

# Residual impacts




- **AONB:** 4.1km that has its character forever spoilt, enjoyment of exterior spaces ruined
- **Ancient woodlands:** 3 suffer, 25% of all phase 1, and the footpaths to enjoy them (ruined or lost)
- **Portal:** in middle of a beautiful and tranquil spot
- **Property blight:** people left to take the hit. Compensation schemes inadequate eg for elderly who need to move on
- **Noise:** no guarantees; and the 'official' measures fail to capture what matters to residents.
- **Community impacts:** loss of amenity; facilities; homes
- **Construction disruption:** closures; traffic; dust, dirt etc


..... *still plenty of issues to mitigate*

# Noise

- **Not an academic discussion.** What matters is will noise affect our daily life?
- **Tranquility:** HS2 Ltd admit there will be noise exposure in Potter Row, but underestimate it for a tranquil area.
- **Tunnel boom:** no guarantees from HS2 Ltd. The property market is unconvinced.
- **Green Tunnel:** HS2 Ltd say South Heath gets protection. But ignores the reality and the evidence



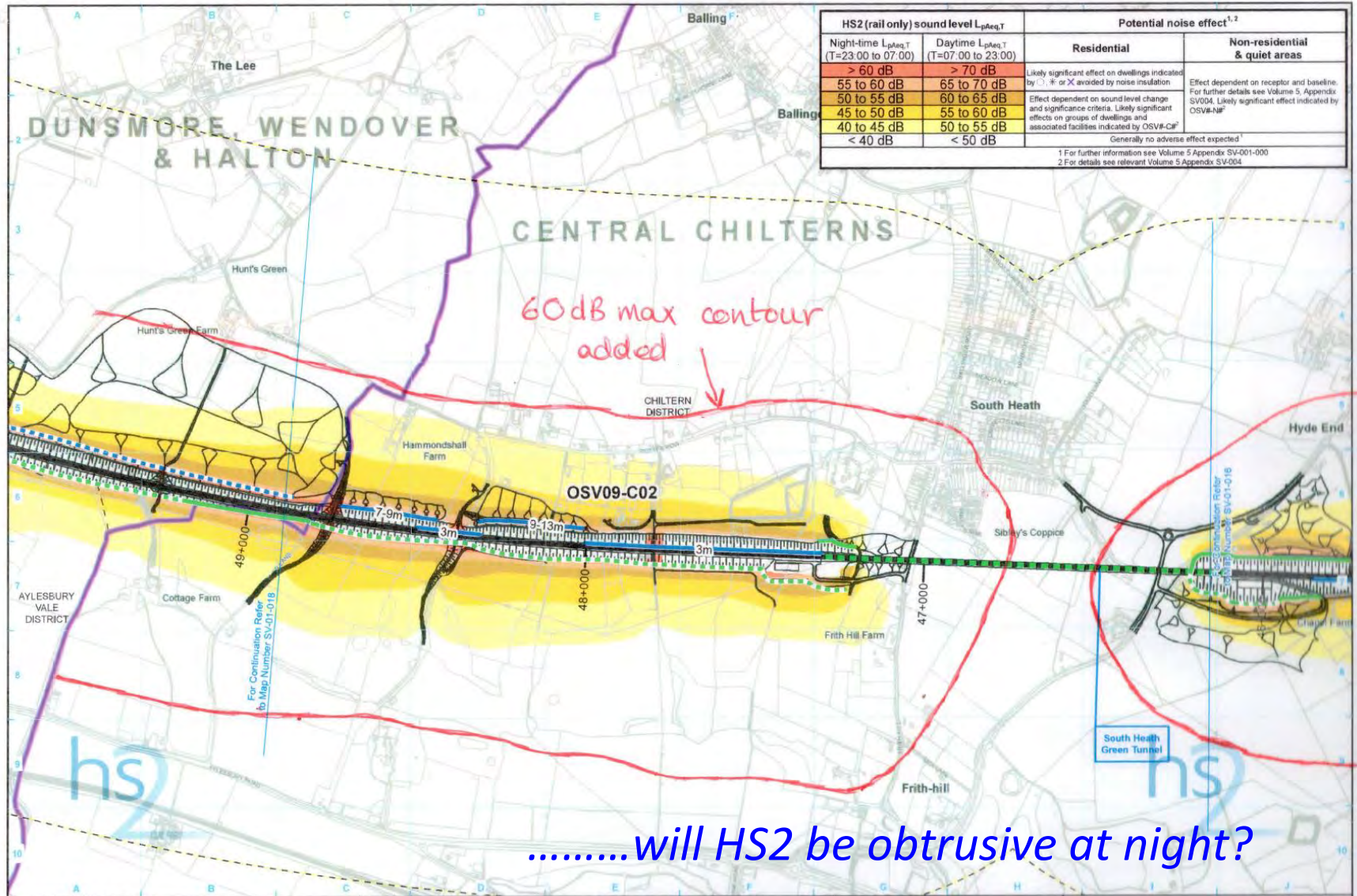
*Did that last long enough to count?*



*What, I can't hear you, I am deafened*

*.....residents don't trust what is claimed on noise*

# Green tunnel does not protect the community from noise



HS2 (rail only) sound level L <sub>pAeq,T</sub>		Potential noise effect <sup>1,2</sup>	
Night-time L <sub>pAeq,T</sub> (T=23.00 to 07.00)	Daytime L <sub>pAeq,T</sub> (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#-NF
55 to 60 dB	65 to 70 dB	Effect dependent on sound level change and significance criteria. Likely significant effects on groups of dwellings and associated facilities indicated by OSV#-C*	Generally no adverse effect expected <sup>1</sup>
50 to 55 dB	60 to 65 dB		
45 to 50 dB	55 to 60 dB		
40 to 45 dB	50 to 55 dB		
< 40 dB	< 50 dB		

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

.....will HS2 be obtrusive at night?

<b>Legend - General features</b> Routes in bored tunnel Route in green tunnel Routes on surface on headhouse or forum boundary District/borough boundary County boundary		<b>Legend - Sound related features</b> 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) Potential additional noise insulation (triggered by WHO Night Noise Guidelines Interim target) Potential noise insulation (triggered by Noise Insulation Regulations, 1996) * Landscaping with total screen height above rail level	
<b>Engineering earthworks:</b> Embankment Cutting		<b>Non engineering earthworks:</b> Embankment Cutting		Map Number: SV-01-017 Map Issue: Operational Sound Contour Maps and Likely Significant Effects Community Forum Area CFA09: Central Chilterns Scale at A3: 1:10,000 H2 is not responsible for any circumstances which arise from the reproduction of this map after alteration, amendment or adaptation in any way in which it is used in part or in full. © Crown Copyright and database rights 2014. Ordnance Survey is a trading name of Ordnance Survey Limited. Date: 29/11/13	



# How obtrusive will HS2 be at night?

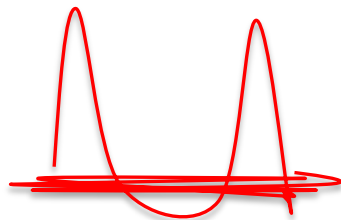


## HS2 dB max level compared with background noise levels

House Location	HS2 max >60dB	HS2 max <u>above</u> baseline night average	HS2 max <u>above</u> baseline night peak
Potter Row	37	>20dB for almost all homes	15 to 20dB higher for almost all
South Heath	97	>20dB for almost all homes	>20dB higher for over half
Hyde End	19	>30 dB for one third homes	>20dB higher for one third
<b>Total in Area</b>	<b>167</b>	<b>&gt;20dB for 80% of homes</b>	<b>&gt;15dB for two thirds of homes. 84% are above baseline peak.</b>

Only 25 out of 167 homes have an HS2 noise peak that lies within the average and peak background noise level. For most homes it will be several times louder

**Source: SV-004-009. 10dB = 2 x louder; 20dB = 4 x louder; 30dB = 8 x louder**

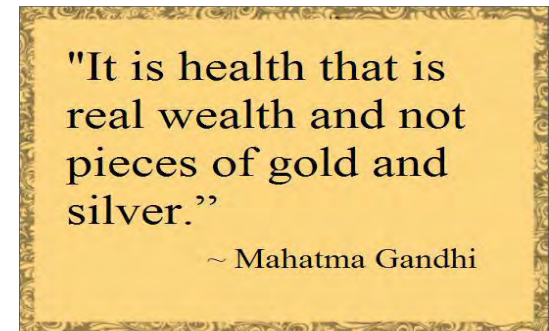
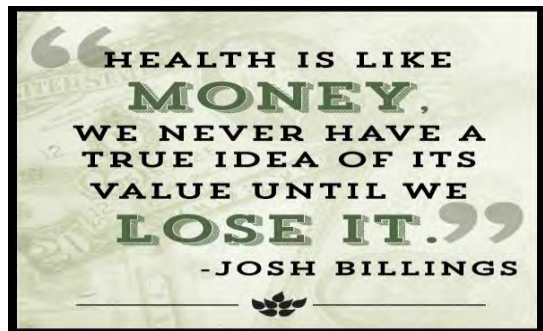


.....so HS2 will be detrimental

# Health & Wellbeing



- **HS2 Health Survey (CCB):** (South Heath and Wendover) 2013.
  - 90% (286 respondents) suffering effects, 17% sought medical help.
  - Concerns – blight; and construction and landscape impacts
- **HS2 Ltd:** not assessed anxiety & associated health effects.
- **Dr Barnes** (GP Great Missenden): talks of prevalence of stress
- **The REPA tunnel** would improve health and wellbeing



*.....HS2 is harming people, and it isn't even approved yet*

# REPA less safe?



- **HS2 Ltd's position:** minor worsening in operation (maintenance)
- **REPA's position:**
  - Risks to **residents, visitors & passengers** omitted in 'sift': safer under REPA in construction and operation (2 portals instead of 9 bridges/portals)
  - Risk of **train accident (derailment)** ignored: REPA has more slab track; less exposure to thermal range (buckles/breaks); or risk of intrusion

- Recent fatalities:- Crossrail** : 2 deaths from HGVs hitting cyclists in 2013.
- 146 suicides on **Network Rail** (excl. stations & level crossings)
  - **HS1**, 2 suicides in last 6 months via access at tunnel portals & bridges.



*.....separation is safer*

## What's wrong with using conservative estimates

- **Exaggerates programme impact**
  - Below expected progress rates exaggerate the programme impact of more bored tunnelling
- **Biases cost assessment**
  - Above expected tunnelling costs biases assessment against additional tunnelling
- **Squeezes out option**
  - Activities taking too long squeezes out additional tunnelling
- **Biases design choice**
  - Subsequent adoption ('in light of better knowledge') of realistic rates is too late for assessing alternatives

*.....so what is realistic?*

# The Schedule



Residents' Environmental Protection Association

	A	B	C	D	E	F	G
	HS2 Ltd 13.3km May-15	HS2 Ltd 13.3km with 1.75 year fit-out	HS2 Ltd 17.4km REPA	HS2 Ltd REPA (17.4km) Fit-out both ends	REPA (17.4km) 90m/week	REPA (17.4km) 120m/week	REPA (17.4km) Central Case
2017 Q1							
2017 Q2							
2017 Q3							
2017 Q4							
2018 Q1							
2018 Q2							
2018 Q3							
2018 Q4							
2019 Q1							
2019 Q2							
2019 Q3							
2019 Q4							
2020 Q1							
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2020 Q3							
2020 Q4							
2021 Q1							
2021 Q2							
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2024 Q1							
2024 Q2							
2024 Q3							
2024 Q4							
2025 Q1							
2025 Q2							
2025 Q3							
2025 Q4							
2026 Q1							
2026 Q2							
2026 Q3							
2026 Q4							

**KEY**

- TBM purchase & assembly
- Tunnel boring
- TBM removal
- TBM removal and tunnel clear-out?
- Tunnel clear-out? and base concrete
- Tunnel clear-out and base concrete
- Install slab track
- Install other railway systems

**Tunnel length**

- 13.3km Chiltern Tunnel (CT)
- 17.4km CT with REPA Extension

**Fit-out**

- 1.75 years CT DES
- 2.00 years REPA at CT DES rate
- Fit-out from one end only, except Case D
- Fit-out sequential for Cases A, C, and D, and in parallel for B, E, F and G

**Tunnel boring**

- REPA assume average rate for 13.3km and marginal rate for 4.1km extension.
- HS2 Ltd assume average rate throughout.