

Agricultural Impacts

Impact on Wendover Agriculture

- 17 farms directly affected in CF10; 16 in CF9
- Huge land take – during construction & permanent
- Viability of working farms at risk
 - size changes vs profit margins
 - fractured fields/stranded land & transport costs
- Implications of loss to local community
- Diversified business loss including 'Farm Stay' tourism
- Impact on countryside stewarded over centuries
- Financial loss to local & national economy
- Loss of jobs: Rural unemployment

Agricultural Impact Wendover CFA 10

Farm	Total Size ha	Activity	Construction loss in ha	% Loss	Permanent Loss in ha	% Loss
Hunts Green Farm	100	Arable ,beef, sheep	47.8	47.80%	14.3	14.30%
Strawberry Hill Farm	220	Arable ,beef, sheep	43	19.55	23.5	10.68
Durham Farm	63	Arable and beef	15.9	25.24	6.5	10.32
Upper Wendover Dean Farm	50	Arable ,beef, sheep	23.1	46.20	6.2	12.40
Hartley Farm	6.5	let	5.7	87.69	3.7	56.92
Road Barn Farm	28	grassland	10.3	36.79	4.3	15.36
Boswells farm	95	Arable ,sheep	11.3	11.89	2	2.11
Bank Farm	202	Arable,sheep	31.7	15.69	8.3	4.11
Grove Farm	89	Grassland dairy	7.9	8.88	4	4.49
Small Dean farm	66	Grassland (let)	6	9.09	1.1	1.67
Wellwick Farm	81	Arable,equine	25.6	31.60	11.6	14.32
Orchard Farm	21.9	Orchard,grazing	0.9	4.11	0.7	3.20
Nash Lee Farm	89	Arable ,beef, sheep	5.5	6.18	4.7	5.28
Unnamed paddock	5	grazing	3.3	66.00	1.8	36.00
Stocken farm	48	arable	3.7	7.71	0.1	0.21
Hunters Leaze	16	grazing	12.7	79.38	11.4	71.25
Chilton Million	2.7	grazing	2.7	100.00	1.7	62.96
Total	1183.1		257.1	21.73%	105.9	8.95%

A1212 (3)



Road Barn Farm - demolished



Durham farm has a viaduct go over it



Edward Mogford's (Banks Farm) field which will be used during construction

Some of the farms affected by HS2

Hunts Green Farm
– loses 48% of land during construction

Grove Farm

Strawberry Hill Farm
– loses 20% during construction



Summary & Key Messages

- HS2 has a huge impact on the local agricultural economy, including farms without land-take
- Many farms put at risk due to large land take during construction
- Compensating farmers does not solve issues relating to tax and scarcity of replacement land/building constraints of being within an AONB
- The consequences of the agricultural economy reductions on the local communities not considered
- A bored tunnel through the Chilterns would save not only the AONB but also the agricultural economy – benefit £14.5M

Period	CFA 9	CFA 10	Total
Construction			
Loss Income p.a.	£157,054	£269,150	£426,204
Period	5	5	5
Total Construction Loss	£785,270	£1,345,750	£2,131,020
Permanent			
Loss Income p.a.	£95,498	£112,155	£207,653
Period	60	60	60
Total Permanent Loss	£5,729,880	£6,729,300	£12,459,180
Total Impact	£6,515,150	£8,075,050	£14,590,200
Less work camp		£(49,869)	£(49,869)
Net Benefit of Bored Tunnel	£6,515,150	£8,025,181	£14,540,331

Wendover HS2 – The Need for a Bored Tunnel

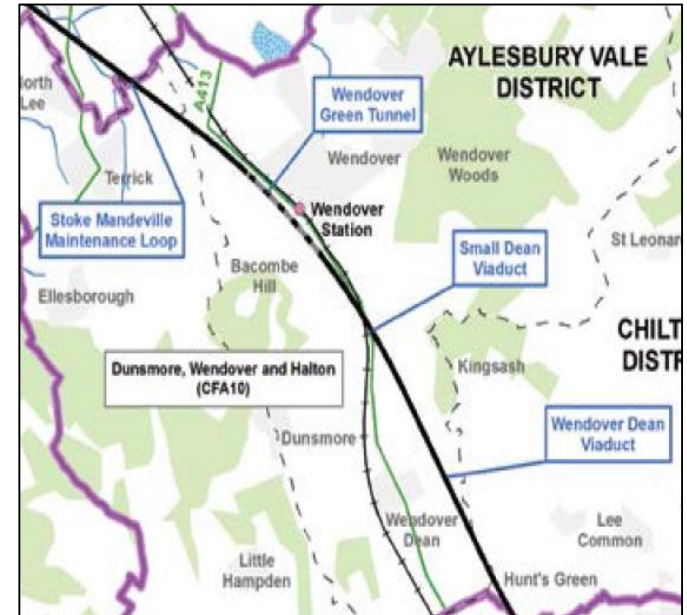
Presentation in respect of Noise on
behalf of Wendover Parish Council

Steve Summers MSc MIOA CEng

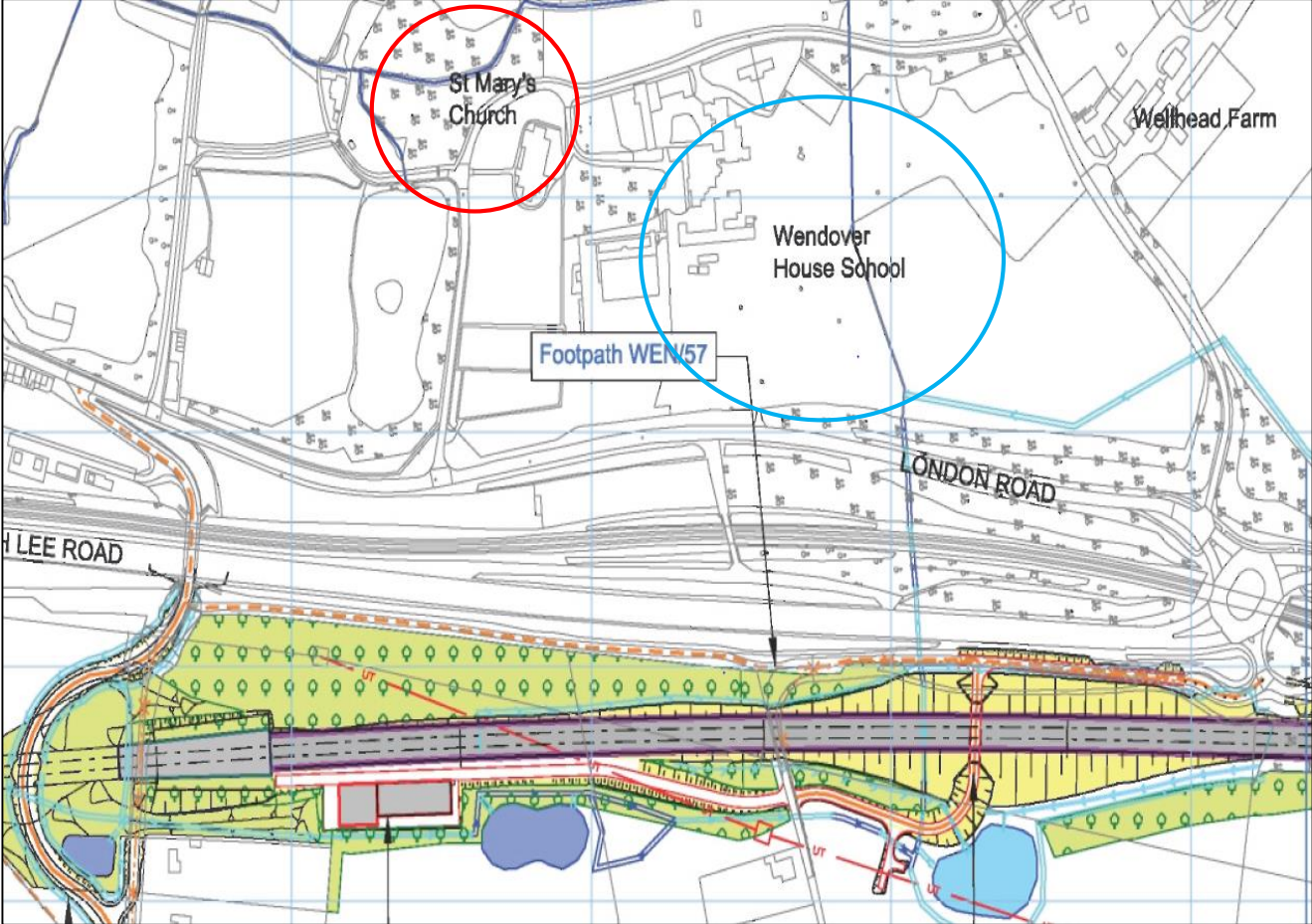
ACCON UK Ltd

Noise Impacts in Wendover from HS2 - Introduction

- Green tunnel would reduce noise for Wendover
- However, noise impacts would still be significant at:
 - Bacombe Lane
 - Nash Lee Lane
 - St Mary's Church
 - Wendover Campus
- Also:
- In Wendover a large number of residents would be subject to potential sleep disturbance at night from maximum noise levels from HS2 trains – Further mitigation should be provided



St Mary's Church & Wendover Campus School - Location



St Mary's Church – Noise from HS2

- Approximately 275m from HS2
- Used regularly for concerts
- High maximum operational noise levels L_{pAFmax} 70dB
- Internal $L_{pAFmax} > 40$ dB
- Expected to cause disturbance to concerts
- As well as services, weddings etc
- Maximum levels will also affect church yard
- Significant construction noise impacts
- L_{pAeq} 60 dB during construction of green tunnel
- Both operational and construction noise impacts would be removed by fully bored tunnel



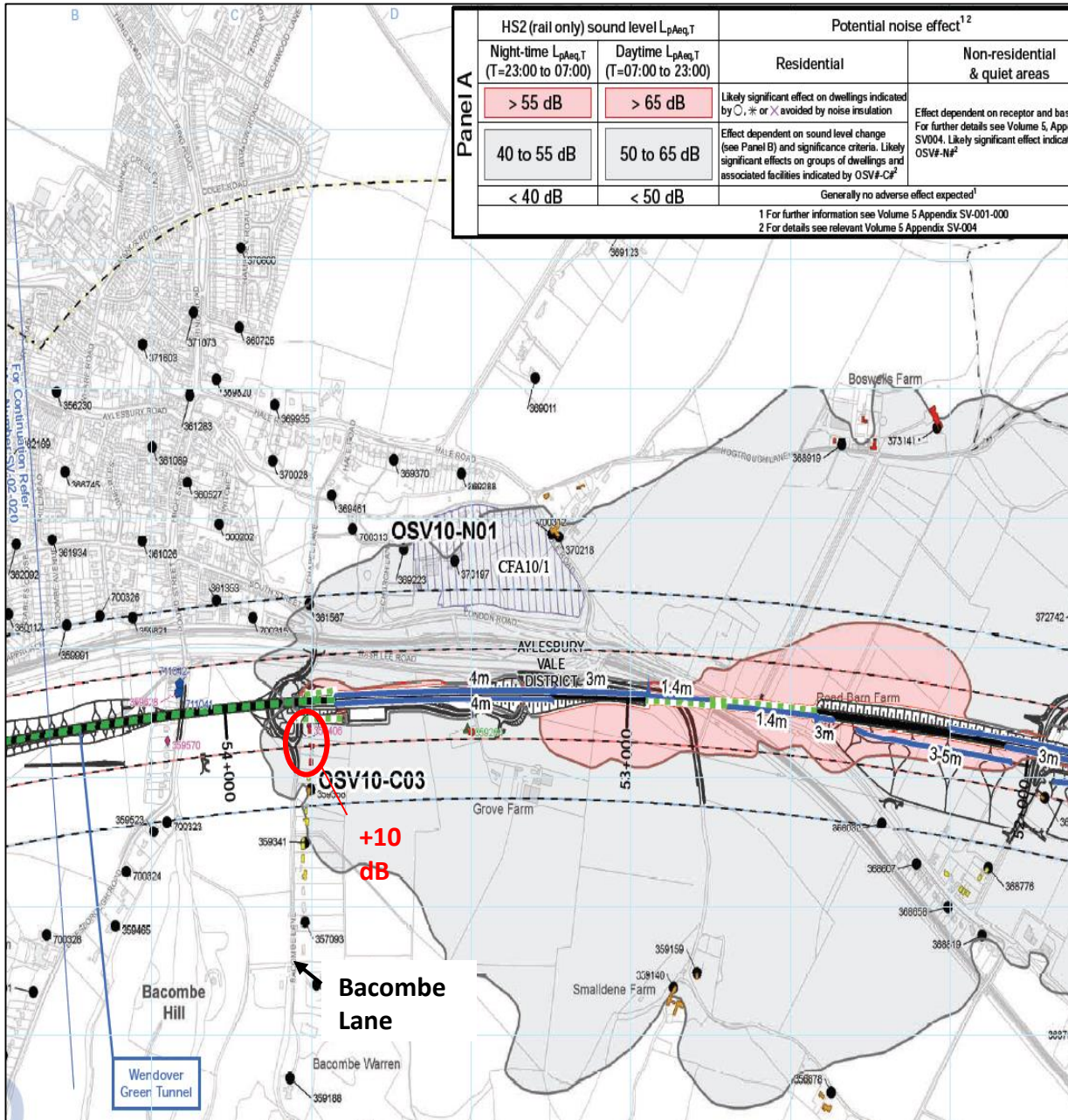
Wendover Campus – Noise from HS2

- Specialist school for students with social, emotional, communication or interaction difficulties.
- High maximum noise levels L_{pAFmax} 71dB
- L_{pAFmax} 56 to 61dB inside with open windows
- Disturbance to teaching and learning
- Disturbance to outside play – particularly important for the school
- Significant construction noise impacts
- L_{pAeq} 60 dB during construction of green tunnel
- Both operational and construction noise impacts would be removed by fully bored tunnel



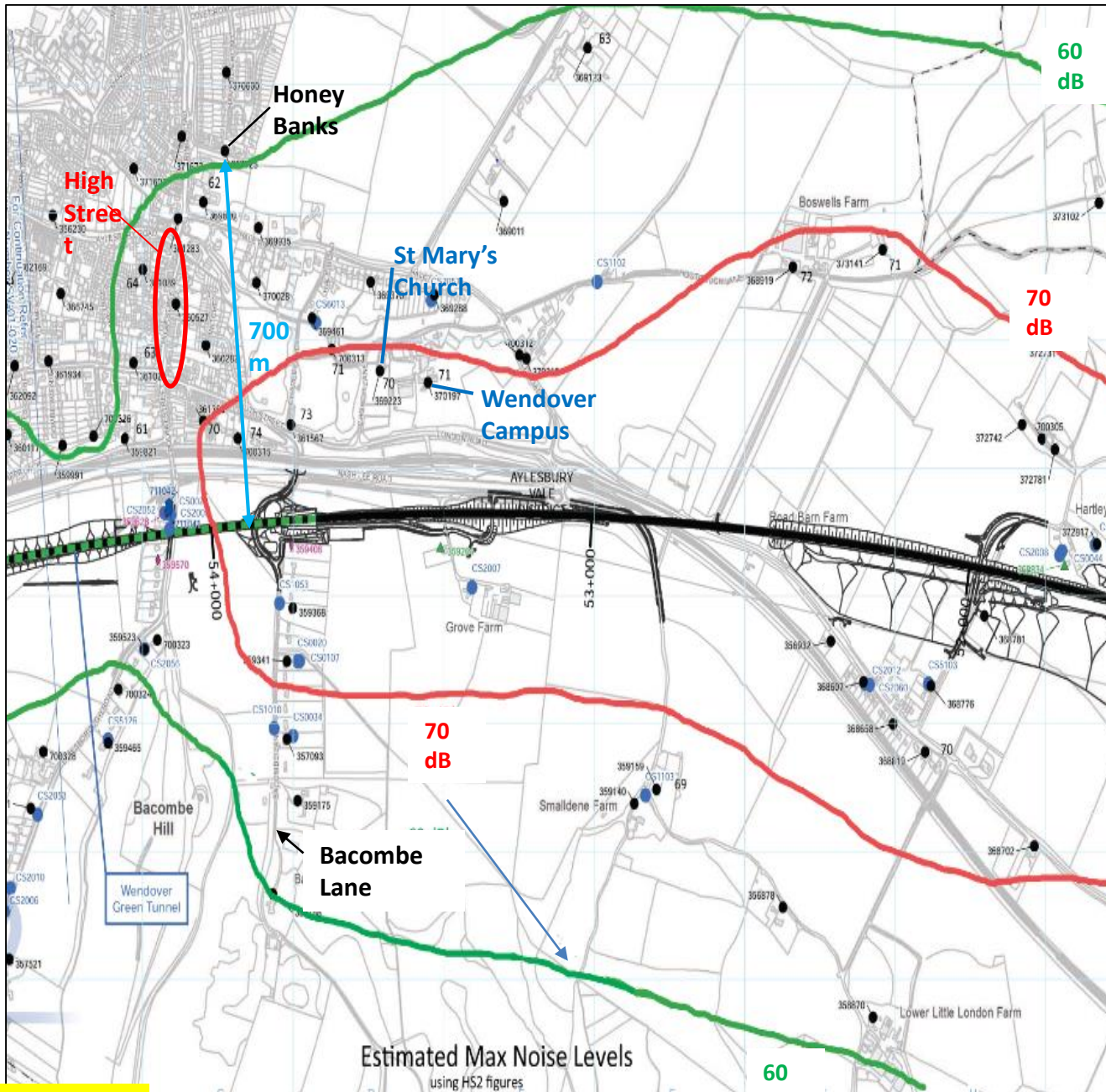
Operational Noise Wendover South

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 ✕ avoided by noise insulation	Effect dependent on receptor and baseline For further details see Volume 5, Appendix SV004. Likely significant effect indicated OSV#-N# ²
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# ²		
< 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				



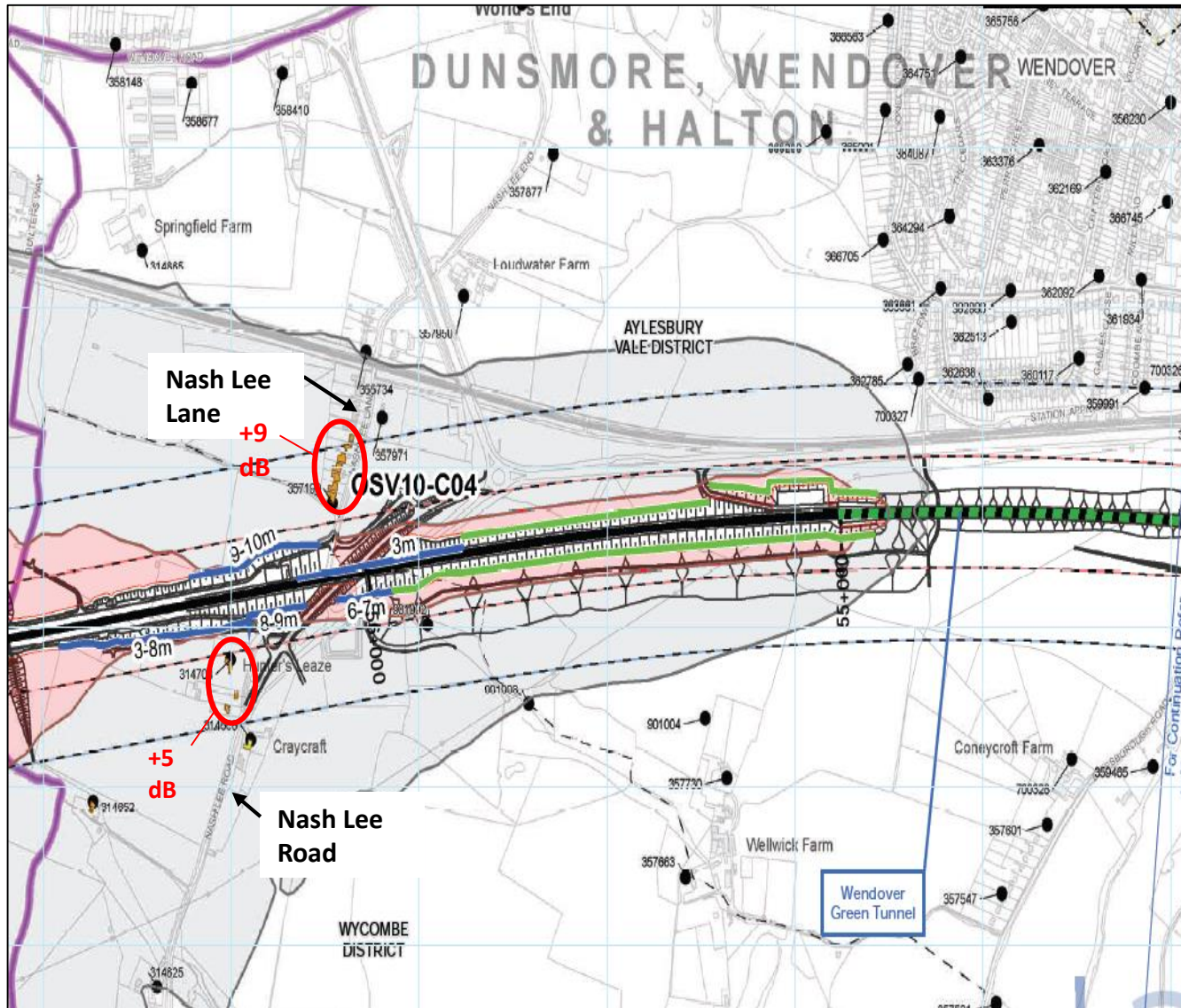
- Major impacts at Bacombe Lane
- Closest house L_{pAeq} 62 dB & 10 dB increase (rec 359406)
- Most parts of the town of Wendover would be below:
 - Daytime LOAEL of 50 dB L_{pAeq}
 - Night-time LOAEL of 40dB L_{pAeq}

Maximum Noise Wendover South



- LpAFMax Contours
- Up to 36 trains/hr
- 0500hrs to 0000hrs
- Large part of Wendover LpAFmax > 60 dB
- 60 dB LpAFmax = LOAEL. Based on WHO Sleep Disturbance criterion
- IP E20 commitments
- Fully bored tunnel would remove these noise impacts

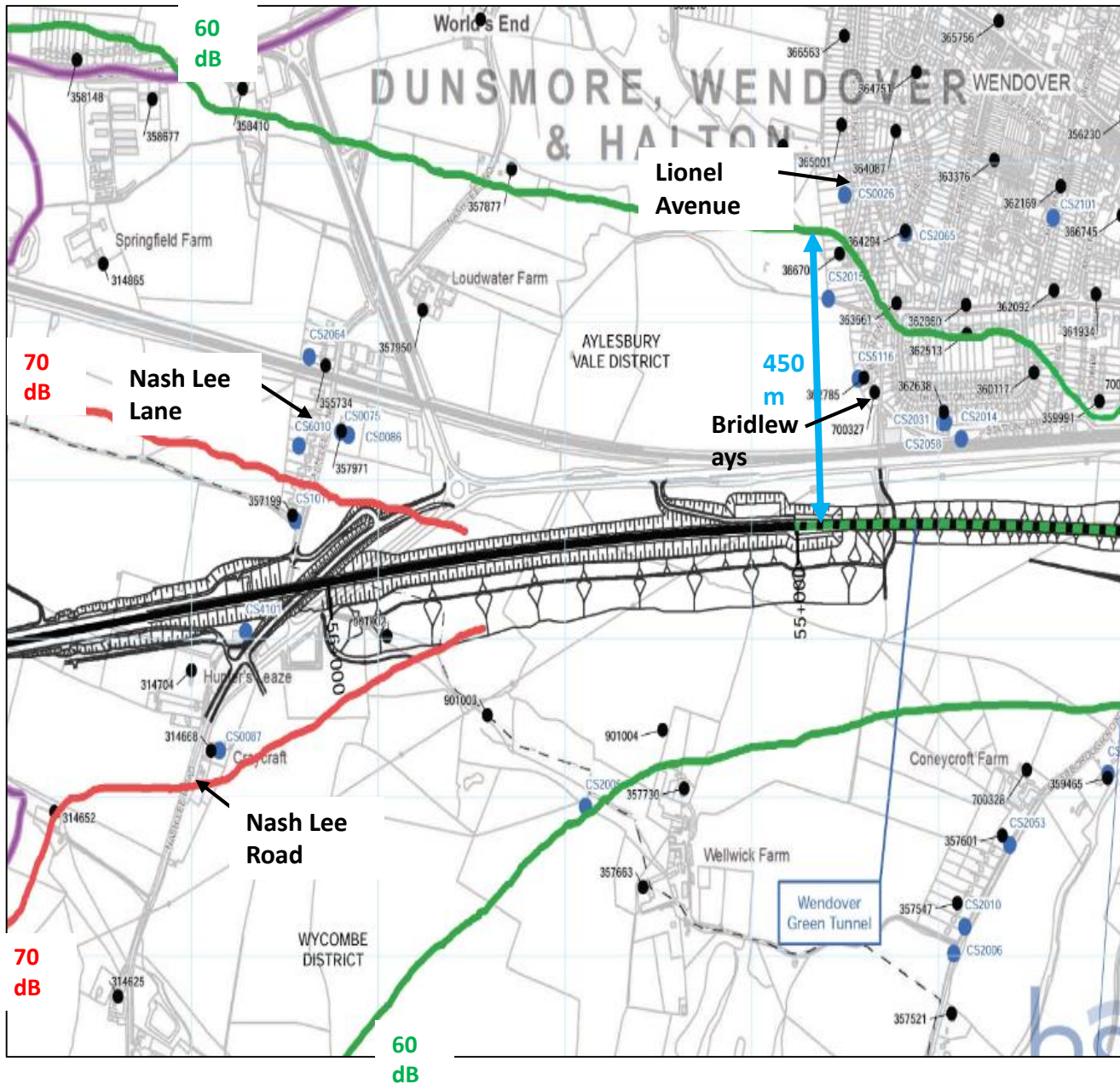
Operational Noise Wendover North



- Nash Lee Lane 9 dB increases to 61 dB LpAeq at closest house
- Nash Lee Road 5 dB increases to 62 dB LpAeq at closest house
- Northern part of town of Wendover would be below:
- Daytime LOAEL of 50 dB LpAeq
- Night-time LOAEL of 40 dB LpAeq

Maximum Noise Wendover North

- LpFMax Contours
- Part of Wendover would be subject to LpAFmax > 60 dB
- 60 dB LpAFmax = LOAEL. Based on WHO Sleep Disturbance criterion
- IP E20 commitments
- Fully bored tunnel would remove these noise impacts



Summary

A fully bored tunnel would effectively prevent any HS2 airborne noise from affecting Wendover. In addition this would address the key effects that I have identified. The fully bored tunnel would:

- Eliminate operational and construction noise impacts at St Mary's Church & Wendover Campus School
- Eliminate operational and construction noise impacts at Bacombe Lane and the Nash Lee Lane area
- Prevent sleep disturbance from HS2 trains affecting residents of Wendover subject to maximum night-time noise levels greater than the LOAEL
- An estimated 950 properties would benefit along the route from Wendover Dean to Nash Lee
- This will meet HS2's commitment in Information Paper E20 to 'take all reasonable steps to design, construct, operate and maintain the operational railway so that airborne noise does not exceed the lowest observed adverse effect levels'

St Mary's Church Wendover

Further investigations were carried out and established the following:

- More detailed information on the existing baseline noise levels affecting the church showed these were broadly in line with those established in the ES.
- The sound insulation provided by the church's building envelope was found to provide only a modest degree of sound insulation against the intrusion of external noise.
- The noise from existing local activities is audible inside the church e.g. local road traffic and trains entering and leaving Wendover station.
- However, the peak noise levels from these existing activities are relatively low level and do not occur frequently.
- Whilst the noise from HS2 trains will fall within the existing range of peak noise levels experienced by the church, it will occur more frequently.

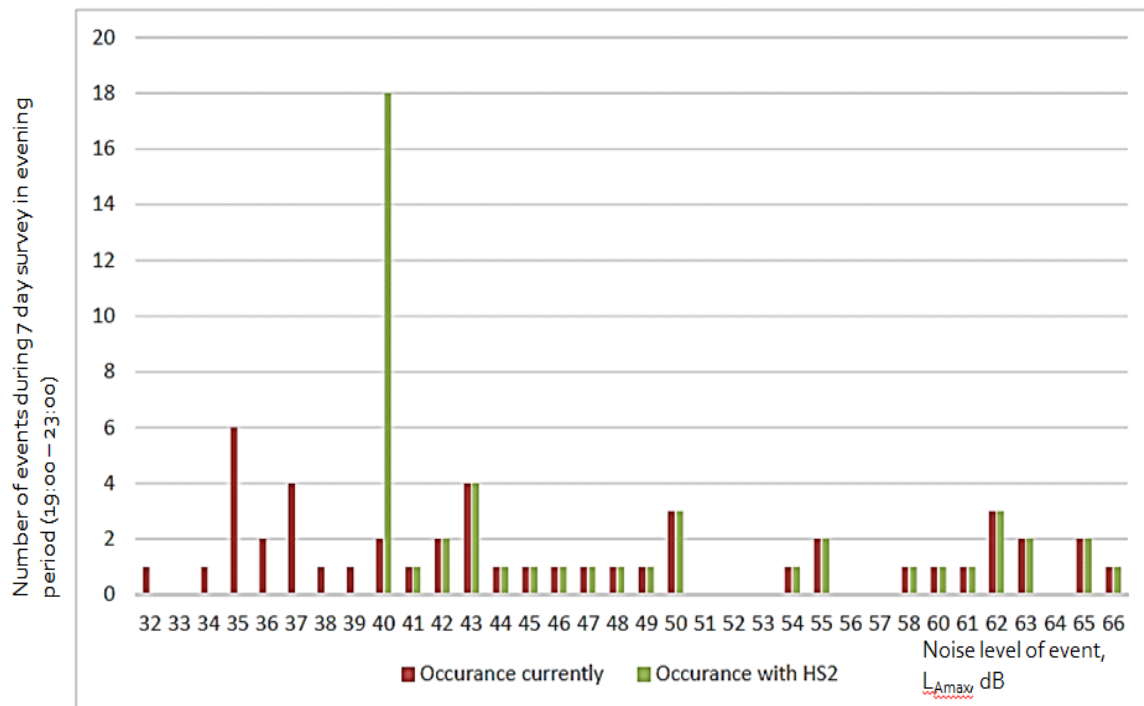


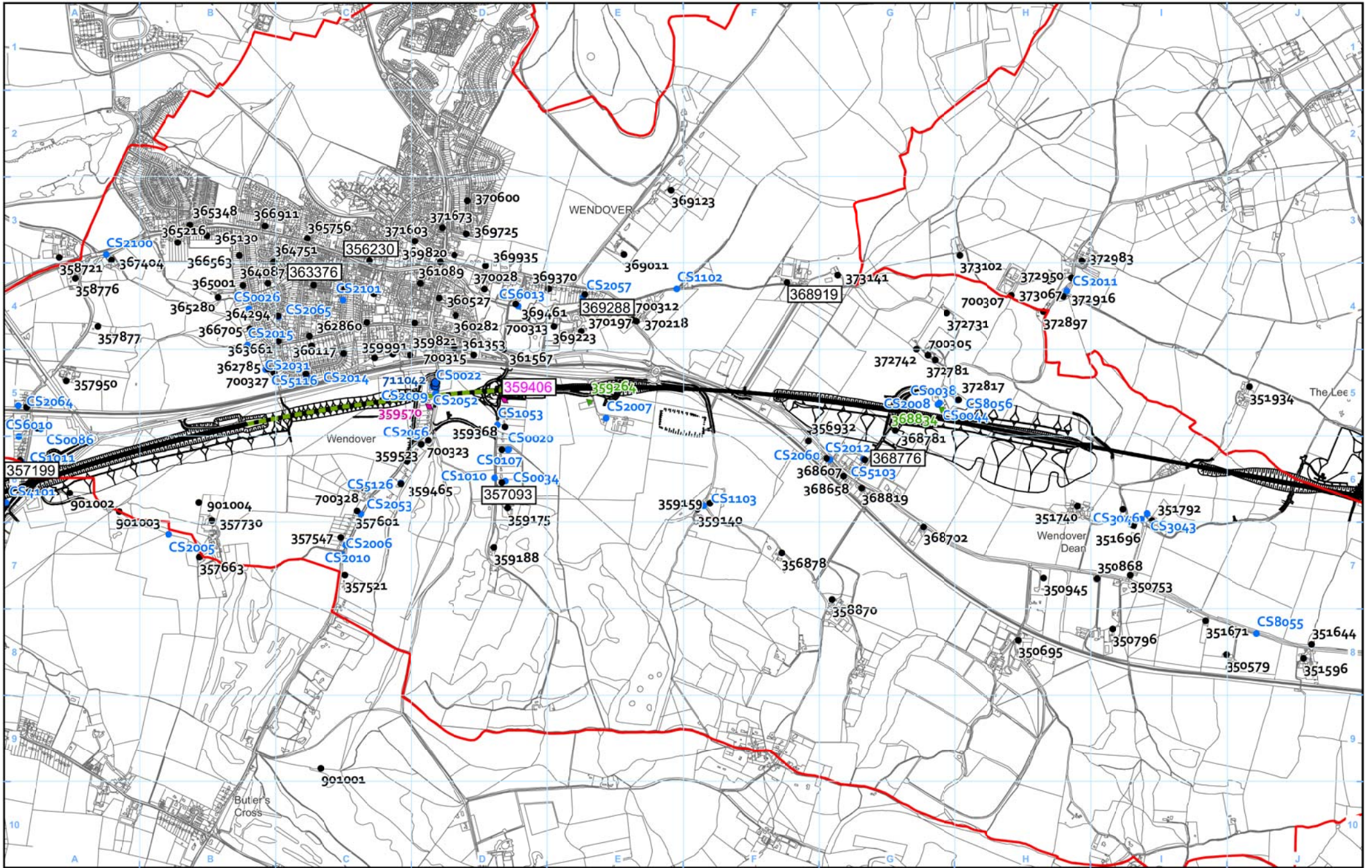
Table 1: Existing baseline sound levels

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}	
356230	Aylesbury Road, Wendover	CS2101	52.6	43.7	55.3	68.8	52.9	46.4	41.2	3,A,iii,b
363376	Nightingale Road, Wendover	CS2101	52.6	43.7	55.3	68.8	52.9	46.4	41.2	3,A,ii,b
369288	Hale Road, Wendover	CS2057	47.2	38.5	46.1	64.1	47.8	45.7	37.5	1,A,i,a
357093	Bacombe Lane, Wendover	CS0034	47.7	40.6	46.6	71.3	48.6	46.1	40.6	1,A,i,a
357199	Nash Lee Lane, Wendover	CS1011	50.2	44.7	57.7	71.3	50.8	50.5	45.0	3,A,i,a
368776	Rocky Lane, Wendover	CS5103	53.5	45.6	54.3	68.3	53.9	52.7	45.6	1,A,ii,b
357971	Nash Lee Lane, Wendover	CS0086	56.1	50.5	60.4	76.5	56.5	54.9	49.5	1,A,i,a
359341	Bacombe Lane, Wendover	CS0107	49.3	46.9	51.0	72.9	49.5	51.5	46.4	1,A,i,a
368919	London Road, Wendover	CS1102	45.1	34.6	47.1	65.1	46.2	39.5	34.5	3,A,ii,b
359406	Bacombe Lane, Wendover	CS0020	52.4	44.5	40.9	53.1	53.3	47.8	44.5	1,C,ii,b

359406	Bacombe Lane, Wendover	68/76 [A]	-	-	Day: Wendover Green Tunnel: phase 4 section A - reinstatement - finishes/embankment - filling (Including removal of props).	S	3	R	T	-	-	-	D16	NI	CSV1 o - Co1*
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Table 3: Operational airborne sound level, noise impacts and effects

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 **									
356230	Aylesbury Road, Wendover	35	26	55/58	53	44	55	53	44	0	0	NA	82	R	T	-	-	-	-	
363376	Nightingale Road, Wendover	37	27	53/56	53	44	55	53	44	0	0	NA	103	R	T	-	-	-	-	
363376	Chiltern Road, Wendover (British Legion Club)	37	27	53/56	53	44	55	53	44	0	0	B	1	G5	T	-	-	-	-	
369288	Hale Road, Wendover	48	39	61/65	47	39	46	51	42	3	3	NA	11	R	T	-	-	-	-	#
357093	Bacombe Lane, Wendover	47	38	65/68	48	41	47	51	43	3	2	NA	5	R	T	-	-	-	-	#
357199	Nash Lee Lane, Wendover	60	52	72/75	51	46	58	60	52	9	6	A	7	R	T	-	-	-	-	OSV10-Co4
368776	Rocky Lane, Wendover	53	45	67/70	54	46	54	56	48	3	2	A	6	R	T	-	-	-	-	OSV10-Co2
357971	Nash Lee Lane, Wendover	55	47	66/69	56	51	60	58	51	2	1	A	6	R	T	-	-	-	-	
359341	Bacombe Lane, Wendover	50	40	69/72	49	47	51	53	48	3	1	A	6	R	T	-	-	-	-	OSV10-Co3
368919	London Road, Wendover	55	46	69/72	45	35	47	56	46	11	12	A	3	R	T	-	-	-	-	~
359406	Bacombe Lane, Wendover	62	53	83/86	52	45	41	63	54	10	9	S	3	R	T	-	-	-	NI	OSV10-Co3 OSV10-D01



- Legend**
- Airborne sound assessment location
 - ▲ Airborne sound & vibration assessment location
 - Ground-borne sound and/or vibration assessment location
 - ◆ Airborne sound, ground-borne sound & vibration assessment location
 - Baseline measurement locations

- ▭ Parish boundary
 - Route on surface
 - Route in green tunnel
- | | |
|-------------------------|-----------------------------|
| Engineering earthworks: | Non engineering earthworks: |
| ▭ Embankment | ▭ Embankment |
| ▭ Cutting | ▭ Cutting |

Assessment and Monitoring Locations for Operational Sound, Noise and Vibration Assessments

Petitioner name
Wendover Parish Council

Petition number
HS2-HS2-HY-PET-001512

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