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Dear Nick

A417 Missing Link: Comments on Land Bridge options

The following comments are based on the information presented to date. In our letter of 15th August we requested further information, but think it is perhaps most constructive to offer the following at this stage given Highways England's (HE) request for comments. That said, we have found it difficult to comment fully without having at least some idea of long sections, the form the structures would take and how they would relate to the proposal for the A436 crossing the A417.

Our comments draw on a series of field visits we have made to highways and rail tunnels and land bridges together with other research. This includes the cases referred to in Natural England Commissioned Report NECR181, *Green Bridges* (2015) and in The Landscape Institute's Technical Guidance Note 09/2015 *Green Bridges* (2015) and examples given in the HE presentation to the technical working group.

We note that none of the cases referred to, nor any of the HS1 examples we have looked at, relate to addressing the key issue of the landscape impact of deep cuttings through escarpments or ridges.

Neither the Natural England nor Landscape Institute reports give figures for or discusses depths of cuttings or height above road level. The Landscape Institute guidance note explicitly states "The review did not include cut and cover tunnels. It is acknowledged that much of the literature has concentrated on the role of green bridges as wildlife crossings, and to date there is relatively little information on the effectiveness for landscape and visual mitigation."

Several fundamental issues that characterise the A417, its setting and location challenge the efficacy of land bridges:

- a. Land bridges (particularly when limited to the 50m width advanced by HE at the recent technical working group) are not effective at screening noise, especially where there are likely to be exposed rock faces and wind; yet tranquillity is a highly valued aspect of the local environment which is heavily used for quiet recreation as well as by wildlife.
- b. Land bridges can be very effective at linking routes through well-screened landscapes, such as the Scotney access drive, provided they have adequate provision for banking and vegetation and that this is in keeping with the landscape; by contrast, the A417 route is cutting through an exposed escarpment landscape valued for its elevated, wide panoramic views and calcareous grassland.

Conserving, enhancing, understanding and enjoying the Cotswolds Area of Outstanding Natural Beauty

- c. We fully appreciate the value of land bridges in the right circumstances and believe they probably work best over relatively shallow cuttings and where approach embankments don't need to be too big and overall height above the road is not much more than c.10m.
- d. Land bridges pose significant design challenges when crossing deep cuttings. Scotney appears to be less than 10m deep; the Lady James bridge at Hindhead is little more than an ordinary bridleway bridge but illustrates the problem of needing artificially steepened and partly heightened abutments over an asymmetrical cutting 18m deep.
- e. As we understand it, the deepest part of the proposed A417 cutting is more like 22m, comparable to the deepest part of the M3 Twyford Down, but deeper to width proportionately, since it would be a dual carriageway and therefore narrower than a motorway.
- f. Land bridges are not effective in mitigating large scale topographical landscape impacts where there are views over, down and up through the cutting they bridge. There are also serious design challenges in terms of how they are seen from the road. The Scotney example is a stark structure when viewed from below.

Highways England (HE) have identified six potential land bridge locations, prioritised three locations i.e C, D and E and have signalled a land bridge of 50m width. We do not believe that the jointly agreed Vison, design principles and objectives will be adequately met by any of the land bridge locations identified and prioritised by HE to date. The appended assessment aims to review each location along Option 30 against the design principles for the scheme. They each have different merits and downsides, but none meet the strategic scheme vision and objectives in a substantive way.

The inadequacy of land bridges as a solution to key landscape impacts becomes especially apparent when compared with possible variants of option 30 incorporating tunnel options. Such variants are entirely justifiable when compared to tunnels that have been or are proposed to be incorporated into dual carriageway roads with similar or less traffic throughputs, both within and outside protected landscapes, (see appended list).

In the recent technical working group meeting (18 July) HE indicated that a 50m land bridge may not be able to provide for landscape, biodiversity and access. HEs statement in mid July indicated that access (on foot, cycle or horse) could be directed to use the proposed road bridge for the A436 crossing the A417. But this fails to address key aspects of the scheme Vision, design principles etc?

HE are fully aware of the current challenges for Cotswold Way National Trail users crossing the A417 at the Air Balloon. They are also aware of the range of benefits that a wide, tranquil landscape crossing could provide for those users. National Trails were created to enable people to explore Britain's finest landscapes.

A genuinely landscape led solution must be sought, one that takes full account of access and the quality of experience for walkers, cyclists and riders using the National Trail and other access opportunities in the vicinity of the Missing Link.

Yours sincerely

Martin Lang
Director

A417: Assessment of Land Bridge Options along Option 30	ge Options alor	ng Option 30					
1. Delivering Substantial Benefits	Location A	Location B	Location C	Location D	Location E	Location F	Location G
Improve connectivity and access	Minimal benefit	Limited benefit:	Good location	Good location	No benefit at	Limited benefit	Limited benefit:
Cotswold Way	-	significant drop;	for Cotswold &	for Cotswold &	Crickley; some	local rights of	local rights of
Gloucs Way		cutting to E	Glos Ways at	lys at	fit for Glos	way:	way
 other rights of way 		looming over	Crickley	Crickley	Way		
Reduce severance of the scarp and	No benefit for	No benefit for	Minimal benefit	Minimal benefit	No benefit for	No benefit for	No benefit for
scarp-top	scarp	scarp	for landscape &	for landscape &	scarp	scarp	scarp
 landscape 			historic	historic			
 access & visual 			character.	character.			
ecology			Benefits for	Benefits for			
 historic character 			access, ecology	access, ecology			
Improve	Minimal benefit	Minimal benefit	Minimal benefit	Minimal benefit	Minimal benefit	Minimal benefit	Minimal henefit
1111 TO 100							3
iranguility							
Improve management of Heritage	No obvious	No obvious	Benefit access	Benefit access	No obvious	No obvious	No obvious
Assets:	benefit	benefit	to Crickley Hill	to Crickley Hill	benefit	benefit	benefit
• access	•		SAM; No	SAM; No			
setting			setting benefit	setting benefit			
Enhance historic character and	No benefit	No benefit	No benefit	No benefit	No benefit	No benefit	No benefit
amenity of local settlements and							
local roads							
 prevent rat-running 							
 sensitive design 							
Maximise use of land parcels	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design
isolated by new road for habitat							
creation							
 deciduous woodland 							
 limestone grassland 							
 rock faces, ledges. 							
Minimal street lighting and sign	?Neutral	?Neutral	?Neutral	?Neutral	?Neutral	?Neutral	?Neutral
illumination.							
Ensure suitable access is maintained	?Neutral/	?Neutral/	?Neutral/	?Neutral/	?Neutral/	?Neutral/	?Neutral/
 Agricultural 	depends on	depends on	depends on	depends on	depends on	depends on	depends on
 Private 	precise location	precise location	precise location	precise location	precise location	precise location	precise location
[Biodiversity (incl. construction).]	Limited benefit	Limited benefit	Some benefit	Some benefit	Limited benefit	Limited benefit	Limited benefit
Protect SSSIs	(Not obviously	(Not obviously	(may help	(may help	(Not obviously	(Not obviously	(Not obviously
 conserve biodiversity 	helps protected	helps protected	protected	protected	helps protected	nelps protected	helps protected

enhance biodiversity	habitat/species) habitat/species) habitat/species)	habitat/species)	habitat/species)	habitat/species)	habitat/species) habitat/species) habitat/species) habitat/species)	habitat/species)	habitat/species)
2 Delivering Substantially more Benefits than Losses – in the process of achieving the above:	Location A	Location B	Location C	Location D	Location E	Location F	Location G
Avoid major built structures that sit	Negative: new	Negative new	Negative new	Negative new	Negative new	Negative new	Negative new
up above and exposed in the	upstanding	upstanding	upstanding	upstanding			upstanding
landscape; consider methods that	;;	structure with	structure with	structure with	#	∓	structure with
help sit roads into the landscape	significant land take	some land take	some land take	some land take	ô	<u> </u>	some land take
Minimise loss of land to hard road	Would require	Would require	Could require	Could require	Negative: need	Negative: needs	Would require
infrastructure required by vertical	embankments	embankments	cuttings either	cuttings either			embankments
alignment (ie area occupied	ither	extending either	side of road or	side of road or	embankments to	embankments to extending either	extending either
carriageways, structures, cuttings	side of road	side of road	tunnel-like	tunnel-like		integrate with	side of road
Minimise the need for re-contouring	Possibly	Unclear:	Unclear:	Unclear:	Possibly	Possibly	N/A or neutral?
of large areas for spoil disposal or	negative:	possible re-	possible re-	possible re-	negative:	negative:	
screening the road except where	potentially need	contouring	contouring	contouring	y need	potentially need	
other substantial benefits accrue.	for re-contouring approaches approaches	approaches	approaches	approaches	for re-contouring approaches	for re-contouring approaches	
Minimise creation of spoil (and dust) and its transportation over long distances.	Minimal	Minimal	Minimal	Minimal		Minimal	Minimal
Minimise as far as possible any need? N/A for road lighting and illuminated signs.	·	? N/A	? N/A	? N/A	? N/A	? N/A	? N/A
nt land occupied by ad alignments to	N/A	N/A	N/A	N/A	A/N	N/A	N/A
agriculture fields; Leave intact and/or restore rural character of historic local roads							
Avoid significant interruption to	N/A	N/A	A/N	N/A	N/A	N/A	N/A
springs or watercourses.							
Minimise land take for temporary construction sites	Negative?: may require land not	Negative?: may require land not	Negative?: may require land not	Negative?: may require land not	Negative?: may require land not	Negative?: may require land not	Negative?: may require land not
		otherwise needed	otherwise needed	otherwise needed			otherwise needed

3 Design to meet character of the landscape not other way round	Location A	Location B	Location C	Location D	Location E	Location F	Location G
 Avoid loss of National Trust inalienable land. 	Achieves this (but need to	Unclear (may affect NT land?)	May affect NT land etc? If so	May affect NT land etc? If so	Achieves this	Achieves this	Achieves this
SSSIs,	check NT land)	,	would access	would access			
Country Park			benefits	benefits			
 open access land. 			outweigh this?	outweigh this?			
on topography	Some but not	Some but not	Major challenge	Major challenge	Some but not	Some but not	Some but not
 horizontal and vertical alignments major impact 	major impact	major impact	to integrate with	to integrate with	major impact;	major impact;	major impact
to follow the landform	(vertical profile	(vertical profile	local landform	local landform	problem to	problem to	(vertical profile
 minimise engineering land-take. 	dictated by main	dictated by main	because of	because of	integrate with	integrate with	dictated by main
	carriageways)	carriageways)	depth of cutting	depth of cutting	A436 junction	A436 junction	carriageways)
Cuttings and embankments to	Negative -	Somewhat	Major challenge	Major challenge	Problem to	Problem to	Negative –
reflect detailed grain of landform in	raised feature	negative -raised	to integrate with	to integrate with	integrate with	integrate with	raised feature
local area	not in keeping	feature not in	local landform	local landform	éd	ted	not in keeping
 gradients/ curvatures of slopes 	with natural		because of	because of	A436 junction		with natural
 geomorphological character. 	landform	natural landform	depth of cutting	depth of cutting			landform
Necessary and visually prominent	Negative – not	Somewhat	Major design	Major design	Challenge for	Challenge for	Somewhat
structures their siting and design	well integrated	negative - not	challenge for	challenge for	design crossing	design crossing	negative - not
 well-integrated into landform 	into landform;	fully integrated	structure	structure	slip roads as	slip roads as	fully integrated
 lasting architectural quality 	uncertain detailed design	into landtorm; uncertain detail	(bridge-like or tunnel-like?)	(bridge-like or	well as main carriageways	well as main	into landform;
Simplify and segregate junctions to	N/A	N/A	N/A	N/A			N/A
Avoid over-engineering links to local Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design
roads/ access tracks (eg verges)					·		(
Ensure landscaping design is fully	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design
including							
 natural rock formations 							
 slopes and coombes 							
 local wild plant material 							
Boundaries (stone walls/ hedges)	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design
materials and skills.							
Use of "soft" landscape solutions	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design	Detailed design
where possible, rather than "hard"							
engineering for carriageway							

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Road Tunnel Summary: location and traffic throughput per tunnel length

(A41) Queensway Birkenhead A303 Stonehenge	A55 Conwy	(A59) Kingsway Wallasey	A3 Hindhead	A102 Blackwall	A13 Limehouse	Dartford	A289 Medway	A1(M) Hatfield	A38 Queensway	A739 Clyde	A27 Southwick Hill	A3211 Upper Thames St	A20 Roundhill	A505 Baldock	A40 Gibraltar Hill	A13 East India Dock	M25 Holmesdale	A12 George Green	M4 Brynglas	A50 Meir Stoke	A40 Hangar Lane	M25 Bell Common	A12 Green Man	A2 Eltham	Tunnels (Road No. and Location)
estuary (WHS) rural WHS	estuary WHS	estuary (WHS)	rural AONB NT	estuary	urban	estuary	estuary	urban	urban	estuary	rural NAT PARK	urban	rural AONB	rural	rural	urban	suburb	urban	suburb	urban	urban	rural COMMON	urban	urban	Context
24,000			35,000						42,000					27,000											Context Daily traffic
11,000,000 8,760,000	5,500,000	15,640,000	12,775,000	18,250,000	23,725,000	25,350,000	15,300,000	29,510,000	15,330,000	22,000,000	17,110,000	10,950,000	14,600,000	9,855,000	11,000,000	23,725,000	46,830,000	21,900,000	29,000,000	25,000,000	21,900,000	48,830,000	21,900,000	21,900,000	Annual traffic
3,260 2,900	1,089	2,260	1,830	1,350	1,553	1,430	725	1,147	550	756	510	320	370	224	188	350	684	295	360	284	240	515	170	156	Length (m)
3,374 3,021	5,051	6,920	6,981	13,519	15,277	17,727	21,103	25,728	27,873	29,101	33,549	34,219	39,459	43,996	58,511	67,786	68,465	74,237	80,556	88,028	91,250	94,816	128,824	140,385	Annual traffic per tunnel m
																	A303 Stonehenge	A505 Baldock	A40 Gibraltar Hill	A3 Hindhead	A417 Op30	A20 Roundhill	A27 Southwick Hill	M25 Bell Common	Tunnels (Road No. and Location)
																	rural WHS	rural	rural	rural AONB NT	rural AONB	rural AONB	rural NAT PARK	rural COMMON	Context
																	24,000	27,000		35,000	39,000				Context Daily traffic
																	8,760,000	9,855,000	11,000,000	12,775,000	14,235,000	14,600,000	17,110,000	48,830,000	Annual traffic Length (m)
																	2,900	224	188	1,830	?	370	510	515	ength (m)
																	3,021	43,996	58,511	6,981	?	39,459	33,549	94,816	Annual traffic per tunnel m