Residual impacts

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- **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

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Noise

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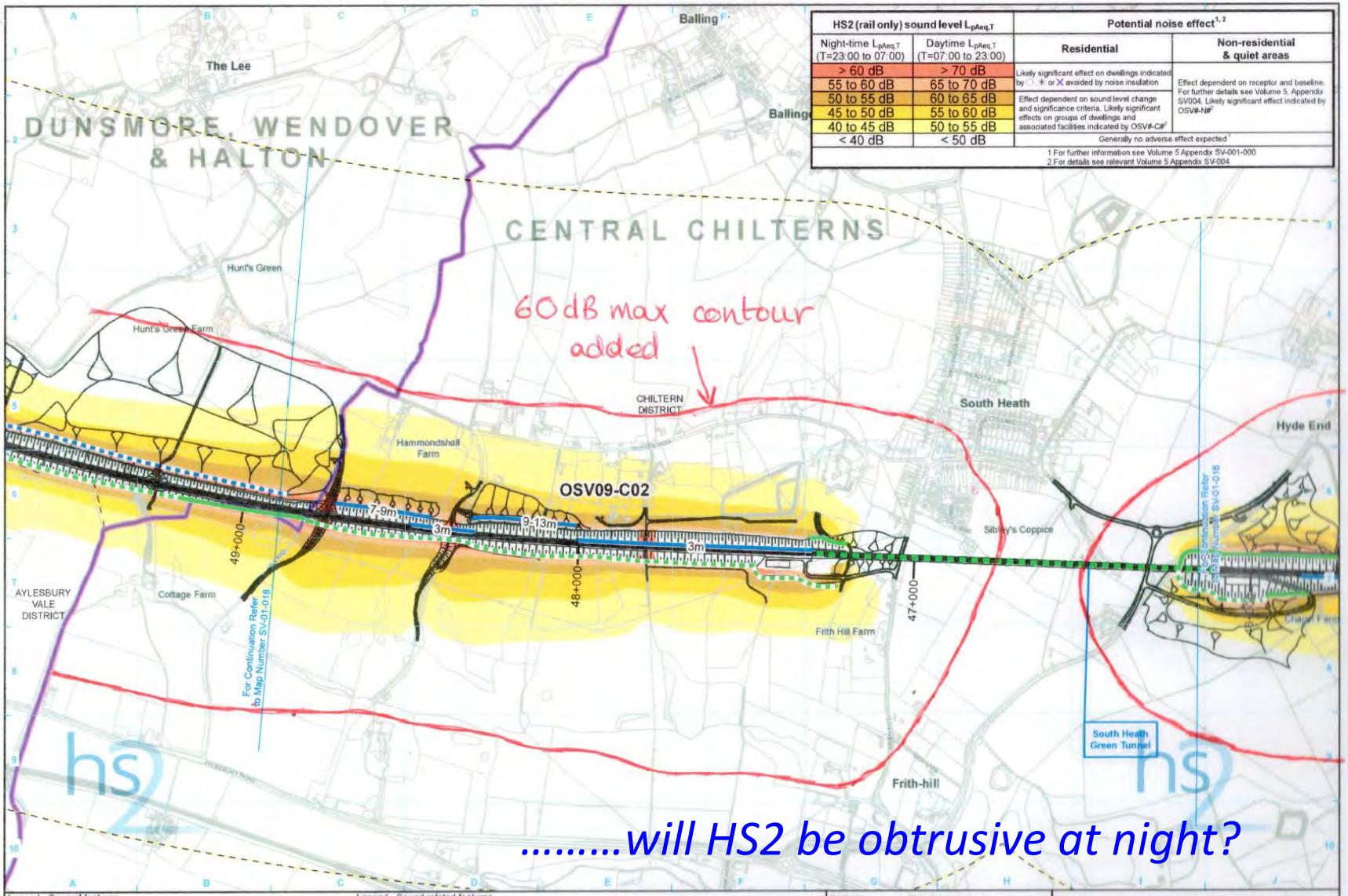
- **Not an academic discussion**. What matters is will noise affect our daily life?
- **Tranquility:** HS2 Ltd admit there will be noise exposure in Potter Row, but underestimate it for a tranquil area.
- **Tunnel boom:** no guarantees from HS2 Ltd. The property market is unconvinced.
- **Green Tunnel**: 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 $L_{pAeq,T}$		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 ✕ 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#-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

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

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HOC/01809/0028

How obtrusive will HS2 be at night?

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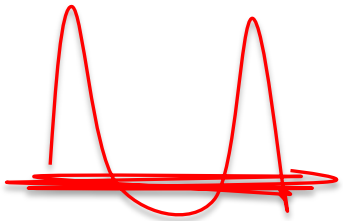
HS2 dB max level compared with background noise levels

House Location	HS2 max >60dB	HS2 max above baseline night average	HS2 max above 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
Total in Area	**167**	**>20dB for 80% of homes**	**>15dB for two thirds of homes. 84% are above baseline peak.**
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

STOP NOISE



.....so HS2 will be detrimental

Health & Wellbeing

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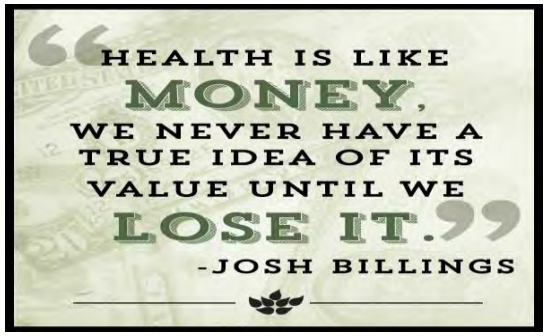
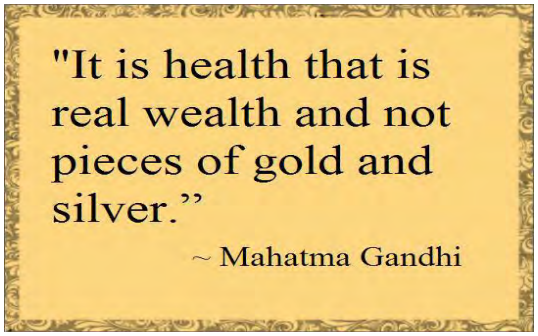
- **HS2 Health Survey (CCB):** (South Heath and Wendover) 2013.
  - 90% (286 respondents) suffering effects, 17% sought medical help.
  - Concerns – blight; and construction and landscape impacts
- **HS2 Ltd**: not assessed anxiety & associated health effects.
- **Dr Barnes** (GP Great Missenden): talks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





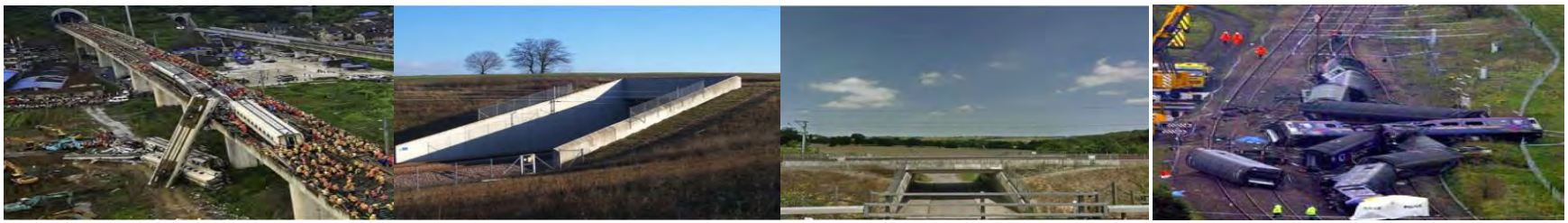
……HS2 is harming people, and it isn't even approved yet

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

The Programme

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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?

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The Schedule

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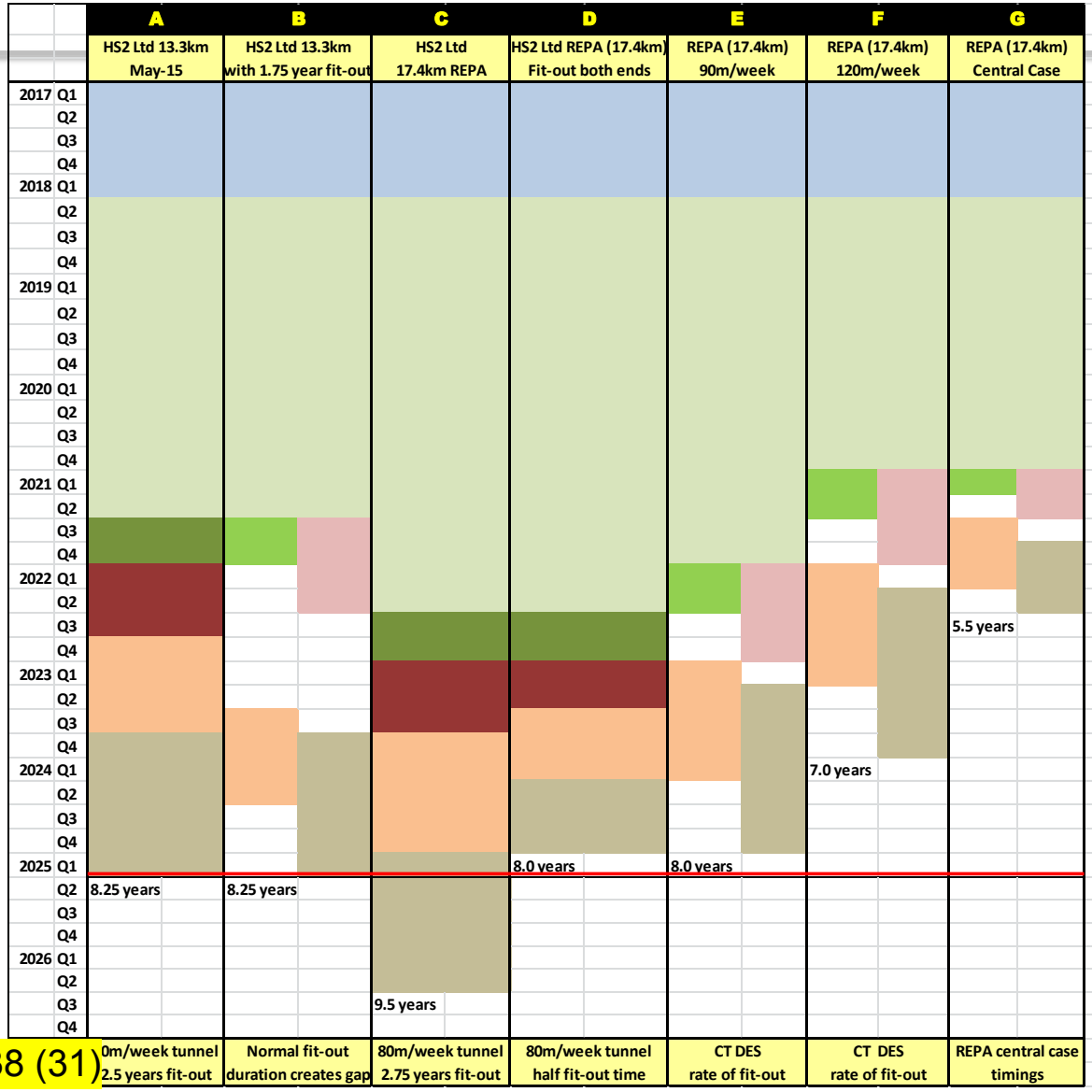

KEY

- 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.