



Department for Transport

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From the Minister of State
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Our Ref: MC/322645
Your Ref:

18 December 2020

Dear Rob,

Thank you for your emails of 7 December, enclosing correspondence from your constituent, Cllr Walsh, regarding the information released to him via a recent FOI request to my department.

As requested I will provide the information and assistance you require to provide a suitable reply. For ease, I will address each of Cllr Walsh's queries and respond to them sequentially below.

1. ***Affinity Water: the Department has previously suggested that as Affinity Water extracts water for human consumption in the Wendover area, tunnelling would present an unacceptable risk. It is very surprising therefore to find little discussion about this in the internal emails included in the FOI response. However, it is highlighted in an email exchange on 24 Feb 2020, but the Parish Council's discussions with EK and Affinity Water confirm that no such risks exist. It would be helpful if you could ask for evidence from the Department that supports their "unacceptable risk" position, including asking HS2 Ltd to confirm the location of the extraction site and explain its hydrogeological relationship to the HS2 Phase One route at Wendover.***

Affinity Water abstracts water from the chalk aquifer at a number of locations across the Chilterns and in the Colne Valley, although not specifically in Wendover. Construction of the consented HS2 route past Wendover presents no risk to the continued provision of high-quality drinking water by Affinity Water.

However, previous appraisals of the mbpc Ltd petitioner proposal for a mined tunnel showed that without satisfactory mitigation for the water ingress, the proposal was not technically viable, as any form of open faced mining is not the right solution for the geology of the route, which takes the tunnel under the water table, and through the aquifer which is a source of water abstracted by Affinity Water to supply the locality. My officials have checked whether this statement is an accurate assessment with the HS2 Ltd Hydrology expert, who has confirmed that the geology for the route of the proposed tunnel

remains a significant water-bearing rock (a designated Principal Aquifer) which means it has the potential to store and transmit significant volumes of water and is therefore a risk one would look to mitigate as best as possible. This is particularly the case if a water bearing fissure is encountered during construction.

The consented HS2 scheme in Wendover, with its shallower approach to excavating results in less interaction with groundwater and eliminates the need to dewater, which my predecessors have stated is likely to be very difficult. In any event, dewatering when utilising open faced mining methodologies, would attract a significant cost and runs the risk of not receiving approval from the Environment Agency to do so.

Unfortunately, I am unable to confirm the exact location of Affinity Water's abstraction sites. HS2 Ltd do not provide third parties with information relating to the location of public water supply boreholes. For obvious security reasons this information is redacted from HS2 Ltd internal reports that include that information when they are circulated outside of the organisation. The Environment Agency takes a similar stance on this, and Affinity Water expects and insists upon this being upheld.

*2. **HM Treasury Tunnelling Guidance:** we are surprised to learn from the email exchanges on the 6th September 2018 that there appears to be no knowledge within the Department of HM Treasury's Tunnelling Guidance, as in our view such guidance should be at the very heart of the Department's and HS2 Ltd's tunnel cost estimating process. Indeed, had the HM Treasury model been used it would have shown that the Department's estimate of the Wendover Tunnel exceeds the model's estimating range. Such an excess should have triggered an internal review within the Department, and we are surprised that no such review has taken place. **We suggest that HM Treasury should be alerted to this apparent failure in the cost estimating process.***

I have consulted with my officials on this matter. The email chain shows one Departmental official questioning what the 'HMT Tunnel Guidance' was. It is therefore somewhat tenuous to abstract from this query that the neither the Department nor HS2 Ltd have any knowledge on the subject matter. My official's recollection of this query was that at the time, they spoke directly to HMT who were unsure of the existence of this 'guidance.' This was addressed in an October 2018 letter from Nusrat Ghani MP where she stated:

'On a related matter, my officials have checked with both HMT and IPA and neither organisation was able to confirm that they hold or use a tunnelling assessment model.'

It may be the case that Cllr Walsh was actually meaning to refer to the following IPA 'Case Study: Benchmarking tunnelling costs and production rates in the UK' document:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762006/CCS207_CCS1118018748-001_Benchmarking_tunnelling_costs_and_production_rates_in_the_UK_Web_Accessible.pdf

This was not yet published at the time of the query (though OTB are likely to have been aware of its preparation) and in any event, is not published by HMT. The focus of the document is on benchmarking rather than as an assessment model and significantly, both HS2 Ltd and DfT contributed towards the exercise. My conclusion therefore, is that my officials and my predecessors would have been able to respond more clearly had the document been referred to accurately.

For reference purposes, the accompanying document was published in 2010:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/192589/cost_study_technicalnote211210.pdf

In view of both of these documents, I do not consider there to be any justification for raising the issue with HMT officials, who more broadly, have already been involved in the assessment of HS2 estimates and benchmarking rates prior to the reset of the HS2 project in February this year.

3. **EK Review of the Wendover Tunnel:** *we are also concerned about the lack of supporting evidence from the Department relating to the suggested £500,000 cost required for a review of the Wendover Tunnel by EK to ensure that the Tunnel proposal reached the Act's scheme maturity level (please see emails dated: 26 September 2018 and 28 September 2018). **It will be extremely helpful, if you could ask the Minister to provide the calculations and methodology that was used by the Department and HS2 Ltd to produce the estimate.** Indeed, it is interesting to note whether the Bromford Tunnel redesign and extension construction costs could have had a better cost to benefit ratio, given the local authority proposed extension was originally rejected by HS2 Ltd on cost grounds.*

The methodology employed to arrive at the estimate would have initially considered the costs incurred by DfT and HS2 Ltd when reviewing the mbpc Ltd petitioner proposal as the starting point for the estimate, with a wider indirect cost additionally applied to take account of diverting the EK resources currently fully engaged on the consented scheme to the provision of detailed design work on an alternative. This in turn would also impact on

the delivery of the wider HS2 programme and the achievement of Delivery into Service dates. It should be recognised that the HS2 project is using a significant proportion of design and construction resources available across the wider supply chain. Due to the OTB scheme being undesirable from a cost, schedule, constructability and legal perspective, the decision was taken to not develop a more detailed estimate.

In any event, the Department and HS2 Ltd do not release detailed breakdowns of our commercial information and information provided in confidence from our suppliers and subcontractors, though I trust the outline information provided above will at least give Cllr Walsh a rudimentary understanding of how this estimate was generated.

I will now move on to the points raised in the 'Construction Methodology and Ground Conditions at Wendover' email.

I suspect there was a minor typo in Cllr Walsh's email and he meant to refer to the attached D7-Tunnel Construction v1.3 document, as opposed to the HS2-D2 one referenced in his email? For the purposes of this reply I am assuming that he is referring to document D7, though I still do not understand Cllr Walsh's line of inquiry here.

As I detailed to Darren Page of OTB Engineering in my 27 October 2020 letter, none of my officials have advised me that the method of tunnelling that OTB suggest is inherently unsafe, or that the proposal itself is unviable. However, when applied to the geology in the Wendover area, I am advised that delivering the mined tunnel proposal within the budget that Lord Berkeley and Wendover Parish Council have suggested would not be possible. My intention was not to imply that the construction method itself was inherently unsafe or not viable, otherwise we would not be mining over a kilometre of the HS2 Phase One route in this manner as well as all the cross passages between the running tunnels along the alignment. However, it should be noted that the proportion of mined tunnel on the Phase One route is minimal compared to the 44km of bored tunnel and 7km of cut and cover tunnel that is being constructed.

Questions around the veracity of the comparison between the geology in Wendover and those experienced during the construction of HS1 have now been addressed many times. The Department and HS2 Ltd have been consistent in our position when we have shown that although the general composition of the Wendover and HS1 ground may be of a similar chalk based description, they are completely different due to the Wendover chalk being highly fissured, which as previously detailed, causes significant costs and risk when employing an open faced mining methodology. This is not withstanding the two locations being a poor comparator due to the HS1

(North Downs) tunnel sitting predominately above the water table rather than in and below it.

Finally, I will address the point raised about the 'independent assessment' of the ground conditions in Wendover. An independent consultant report was produced for the Department by KPMG in (2018), and was prepared with the support of engineering subcontractors, to review the presented options (the HS2 Ltd consented scheme and the mbpc Ltd proposal made on behalf of Wendover Parish Council) for the HS2 Phase One route at Wendover. The independent consultant report commented on the relative pertinence of the mbpc Ltd proposal in comparison to the consented solution, and included a comparative assessment of their relative likely cost, schedule and constructability. The independent report did not consider mining as an appropriate method of tunnelling due to the high cost of mitigating the considerable volume of water entering the tunnel workings during construction.

I trust this provides you with enough information to respond to Cllr Walsh and the Wendover Parish Council's recent correspondence with you.

Best Wishes,

A handwritten signature in blue ink, appearing to read 'Andrew', with a long horizontal stroke underneath.

ANDREW STEPHENSON MP

MINISTER OF STATE FOR TRANSPORT