> 65 dB	Likely significant effect on dwellings indicated by ., * or X avoided by noise insulation	Effect dependent on receptor and baseline. For further details see Volume 5, Appendix SV004. Likely significant effect indicated by OSV#-N#
40 to 55 dB	50 to 65 dB	Effect dependent on sound level change (see Panel B) and significance criteria. Likely significant effects on groups of dwellings and associated facilities indicated by OSV#-C#	Generally no adverse effect expected ¹	
< 40 dB	< 50 dB		1 For further information see Volume 5 Appendix SV-001-000 2 For details see relevant Volume 5 Appendix SV004	

Panel B	Operational airborne sound impacts at buildings Change in sound level (L _{pAeq,T} day / night)
[Red]	Major adverse (>10dB)
[Orange]	Moderate adverse (5dB to 10dB)
[Yellow]	Minor adverse (3dB to 5dB)
[White]	Negligible (-3dB to 3dB)
[Green]	Beneficial (<-3dB)

○ Potential additional noise insulation (triggered by maximum sound levels at night)¹
 * Potential additional noise insulation (triggered by WHO Night Noise Guidelines Interim Target)¹
 ✕ Potential noise insulation (triggered by Noise Insulation Regulations 1996)¹



Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community forum boundary
- District/Borough to undary
- County boundary

Engineering earthworks:

- Embankment
- Cutting

Non engineering earthworks:

- Embankment
- Cutting

* Residential buildings only
* Labelled with total barrier height above rail level

Legend - Sound related features

- Committed developments (labelled as CFA##)
- Envisaged mitigation to avoid / reduce significant noise effects: Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)
- Envisaged measures further reducing noise effects: Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Airborne sound study area
- Ground-borne sound & vibration study area (residential and non-residential)
- Ground-borne sound & vibration study area (highly sensitive non-residential)
- Minor ground-borne noise or vibration impact*

Map Number: SV-05-017

Map Name: Operational Noise and Vibration Impacts and Likely Significant Effects

Community Forum Area CFA09: Central Chilterns

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Doc Number: C250-ARP-EV-MAP-000-003972

Date: 29/10/13

Current baseline (2013)



Operation Year 1 (2026) - Winter verifiable photomontage




Technical Information
 Location: Viewpoint 098-3-003: View north-west from PRoW (Footpath TLE/5) near Kingsash.

Date taken: 27/02/13
 Time taken: 14:52
 Focal length: 57.296mm

This verifiable photomontage provides an illustration of how the Proposed Scheme may look in 2026 (the opening year). The design of the Proposed Scheme may be subject to design development in response to consultation. Design development will not result in any significant adverse change in the environmental effects detailed in the photomontages of the Proposed Scheme. Where new planting is proposed, it has been shown as immature plants which would mature over time to further integrate the Proposed Scheme into the landscape.



Figure Number	LV-01-046
Figure Name	Verifiable Photomontage Operation Year 1 (2026) - Winter Viewpoint 098-3-003
Community Forum Area CFA10: Dunsmore, Wendover and Halton	



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P7425 (3) shown on Map LV-04-035b. refer to map series LV-04.

Assessment location ID	Area Represented	Measurement location	Existing baseline sound level (dB)							Data source coding
			For operational sound assessment				For construction sound assessment			
			Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$	Arithmetic average of night-time $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	Daytime L_{pAeq}	Evening/weekend L_{pAeq}	Night-time L_{pAeq}	
374515	Frith Hill, Great Missenden	CS0048	50.6	44.5	51.9	70.1	50.7	47.8	43.7	1,A,iii,b
374531	Chesham Road, Great Missenden	CS8050	54.6	47.8	76.2	89.3	54.9	54.2	47.1	3,BC,ii,b
374552	Cudsdens Court, Great Missenden	CS8050	56.4	49.7	76.2	89.3	56.7	56.0	48.9	3,BC,ii,b
374611	Frith Hill, Great Missenden	CS0048	50.6	44.5	51.9	70.1	50.7	47.8	43.7	1,A,i,a
374641	Frith Hill, South Heath	CS0048	50.6	44.5	51.9	70.1	50.7	47.8	43.7	1,A,iii,b
374696	Frith Hill, South Heath	CS1204	47.4	40.9	50.0	67.4	48.2	50.4	40.8	1,A,i,a
374715	Frith Hill, South Heath	CS1204	56.8	50.3	50.0	67.4	57.6	59.8	50.2	1,C,ii,b
374719	Frith Hill, South Heath	CS2050	64.6	55.5	63.3	89.6	65.1	63.3	55.3	3,A,ii,b
374775	Sibleys Rise, South Heath	CS3015	46.5	39.8	47.2	62.9	46.2	44.6	39.0	1,A,ii,b
374806	Kings Lane, South Heath	CS0019	47.0	40.6	40.2	66.5	48.2	47.1	41.6	1,A,ii,b
374849	Bayleys Hatch, South Heath	CS2050	50.1	41.0	63.3	89.6	50.6	48.8	40.8	3,BC,ii,b
374914	Sibleys Rise, South Heath	CS3015	46.5	39.8	47.2	62.9	46.2	44.6	39.0	1,A,ii,b
375025	Kings Lane, South Heath	CS2026	47.7	41.0	48.9	64.5	47.4	45.8	40.2	3,A,ii,b
375067	Lappetts Lane, South Heath	CS2026	47.7	41.0	48.9	64.5	47.4	45.8	40.2	3,A,ii,b
375134	Kings Lane, South Heath	CS0019	47.0	40.6	40.2	66.5	48.2	47.1	41.6	1,A,ii,b
375214	Bayleys Hatch, South Heath	CS0057	47.6	43.5	44.0	69.2	48.7	38.9	43.5	1,A,i,a
375322	Potter Row, Great Missenden	CS2109	44.1	39.0	45.6	67.2	44.7	42.4	38.6	1,A,iii,b

Assessment location ID	Area Represented	Measurement location	Existing baseline sound level (dB)							Data source coding
			For operational sound assessment				For construction sound assessment			
			Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$	Arithmetic average of night-time $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	Daytime L_{pAeq}	Evening/weekend L_{pAeq}	Night-time L_{pAeq}	
375417	Potter Row, Great Missenden	CS2026	47.7	41.0	48.9	64.5	47.4	45.8	40.2	3,A,ii,b
375440	Potter Row, Great Missenden	CS2059	45.9	36.0	47.1	69.8	46.5	44.1	36.2	1,A,i,a
375451	Potter Row, Great Missenden	CS2059	45.9	36.0	47.1	69.8	46.5	44.1	36.2	1,A,ii,b
375485	Potter Row, Great Missenden	CS1009	50.0	44.9	50.5	72.1	50.6	48.3	44.5	3,A,ii,b
375495	Potter Row, Great Missenden	CS2109	44.1	39.0	45.6	67.2	44.7	46.5	38.6	1,A,ii,b
375508	Potter Row, Great Missenden	CS2059	45.9	36.0	47.1	69.8	46.5	44.1	36.2	1,A,ii,b
375545	Potter Row, Great Missenden	CS2059	45.9	36.0	47.1	69.8	46.5	44.1	36.2	1,A,ii,b
375619	Potter Row, Great Missenden	CS2109	44.1	39.0	45.6	67.2	44.7	42.4	38.6	1,A,ii,b
375630	Potter Row, Great Missenden	CS2109	44.1	39.0	45.6	67.2	44.7	42.4	38.6	1,A,ii,b
375648	Potter Row, Great Missenden	CS2059	45.9	36.0	47.1	69.8	46.5	44.1	36.2	1,A,ii,b
375669	Potter Row, Great Missenden	CS6015	50.7	50.4	50.0	80.1	50.8	49.3	48.9	1,A,ii,b
375754	Potter Row, Great Missenden	CS2109	44.1	39.0	45.6	67.2	44.7	42.4	38.6	1,A,ii,b
376239	Hyde Lane, Hyde End	CS1203	47.9	43.7	50.4	73.2	49.1	54.8	43.6	1,A,i,a
376310	Hyde Lane, Hyde End	CS1203	47.9	43.7	50.4	73.2	49.1	54.8	43.6	1,A,ii,b
376359	Hyde Lane, Hyde End	CS2061	45.7	35.4	41.2	57.5	46.1	45.3	35.2	1,A,ii,b
376368	Hyde Lane, Hyde End	CS2061	45.7	35.4	41.2	57.5	46.1	45.3	35.2	1,A,i,a
376399	Chesham Road, Hyde End	CS0090	46.7	40.7	48.0	65.8	47.4	45.7	40.7	1,A,i,a

Assessment Location		Impact criteria										Significance criteria								Significant effect
ID	Area represented	Proposed Scheme only (Year 15 traffic)			Do nothing (Opening year baseline)			Do something (Opening year baseline + Year 15 traffic) ****		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Mitigation of effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
374515	Frith Hill, Great Missenden	37	28	55/58	51	45	52	51	45	0	0	NA	3	R	T	-	-	-	-	
374531	Chesham Road, Great Missenden	45	38	56/58	55	48	76	55	48	0	0	NA	1	R	T	-	-	-	-	
374552	Cudsdens Court, Great Missenden	56	49	61/64	56	50	76	56	49	0	0	A	6	R	T	-	-	-	-	
374611	Frith Hill, Great Missenden	40	31	58/60	51	45	52	51	45	0	0	NA	3	R	T	-	-	-	-	
374641	Frith Hill, South Heath	40	31	59/62	51	45	52	51	45	0	0	NA	4	R	T	-	-	-	-	
374696	Frith Hill, South Heath	47	38	66/69	47	41	50	50	43	3	2	NA	3	R	T	-	-	-	-	#
374715	Frith Hill, South Heath	50	42	67/70	57	50	50	58	51	1	0	A	1	R	T	-	-	-	-	
374775	Sibleys Rise, South Heath	44	37	63/66	47	40	47	47	40	1	0	NA	19	R	T	-	-	-	-	
374806	Kings Lane, South Heath	44	36	60/62	47	41	40	48	41	1	0	NA	8	R	T	-	-	-	-	
374849	Bayleys Hatch, South Heath	47	39	66/69	50	41	63	51	42	1	1	NA	6	R	T	-	-	-	-	
374914	Sibleys Rise, South Heath	43	35	65/68	47	40	47	48	40	1	1	NA	25	R	T	-	-	-	-	
375025	Kings Lane, South Heath	41	33	62/65	48	41	49	48	41	1	0	NA	8	R	T	-	-	-	-	
375067	Lappetts Lane, South Heath	37	30	53/56	48	41	49	48	41	0	0	NA	5	R	T	-	-	-	-	
375134	Kings Lane, South Heath	42	34	61/64	47	41	40	48	41	1	0	NA	10	R	T	-	-	-	-	
375214	Bayleys Hatch, South Heath	45	37	66/69	48	44	44	49	44	2	1	NA	10	R	T	-	-	-	-	
375322	Potter Row, Great Missenden	49	40	67/69	44	39	46	50	42	6	3	A	5	R	T	-	-	-	-	~
375417	Potter Row, Great Missenden	43	34	64/67	48	41	49	49	42	1	1	NA	6	R	T	-	-	-	-	
375440	Potter Row, Great Missenden	44	35	58/60	46	36	47	48	38	2	2	NA	1	R	T	-	-	-	-	
375451	Potter Row, Great Missenden	43	34	58/61	46	36	47	48	38	2	2	NA	1	R	T	-	-	-	-	
375485	Potter Row, Great Missenden	54	44	67/70	50	45	51	55	48	5	3	A	3	R	T	-	-	-	-	OSV09-C02

Location:		Chiltern Tunnel / South Heath							
Option name and description:		Chiltern Tunnel Extension in South Heath							
OPTIONS CONSIDERED:		Option A(baseline)		Option B		Option C		Option D	
OPTION DESCRIPTION		The Proposed Scheme, the January 2012 announced route (with the tunnel portal at Mantle's Wood)		The extended twin-bore tunnel to the northern end of the green tunnel at South Heath		The extended twin-bore tunnel to the north-west of Wendover. This option is assessed separately in CRAG report.		The extended twin-bore tunnel to the north side of Leather Lane	
Headings	Appraisal criteria	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING
Costs	Estimated whole life cycle costs to give relative assessment		0	Whole life cycle costs not provided at this time but likely to be similar to the Proposed Scheme	0			Whole life cycle costs not provided at this time but likely to be similar to the Proposed Scheme	0
	Estimated initial capital costs to give relative assessment (The capital costs include construction, land and compensation costs)		0	Additional circa £37.4 million above the Proposed Scheme construction costs. There would be reduced land costs which have not been evaluated.	---			Additional circa £72 million above the Proposed Scheme construction costs. There would be reduced land costs which have not been evaluated.	---
Environment	Input from ENVIRONMENTAL APPRAISAL MATRIX	Refer to EIAC assessment in Table 2 below.	0	Refer to EIAC assessment in Table 2 below.	+++			Refer to EIAC assessment in Table 2 below.	+++
Safety	Assess the relative safety during construction	Safety risks associated with earthworks, green tunnel and bridge construction.	0	Positive: Reduced major earthwork cuttings (up to 23m depth) and associated works at Mantle's Wood. Reduced traffic management. Negative: Increased shaft construction (1 extra). Approach cutting to north portal approximately 15m deep. Longer continuous length of bored tunnel with associated working in confined spacing.	0			Positive: Reduced major earthwork cuttings (up to 23m depth) and associated works at Mantle's Wood. Reduced traffic management. Reduces HV overhead line diversion. Negative: Increased shaft construction (1 extra). Approach cutting to north portal approximately 15m deep. Longer continuous length of bored tunnel with associated working in confined spacing.	0
	Assess the relative safety during Operations, maintenance and decommissioning , and Emergency access	Restricted access to route in green tunnel.	0	Longer continuous length of bored tunnel with additional underground operation and maintenance activities in confined space.	--			Longer continuous length of bored tunnel with additional underground operation and maintenance activities in confined space.	--
Commitments	Previous explicit or implicit public assurances or commitments to third parties	-	0	Overall programme duration increases by approximately 1 year. This would impact on the commitment for HS2 to open in 2026.	---			Overall programme duration increases by approximately 1 year. This would impact on the commitment for HS2 to open in 2026.	---
Commercial Development	Does the option provide opportunities for development in particular for over station development	Not applicable	0	Not applicable	0			Not applicable	0
		Overall Rating	0	Overall Rating	--				--
Preferred Option:		Option A - The Proposed Scheme, the January 2012 announced route (with the tunnel portal at Mantle's Wood)							
Reason:		More economical to construct and shorter overall construction period. Less safety risks during operation.							

Option Appraisal Assessment Criteria:

---	Major worsening on the Comparator Scheme
--	Minor worsening on Comparator Scheme
0	Neutral / no change to Comparator Scheme
+	Minor improvement on Comparator Scheme
+++	Major improvement on Comparator Scheme
N/A	Not applicable

Table 2: Chiltern Tunnel Extension - Environmental Appraisal (Provided by EIAC in Document Ref C252-ETM-EV-ASM-020-000099 Rev P03)

Location:				Chiltern Tunnel/ South Heath							
Option name and description:				Chiltern Tunnel Extension in South Heath							
OPTIONS CONSIDERED:				Option A(baseline)		Option B		Option C		Option D	
OPTION DESCRIPTION				The Proposed Scheme, the January 2012 announced route (with the tunnel portal at Mantle's Wood)		The extended twin-bore tunnel to the northern end of the green tunnel at South Heath		The extended twin-bore tunnel to the north-west of Wendover. This option is assessed separately in CRAG report.		The extended twin-bore tunnel to the north side of Leather Lane	
Key Sustainability Issue	Topic	STAGE: Construction or Operation	Environmental Design Aim considered (incl. Topic and Ref no.) Comment	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING
Greenhouse gas emissions and climate change	Climate adaptability	Const	CC-7	N/A – Not assessed		N/A – Not assessed				N/A – Not assessed	
		Op	HL-7	N/A – Not assessed		N/A – Not assessed				N/A – Not assessed	
	Greenhouse gas emissions	Const		N/A – Not assessed		N/A – Not assessed				N/A – Not assessed	
		Op		N/A – Not assessed		N/A – Not assessed				N/A – Not assessed	
	Energy use	Const		N/A – Not assessed		N/A – Not assessed				N/A – Not assessed	
		Op		N/A – Not assessed		N/A – Not assessed				N/A – Not assessed	
Natural and cultural resource protection and environmental enhancement	Landscape/ townscape	Const	HL-10 LV-1 LV-2 LV-3 LV-6	<p>The route through this section includes deep cutting and green tunnel. The entire length of this section in AONB and in Green Belt.</p> <p>4 no. ancient woodland intersected (Mantles Wood x 2, Farthings Wood, Sibley's Coppice) by deep cutting/green tunnel and northern portal.</p> <p>In addition a number of field hedgerows will result in the disruption of field patterns altering key characteristics of the landscape setting.</p> <p>Potential visual impacts of construction on surrounding properties and notably the listed buildings and farmsteads on Hyde Lane, King's Lane, Hyde End, Frith Hill and South Heath as well as on listed landscape at Missenden Abbey to the west of the route and a number of listed buildings in the vicinity.</p> <p>Demolition of a number of properties is required.</p> <p>Five construction compound locations (both civils and systems works) required between the Chiltern tunnel north portal and Liberty Lane.</p>	o	<p>This is a bored tunnel option to chainage 47+400 adjacent to Jenkin's Wood. The entire length of this section is in AONB and in Green Belt which would be avoided through the tunnelling option.</p> <p>No impact on 4 no. ancient woodlands listed in reference case or on a number of important hedgerows.</p> <p>Reduced visual impact between chainage 44+470 and 47+400 due to bored tunnel although potential visual impacts from the vent shaft and portal structures.</p> <p>No requirement for property demolition in this section.</p> <p>Reduced number of construction sites required, however there will be the need for a site at the Chesham Road vent shaft and at the portal around Frith Hill.</p> <p>However due to increased track separation within the tunnel, the cutting would be wider at the exit of the northern portal and would require increased landtake from surrounding fields. Loss of parts of Jenkin's Wood, an ancient woodland, is also possible.</p>	+++	<p>This is a bored tunnel option to chainage 48+800. The entire length of this section is in AONB and in Green Belt which would be avoided through the tunnelling option.</p> <p>No Impact on 4No ancient woodlands listed in reference case or on a number of important hedgerows.</p> <p>Reduced visual impact between chainage 44+470 and 48+800 due to bored tunnel although potential visual impacts from the vent shaft and portal structures.</p> <p>No requirement for property demolition in this section or utility pylon diversion.</p> <p>Reduced number of construction sites required, however there will be the need for a site at the Chesham Road vent shaft and at the portal around Leather Lane.</p> <p>However due to increased track separation within the tunnel, the cutting would be wider at the exit of the northern portal and would require increased landtake from surrounding fields.</p>	+++		
		Op		The route through this section includes deep cutting and green tunnel.	o	Reduced visual impact between chainage 44+470 and 47+400 due to	+++	Reduced visual impact between chainage 44+470 and 48+800 due to	+++		

Location:				Chiltern Tunnel/ South Heath							
Option name and description:				Chiltern Tunnel Extension in South Heath							
OPTIONS CONSIDERED:				Option A(baseline)		Option B		Option C		Option D	
OPTION DESCRIPTION				The Proposed Scheme, the January 2012 announced route (with the tunnel portal at Mantle's Wood)		The extended twin-bore tunnel to the northern end of the green tunnel at South Heath		The extended twin-bore tunnel to the north-west of Wendover. This option is assessed separately in CRAG report.		The extended twin-bore tunnel to the north side of Leather Lane	
Key Sustainability Issue	Topic	STAGE: Construction or Operation	Environmental Design Aim considered (incl. Topic and Ref no.) Comment	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING	QUALITATIVE IMPACT DESCRIPTION and/or QUANTITATIVE ASSESSMENT	RATING
				Mitigation planting has been proposed to lessen the impacts from the loss of woodland area although this does result in further landtake from agricultural fields within the AONB. Visual impacts of operation on surrounding properties, to the AONB itself and notably the listed buildings and farmsteads on Hyde Lane, King's Lane, Hyde End, Frith Hill and South Heath as well as on the listed landscape at Missenden Abbey to the west of the route. Visual impacts will also occur from the cross elements including the Chesham Lane realignment to a roundabout option and other associated infrastructure such as access tracks and portal buildings.		bored tunnel with the exception of surface infrastructure such as a vent shaft in the Chesham road area and portal structures which would be mitigated through appropriate planting or earthworks formations.				bored tunnel with the exception of surface infrastructure such as a vent shaft in the Chesham road area and portal structures which would be mitigated through appropriate planting or earthworks formations.	
	Cultural heritage	Const	HL-12 CH-1 CH-4 CH-5 CH-7 CH-8	Listed buildings in the vicinity include Grade II listed Hyde Farm and outbuildings, Sheepcotts Cottage, Granary at Cudsden Farm, 86 King's Lane and Bury Farm as well as the Missenden Abbey conservation area which may experience impacts to their setting during construction. This alignment will also require the demolition of three 19th century non-designated buildings comprising Annie Bailey's public house, Chiltern Cottage and the Weights and Measures Gym. Removal of sections of historically important hedgerow within this section. There is also the potential for disturbance of archaeological remains during construction.	o	Impact on the setting of a number of Grade II listed buildings and the Missenden Abbey conservation area removed, however the construction compound at Chesham Road may impact the setting of listed buildings in the vicinity. No requirement for the demolitions of non-designated 19th century properties and the removal of historically important hedgerows reduced. Potential for disturbance of archaeological remains still exists under this option.	+			Impact on the setting of a number of Grade II listed buildings and the Missenden Abbey conservation area removed, however the construction compound at Chesham Road may impact the setting of listed buildings in the vicinity. No requirement for the demolition of non-designated 19th century properties and the removal of historically important hedgerows reduced. Potential for disturbance of archaeological remains still exists under this option.	+
		Op		As above, impacts to the setting of the listed structures; notably Hyde Farm and	o	No impact on setting of Grade II listed buildings however the potential for	+			No impact on setting of Grade II listed buildings however the potential for	+