

MINUTES OF ORAL EVIDENCE

taken before the

HIGH SPEED RAIL BILL COMMITTEE

on the

HIGH SPEED RAIL (WEST MIDLANDS – CREWE) BILL

Monday 23 April 2018 (Evening)

In Committee Room 5

PRESENT:

James Duddridge (Chair)
Sandy Martin
Mrs Sheryll Murray
Bill Wiggin

IN ATTENDANCE:

Timothy Mould QC, Lead Counsel, Department for Transport
Alexander Booth QC, Counsel, Staffordshire County Council

WITNESSES:

Tim Smart, Chief Engineer, HS2 Ltd
Sir William Cash MP

IN PUBLIC SESSION

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(At 7.00 p.m.)

Staffordshire, Newcastle-under-Lyme and Lichfield Councils

1. THE CHAIR: Before we broke for a small break I think, Mr Mould, we were going to come to you. I think you were going to call Mr Smart.
2. MR MOULD QC (DfT): Yes.
3. THE CHAIR: Earlier I think than originally anticipated, but I think it would be very useful to do so and to go through some of the cost issues and anything else you think is sensible to do now. And then, feel free to call him later on other issues.
4. MR MOULD QC (DfT): I'm grateful for that. I did think that as it's fresh in your mind it might be useful to hear our response on that straight away. If it's convenient to you, in relation to the environment points, I was proposing to hear what is said about those matters tomorrow from the other petitioners who are appearing on those issues and then ask Mr Miller to respond on those points once we've heard from the two parish councils and the Woodland Trust and the Manor Road residents.
5. THE CHAIR: Very sensible.
6. MR MOULD QC (DfT): Hitting it in one go, as it were.
7. THE CHAIR: Very sensible.

Evidence of Mr Smart

8. MR MOULD QC (DfT): Yes. Right, so, Mr Smart, let's put up P34(2) please. This is the HS2 cost schedule. First point, we know from the evidence of Mr Hindle before we broke that there is no issue that it is reasonable at least to cost the twin-tunnel option – that is to say the Bill scheme – to cost the twin-tunnel option assuming an open-face tunnel bore. Yes?
9. MR SMART: Correct, yes.
10. MR BOOTH QC: We would agree with that.
11. MR MOULD QC (DfT): Yes. And if we make that assumption, do we make a

change to the top line, the tunnel costs, shown here for the proposed scheme – that being the twin-tunnel scheme?

12. MR SMART: Yes, we would reduce our tunnel costs by £10 million, assuming that we would have a cheaper or more cost effective machine.

13. MR MOULD QC (DfT): In your opinion, at this stage in the process and in the light of the information that we have about ground conditions, do we make the same adjustment to the costs for the single-tunnel scheme?

14. MR SMART: No.

15. MR MOULD QC (DfT): Why not?

16. MR SMART: Because of the ground conditions that we would encounter on a long tunnel option.

17. MR MOULD QC (DfT): Can you just explain a bit more precisely?

18. MR SMART: Yes. I think the easiest way of explaining my view on it is to go to Mr Hindle's slide. That's A25(6) –

19. MR MOULD QC (DfT): Is that the geology?

20. MR SMART: The geology. And I will try and use the pointer to illustrate what I'm talking about. Mr Hindle quite correctly shows a possible Madeley glacial channel. We do know that to exist. And there's evidence there of fluvio-glacial and glacial moraine. But what Mr Hindle doesn't show is there's also a fault zone through there. And the fault zone is at least three faults that are shown on geological maps. That actually means you've got fractures and fractures of course allow for water to migrate along them.

21. So, I think where I would differ from Mr Hindle is on the risks that one would encounter going through that section of the tunnel with an open-face machine.

22. Now, I do accept that Mr Hindle has suggested that you could dewater – that area, and therefore the open-faced machine would be viable. However, he did say he has included a small amount for that. I think he quoted £2 million. And that assumes that

the water table is where Mr Hindle has shown on his section.

23. However, there is evidence that the River Lee is there, and we believe there's potential for it to be a lot higher. Furthermore, this is the section where one is traversing underneath the West Coast Main Line and when you dewater and you pump, you cause settlement. So, any dewatering scheme would cause settlement to that area of ground and therefore potential detrimental effect on the West Coast track. And an EPBM of course deals with that at the face of the machine and therefore controls settlement much more closely, which is why we use those machines in places like London, because it does deal with settlement much more effectively.

24. So, in the round, what my submission would be is that I would rather spend the extra £10 million or so on dealing with it appropriately at the machine than trying to deal with a localised – well, quite extensive – dewatering scheme that would have detrimental effects and I believe cost more. So, in summary, because of the risks of the known geology in here, I don't believe an open machine is really viable through that section.

25. MR MOULD QC (DfT): Okay. So, if we go back to P34(2) and your cost schedule and the other side of the first line 'Tunnel costs for the twin-bore single tunnel'? The upshot of what you've said as I understand it is no change to that number because no change to the assumption as to the machine being used?

26. MR SMART: Correct.

27. MR MOULD QC (DfT): Yes. Can we then turn to the next point and see if we can just grapple with this? This is this issue of what if any adjustment is appropriate to either side of the line in relation to the now positive southern extension to the Whitmore Heath tunnel under the twin-tunnel schedule. Yes?

28. MR SMART: Yes.

29. MR MOULD QC (DfT): Let's just go to P34(9) – and here is a summary of what HS2 have been looking at and what is now in prospect. A southwards extension of the Whitmore Heath tunnel, that is to say a change to the Bill scheme?

30. MR SMART: Correct.

31. MR MOULD QC (DfT): Yes – twin-tunnel scheme. And we can just run through to the very bottom line, it would, it's said, reduce the costs of the Phase 2A project by approximately £12.8 million.

32. MR SMART: That's correct.

33. MR MOULD QC (DfT): So, just help me, the assumption is you take the twin-tunnel scheme, but you extend the Whitmore Heath tunnel southwards by a distance and that has the consequence of producing a £12.8 million saving to the proposed scheme?

34. MR SMART: Because of the interaction with the road, the A53, it results in that saving but only to the proposed scheme.

35. MR MOULD QC (DfT): So, let's just go to P35(2) to see that on plan because this was causing some confusion earlier. The Bill scheme or the proposed scheme – the twin-tunnel scheme – they are all synonymous –

36. MR SMART: Yes.

37. MR MOULD QC (DfT): – we can see that as things stand under the Bill, the southern portal of the Whitmore Heath tunnel is at the point where presently the A53 runs east west across the tunnel portal. Yes?

38. MR SMART: Yes.

39. MR MOULD QC (DfT): The proposal is to shift that point southwards so that it corresponds broadly to the portal which has been assumed – the location of the portal assumed for the single-tunnel scheme on the bottom half of that picture?

40. MR SMART: Yes.

41. MR MOULD QC (DfT): Yes. Okay. And that slide shows produces a saving of £12.8 million on the Bill scheme.

42. MR SMART: Correct.

43. MR MOULD QC (DfT): But just look at the bottom half of that picture – is the cost of the single tunnel – does it or does it not include that element? That is to say a southern portal located to the south of the A53?

44. MR SMART: It includes that element.
45. MR MOULD QC (DfT): It does include that element?
46. MR SMART: Yes.
47. MR MOULD QC (DfT): So, does the proposition that is now being mooted by HS2 to alter the Bill scheme, does it affect the single tunnel which was costed by HS2 for the purposes of comparing the cost of the two proposals?
48. MR SMART: No, it only affects the Bill scheme.
49. MR MOULD QC (DfT): Right. If we come back to the schedule, P34(2), we know the figure, the saving is £12.8 million, what if any changes do we make to the numbers on that slide to account for that saving?
50. MR SMART: Well, we would have to increase the cost of the difference by £12.8 million.
51. MR MOULD QC (DfT): Right. If we were going to adjust, do we make an adjustment to the costs of the proposed scheme?
52. MR SMART: If you include the £10 million that Mr Hindle has identified by the fact we could use an open face, it would make the proposed scheme effectively £20 million cheaper than our price, which would effectively increase the difference – which is the 176 – to around about, just short of £200 million.
53. MR MOULD QC (DfT): Right. Mr Hindle said he would make the same adjustment to the single tunnel cost. Do you think that's right?
54. MR SMART: Well, I don't understand that. No, I don't think that's right because I believe he said that he'd just gone from portal to portal and therefore the £12.8 million applies to his scheme. But if he's gone from portal to portal of the long tunnel option, then the £12.8 million can't apply to his scheme because it only applies to the proposed scheme. But I can't comment in detail about his costs obviously. But it wouldn't seem to be right.
55. MR MOULD QC (DfT): Alright, well that's that point. And then, the next point

is –

56. MR MARTIN: Chair, is it appropriate ask questions while this is taking place?

57. THE CHAIR: I think we make up the rules as we go along. So, Sandy?

58. MR MARTIN: I think this is a point that needs to be bottomed out here and now because it is – it's the third time it's come up and I am utterly confused by it.

59. MRS MURRAY: I am as well.

60. MR MARTIN: I'm sorry, Mr Mould. There is nothing on this schedule in front of us here which says that you have taken into account a £12.8 million saving on the twin-bored single tunnel.

61. MR MOULD QC (DfT): No.

62. MR MARTIN: Until we were here today, I have not heard anybody suggest that any of the costings done by HS2 for the single tunnel were based on the assumption that you would make a £12.8 million saving from moving the entrance southwards.

63. MR MOULD QC (DfT): Can I just say, you're absolutely right about that?

64. MR MARTIN: So, if no saving has been identified in the costings for the twin-bored single tunnel as a result of moving the gateway southwards, then surely when you make that saving for moving the gateway southwards for £12.8 million, that we apply equal to a two-tunnel system or a single-tunnel system? I cannot see how it can make the saving for one scheme but not make the saving for the other scheme.

65. MR MOULD QC (DfT): The single-tunnel scheme includes that element –

66. MR MARTIN: Well, it doesn't. It never has done. You have never described the fact that it includes that element. You haven't put it on your schedule and you've never mentioned it until you decided you do it for the two-tunnel scheme.

67. MR SMART: Sir, perhaps I can try and explain? When we originally did the proposed scheme, we had a scheme which took the A53 over effectively a cutting, which is quite an expensive road diversion –

68. MR MARTIN: Yes.

69. MR SMART: – because we weren't sure we could get an alignment that worked on the short tunnel taking account of a number of other constraints, which I will not go into here because I don't think it's relevant. However, when we were looking at the long tunnel scheme and we then revised alignments, we managed to light upon a scheme which gave us the opportunity by extending the tunnel that shorter distance to deal with the whole roadworks and other diversions in a much more cost effective way. Therefore, that extension saving does apply to our proposed scheme – because it had a more expensive way of dealing with the apparatus and the scheme in that area. But when we costed the long tunnel scheme, which went past the A53, that was all included in the overall tunnelling rate – because it is in tunnel – which is in the 369. That's the difference.

70. MR BOOTH QC: Mr Smart, if I could clarify on behalf of the county council? Firstly, we do say this is not a point which has been taken by HS2 before. We simply say it's wrong. But secondly, and more importantly, Mr Hindle indicated that he had costed the single-tunnel scheme. He has not made any deduction to reflect precisely where the southern portal was because he did not know what figure HS2 were putting on the cost of running the road over the tunnel. On that basis he made no deduction. Now, as of the end of last week, HS2 has identified that the cost saving is £12.8 million. In those terms, in that situation, Mr Hindle says, 'Well, now I know what that cost saving is, I can deduct it' – and it is appropriate that he should deduct it. And that is why he has done so. So, we do say that we're entitled to that saving in just the same way that HS2 are.

71. MR SMART: May I respond to that?

72. MRS MURRAY: Can I?

73. THE CHAIR: Sheryll first, then Mr Smart.

74. MRS MURRAY: Yes. Can I just ask for clarification? HS2 did not include that £12.8 million saving in their long tunnel but that doesn't –

75. MR MOULD QC (DfT): We did.

76. MRS MURRAY: – necessarily mean that the long tunnel that is being proposed by Mr Hindle – if he didn't identify that saving because he didn't know the figure – he is justified in taking that £12.8 million off his figures. Am I correct?

77. MR MOULD QC (DfT): Well, with respect, I'm not sure that is right.

78. MRS MURRAY: With respect –

79. MR MOULD QC (DfT): I don't want to get too bogged down.

80. MRS MURRAY: With respect, Mr Mould, you didn't cost Mr Hindle's scheme, so you cannot say that actually Mr Hindle shouldn't take that off his figures.

81. MR MOULD QC (DfT): Well, when I say it's not right, what I mean is, in so far as the HS2 costings are concerned – let me just draw a –

82. MRS MURRAY: But you tried to say earlier on that Mr Hindle shouldn't have taken off it his scheme.

83. MR MOULD QC (DfT): My understanding is –

84. MRS MURRAY: Well, actually you didn't cost Mr Hindle's scheme, so you have no idea how he calculated those costs.

85. MR MOULD QC (DfT): We had assumed, if I may say so, and I readily acknowledge this, we had made an assumption that Mr Hindle had costed the single-tunnel scheme that we described in the report that we published some weeks ago. That seemed to be a reasonable assumption based on the documents that were provided to us by the county council and the other councils on Wednesday of last week. You're absolutely right –

86. MRS MURRAY: Do you now accept that Mr Hindle has told us that he didn't take any savings off his scheme because he didn't know what they were? Do you accept that his figures may justifiably take that £12.8 million saving off of what he came up with in the beginning?

87. MR MOULD QC (DfT): I accept that the explanation he has given is on that basis. I cannot accept that it's correct, but I perhaps don't need to get into that at this

point because of the level of the sum involved. But what I would just, if you'll forgive me, say before we move on to the next point is this. You may recall that I told you at the end of last Wednesday's meeting that there were two proposed adjustments to the Bill scheme that HS2 had considered and which appeared to be sensible changes. And one of those changes was the extension of the Whitmore Heath southwards. And I said to you that our view was that that change would amongst other things realise a significant cost saving to the project. And so, essentially, the only point that I – and as I understand it, Mr Smart wishes you to have in mind – is that if you are looking at our costings, which are the costings that you have on the screen on front of you – because this schedule was produced before we had identified the possibility of that saving of £12.8 million, this schedule does not account for that. That is the principle reason why we draw it to your attention now. Our costings for the single-tunnel scheme do not, we say, need to be adjusted by that sum.

88. MRS MURRAY: No. I understand that.

89. MR MOULD QC (DfT): Yes. I think that probably I will try your patience even further, if I take that point any further, so I'll leave it there, if I may?

90. MRS MURRAY: Thank you.

91. THE CHAIR: Are you happy with that?

92. MRS MURRAY: Yes, I am. I fully understand that.

93. MR MOULD QC (DfT): And forgive me if I –

94. THE CHAIR: If the member of the Committee is happy and your QC is happy, do you want to add anything? I was going to come to you.

95. MR SMART: No.

96. THE CHAIR: Excellent.

97. MR MOULD QC (DfT): Well, forgive me for labouring that point. We'll move on.

98. THE CHAIR: We've done it now.

99. MR MOULD QC (DfT): Yes.

100. There's one other point, which is the point that was raised by Mr Martin in relation to the allowance that is made on this schedule – on our schedule – for earthworks. As you will recall, we have made an allowance on the second line for civil engineering excluding earthworks for both the twin-tunnel scheme and for the single-tunnel alternative. The numbers are there set out. The point was made earlier that there should on the face of it be a significant saving in earthworks over and above the structural elements of the civil – that is to say, viaducts and so forth. We're here dealing really with cut and fill elements – that is to say embankments, cuttings and so forth. There ought to be a significant saving by going underground as opposed to on the surface. And the figure that is shown in this schedule for that is £8.82 million. Mr Martin, understandably if I may say so, raised a concern as to whether that looked like a sufficient sum. Mr Smart, I'd like to deal with that point if we may, just to explain how HS2 have arrived at that figure. And for that purpose, we go to the next slide, which is P34(3). And we look at note 4 there.

101. MR SMART: Yes. Note 4 is the key one there, sir, which is earthworks costs represent the cost saving in adopting the single tunnel. 'The earthworks model considers re-use of excavated' – well, you can read it, sir. But what we are saying is that when we look at the earthworks, we don't look at a simple add and omit – you know, take out an embankment, add in a cutting, or take it out – it's at grade. As we are excavating and creating embankments all along the route, we have what is known as a 'mass haul' calculation because we try to do the most sustainable solution which is re-use as much material as we can. And also, that looks at hauling and trying to minimise haul distances – moving it along the route. So, it is quite a complicated model which looks at where we move material from – either from a cutting which might go into an embankment or whether it's surplus and has to go off site completely or maybe moved somewhere else down the route and re-used. Now, all of that is quite a complicated exercise and we do that on the route basis. So, that results in the figure that is shown on our costings, if we go back to P34(2). That results in the £8.82 million reduction to the twin-bored single tunnel. Now, that means that when you come to look at a cost comparison that Mr Hindle has done, you would not add back in those earthworks because they are already accounted for in our figures.

102. MR MOULD QC (DfT): Thank you very much.

103. MR SMART: So, we are not looking at an apples and apples comparison simply.

104. MR MOULD QC (DfT): Those are all my questions.

105. THE CHAIR: Can I ask a question, Mr Mould around costings? When Mr Booth introduced everything, he said something like a metaphor of a balancing act between environment and costs.

106. MR MOULD QC (DfT): Yes.

107. THE CHAIR: And made an assertion that most people agreed environmental without regard to cost it would be better to tunnel. Would you client agree with that?

108. MR MOULD QC (DfT): If cost was no object, one can see that one would look to secure environment improvements and that tunnelling is an obvious way of achieving that. But obviously in the real world, one has to consider very carefully indeed what are the net environmental gains that come from tunnelling? Essentially, what is the gain that comes from the railway being in tunnel between the twin tunnels rather than being at the surface?

109. THE CHAIR: But if one were to ignore the real world and cost, would it be better environmentally to tunnel? I mean it seems self-evidently true. I just don't know whether you're going to defend that and come up with more information –

110. MR MOULD QC (DfT): No.

111. THE CHAIR: – or say yes, if one disregards a massive element of the calculation, it is better to tunnel.

112. MR MOULD QC (DfT): If one's only concern is to produce a scheme that has the absolute minimum of environmental impacts on people and so forth and so on, then obviously you would take the opportunity to put the railway either in tunnel or in very deep cutting, as far as you can along the entire length of the railway. But my understanding is – my submission indeed – that if one was to take that approach, one would very quickly get to a railway scheme that will never be built.

113. THE CHAIR: Well, let's just concentrate on the Whitmore to Madeley. If the additional cost for tunnelling the whole thing wasn't the 176 or whatever number we've looked at but was £1 million – I'm taking a nominal sum. It could equally be £1 or £10 million in the context in which we're talking. Would you tunnel?

114. MR MOULD QC (DfT): If it was a million pounds, I suspect that it's very likely indeed that the decision would be made to tunnel because of the advantage, because one would overcome what has been described already as an impact on designated ancient woodland and that sort of ratio of cost to benefit would be considered highly arguable.

115. THE CHAIR: Absolutely. I mean that to me seems very sensible. If you take an equally stupid position that it was going to cost £55 billion or whatever the total scheme costs, you're clearly not going to tunnel Whitmore to Madeley for £55 billion. I'm just trying to get a view, of bringing together this balancing act as Mr Booth perhaps intentionally set it up, is at what point do you say, 'Actually, we should tunnel'? Is it £100 million, £200 million, £50 million, £1 million or £1 billion?

116. MR MOULD QC (DfT): Obviously what you do, ultimately, as you say, you have to make a judgment call, but the judgment call will look so far as it can to, I understand, the degree to which the additional costs are in proportion to the gain that is realised. And in order to do that – take the ancient woodland, which is the forefront of the council's case on this question that you have posed – you don't simply say, 'How much ancient woodland is lost to the railway?' Nor do you simply say, 'How much ancient woodland is affected by the railway because it involves some potential disruption to mammalian activity within it?' You say, 'What alternative is there to going underground at £50 million? Can you mitigate and compensate for the loss of ancient woodland and the impact' –

117. THE CHAIR: So, that has a cost? For example – we're trying to work out – no one's sent me a list of saying, 'Well, the mitigation for loss of agricultural land is X million pounds; the mitigation for the woods is Y million pounds and that adds up to a figure' – for arguments sake, £100 million – your figure for the costs is 170, therefore it's an easy decision for the Secretary of State to say there's £70 million of reasons not to tunnel.

118. MR MOULD QC (DfT): If it were possible to quantify the alternative mitigation

which you set against the cost of tunnelling in the way that you've put it, then obviously it would be a much more of a mathematical exercise. Unfortunately, we haven't yet reached the stage in town planning and environmental planning where we can put a reliable cost on the value of in money terms, for example, a scheme of environmental mitigation so as to mitigate the impact of building the railway on species which are affected by woodlands etc. So, we have to adopt a more qualitative approach and we have to say, 'What is the scale of the impact?' 6.3 hectares of designated ancient woodland. 'What does the scheme proposed without going underground through that section in order to mitigate that impact?' Well, it proposes a substantial amount of new planting. It proposes a substantial amount of work to create new wildlife corridors and so forth. Those are not quantifiable in money terms. But they are quantifiable in terms of the quality of the mitigation that is being put forward. And it enables decision makers like yourselves to say, 'On balance, in the light of the scale of the impact, the scale of the mitigation, and the sheer cost of going underground, is the cost of going underground justified?' And you put to me, 'A million pounds might be, £50 million probably wouldn't be'. I agree. £175 million certainly isn't and £200 million is even less justifiable than that. So, that's where we are in this case.

119. MR WIGGIN: I'm sorry, I've got probably a rather silly question but why does the tunnel dip down in the middle and go beneath the water table? Presumably you've chosen, Mr Booth, from your side, to use the HS2 diagram? But while I've got both engineers here, I thought we'd just find out. Why does it slope in both directions? Why isn't it flat.

120. MR SMART: There's a question of settlement the closer you are to the surface. And the more settlement that you have, the closer the tunnel is to the surface. Plus, it is in order to get a sufficiently decent ground again that you don't encounter problems with superficial deposit. But the counter to that is of course that you do have to take account of higher water pressures because that's a counterbalance too.

121. THE CHAIR: Sheryll?

122. MRS MURRAY: Just very quickly, Mr Mould, I know we're seeing the Woodland Trust over the next couple of days.

123. MR MOULD QC (DfT): Tomorrow morning, I think.

124. MRS MURRAY: Tomorrow – but you mentioned replanting.

125. MR MOULD QC (DfT): Yes.

126. MRS MURRAY: And obviously ancient woodland doesn't just comprise of trees, but it comprises of the soil and that sort of thing. Is it your intention to harvest some of that soil to use if you were re-planting somewhere else?

127. MR MOULD QC (DfT): Yes, it is. The translocation of soils is absolutely essential to our mitigation strategy for ancient woodlands that are affected by the scheme. Yes.

128. MRS MURRAY: Thank you very much.

129. THE CHAIR: Okay. Anything more from the Committee? I think Mr Booth, you were asking for one and a half minutes at the end? Is that you were wishing to take now?

130. MR BOOTH QC: No. What I was looking to put now was to put a short series of questions to Mr Smart.

131. THE CHAIR: Of course, carry on.

132. MR BOOTH QC: But before I did that, I thought perhaps I would come back on the issue that you raised with Mr Mould a moment ago because what you said, 'Well, look, all other things being equal – so, there's not cost benefit into not tunnelling, would you tunnel or not?'. And my learned friend has answered that question after a fashion. I think what I would like to direct the Committee's attention to is HS2's own report dated 15 March 2018. And in particular, it's page 37 of that report, sir. It's section 8. Where it states in terms – what has happened is that the purpose of that report, as you will recall, was to compare the merits of a single tunnel with two tunnels. 8.1.2 says that, 'Comparative analysis assessment for engineering highlighted impact of the single-tunnel scheme to be a major worsening on the comparator scheme impact assessment. This was primarily due to construction costs' – there you have it, sir – construction cost – 'which had been evaluated to be significant above the proposed scheme.' So, you will appreciate there is a dispute between us as to the extent of that differential. But that there is a differential is recognised. But if one pulls down to para 8.1.3, 'The outcome

of the comparative analysis for environment with the single-tunnel scheme was a major improvement on the comparator scheme'. So, what we understand to be the position is that HS2 recognise and accept that a single-tunnel scheme is materially, in a major improvement, very materially better in environmental terms than the two-tunnel scheme. Hence, for example, Mrs Murray raises the issue of the ancient woodland and soil and so on, and, of course it is understood that HS2 will seek to translocate soil but of course the beauty and the value in ancient woodland and why it is described as 'irreplaceable' by Natural England is because that soil has lain undisturbed for 400 years and more. That is the short point on that. But sir, if I may, I will move on then –

133. THE CHAIR: Yes.

134. MR BOOTH QC: – to a short series of questions that I have for Mr Smart. Mr Smart, picking up on your last point and dealing with that first. The Committee has been shown your cost analysis table and you have – it's slide P34(2) – thank you very much. What you've done, as you've confirmed, you've credited the twin-bored single tunnel with an £8.2 million saving in terms of earthworks.

135. MR SMART: Correct.

136. MR BOOTH QC: But what we've agreed – I think what you've indicated to the Committee – is you do not know what the saving in earthwork costs will be for this stretch because you do not know how much the embankments and the cuttings for this stretch of route, which will lie above the tunnel, so to speak – you do not know what that cost is?

137. MR SMART: No, not quite. We know what that cost is, which comes out of the model, but what we can't do from this – I'm not saying we can't do it – but not from this – is an add and omit which say, 'This embankment adds that much and that much and this cutting saves that much'. So, what we've got is that is the cost over this section of route but it is derived from properly looking at what happens to where we take material from and to.

138. MR BOOTH QC: I understand it is the output from your model. But you see what you've said in the slide is precisely what Marian Boater of HS2 responded to us when we raised this issue with her earlier in the month. She said in terms, 'The

earthworks costs cannot be isolated for a specific section'. If you can't isolate them – i.e., you don't know what they are – you're not in a position to dispute Mr Hindle when he says, 'Well, actually, the costs inherent in the scale and extent of cuttings and embankments for this section' – 21 metres high in places – you're not in a position to dispute his querying of your £8 million figure. And he, with his experience, places a £60 million figure on that.

139. MR SMART: Yes. What I'm saying is we can dispute it because that is the figure. Now, I think what you're saying is we haven't been able to – in the time available – interrogate the model and come up with an accurate way of looking at Mr Hindle's like for like in terms of add and omit, as you would do in a bill of quantities. If it would be helpful to the Committee we can do that.

140. MR BOOTH QC: Well, it may be helpful to the Committee. It's a matter for the Committee. We asked for that material and it wasn't provided to us. Next point is this. As regards technology, we heard Mr Mould put questions and indeed answer questions from the Committee as regards the cost of the boring machines which you propose to rely upon. And what was said was that you have assumed a cost of £15 million per tunnel boring machine.

141. MR SMART: Yes.

142. MR BOOTH QC: Right. So, your quantification of costs come in at – you've spent £30 million on those. And if Mr Hindle was to spend £15 million on three open-faced machines, there would be that differential of £15 million.

143. MR SMART: Yes.

144. MR BOOTH QC: Yes. I just need to understand this because I've read the transcript of your evidence to this Committee on 27 March. And we can – I don't ask necessarily that it's pulled up now – and the Committee can review it later in the piece. But we know that you addressed this issue of the cost, didn't you, on that day?

145. MR SMART: Yes.

146. MR BOOTH QC: And for example, I'm just going to quote from it here, paragraph 239. This is where you started to deal with the issue of costs and you said in

terms, 'The thing about tunnelling is it does have a very high fixed cost because you have to buy the tunnelling machines, which typically come in at £15 to £25 million a piece, as per the slide. If you have two, you are already up at £30 to £50 million before you've even started to bore.' And that's fine because what you're doing there –

147. MR SMART: Yes, that's correct.

148. MR BOOTH QC: – is saying, 'This is the spectrum – the £30 to £50 million'. And of course, we go on, don't we, and what we can see in the transcript is that Mrs Murray later asked you a question regarding the basis on which one would tunnel. And she put it to you that, 'Well, one could effect a single tunnel more speedily if one acquired more tunnel boring machines'. And she said in terms, 'Would the cost of the tunnel perhaps be reduced if you started at each end with two machines starting at each end?'. And your response is, 'Well, the time costs would be reduced and that's often why you do it because the cost of the scheme coming online, the public benefit is realised much, much sooner. However, instead of having £50 million for two machines, you're now looking at £100 million.' And then over the page, paragraph 270, again what we see you talking about is, 'Buying your TBMs from either the Chinese or the Germans' – because that's where you say they are manufactured – 'and they will sell you the machine for £25 million' – you say – 'but potentially give you £4 million back'. The reason I raise this is because your costings – you'll appreciate from our side of the fence – seem quite opaque because we have that table and we don't really have anything else.

149. MR SMART: Yes.

150. MR BOOTH QC: And in so far as Mr Mould is confirming for the Committee that you've assumed £15 million for the cost of each of your TBMs, when I read this transcript and you're talking about £50 million for two, £100 million for four, it doesn't seem to be consistent to me. What it seems to me is that actually what you've done – and of course these are your numbers – is you've assumed £25 million cost for each of those TBMs. Do I have that wrong?

151. MR SMART: Well, you've assumed £15 million. When I was giving that presentation, it was a general presentation on tunnelling. And, as indeed you have acknowledged, and I think Mr Hindle acknowledges on his slide, the cost of a TBM will

depend upon knowing much more about the ground conditions and the variations in how the machine might be set up. So, it isn't possible to give a precise figure on TBMs machines until one gets into talking to the manufacturers and looking at a number of idiosyncrasies that particular contractors would want to have on the machine – different cutter heads. So, what I would say is that the tunnel rates here are now benchmarked against our actual costs that we've got coming out of Phase One. So, I think, in fairness, you're making a comparison within some general assumptions about costs in order to understand telling –

152. THE CHAIR: Mr Smart, before I come to Sheryll can I just speak in defence of what HS2 gave us, as the Committee, which is in public, training information around the generality rather than the specific on noise and noise reduction; on engineering; on tunnelling? So, it may be that there's a number of comments made by Mr Smart and others that were around engineering and subjects in generality rather than the specifics. So, I wouldn't get too fixated throughout all of that period around examples people were using. They were general examples to bring the Committee's technical understanding up to speed of some basic engineering and basic noise and so forth. Just as a health warning. And I think I certainly found those general briefings really useful. They were done in public so there was transparency, which I think was sensible. Sheryll?

153. MRS MURRAY: Yes. I just was going to say a very similar thing. However, I was never made aware that there were other tunnelling machines that were available, which may have done the job. And I just wanted to put that on record. When we got that training, as far as I understood it, there was only one sort of tunnelling machine that could have been used and that was what was being explained. But I didn't ask the question whether there were other ones that were available, I have to say. So, it was probably my fault for not asking the question.

154. MR BOOTH QC: To be clear – the reason I've put the question the way I do – it is on the basis that I may be mistaken because I wasn't there – I don't know on what basis those figures were put. But I do see those figures in the transcript and it's on that basis, sir, that I'm seeking clarification.

155. MR WIGGIN: Can I pile in here?

156. THE CHAIR: Yes.

157. MR WIGGIN: It just occurs to me though that, if you're right about your argument that the open-faced shield type boring machine is cheaper and the problem with the tunnel is that the single tunnel is too deep and therefore you have water issues, we could do both. We could use the cheaper boring machine and it would be beneficial to the economics of the two-tunnel option. That's not terribly helpful to your argument. I'm sorry about that. But it does look like you're half right.

158. MR BOOTH QC: No, no, but that is in fact what Mr Hindle has done, you will recall. His slide –

159. MR WIGGIN: No, his slide was to use it for the single tunnel –

160. MR BOOTH QC: No, sir. No, no, no, he reduces – and indeed, if that's not come across, that's unfortunate, because he did say in terms that as regard his slide – and if we turn that up? That's the one. Thank you. Everyone's way ahead of me. A25(12). He has reduced the proposed scheme figure by over £10 million and that is to reflect the fact that he is assuming that the proposed scheme should utilise the open shield technology. So, he's applied that technology to both schemes. The reduction for our scheme is greater than the reduction for the two-tunnel scheme and the reason for that is that this is assessed on a per kilometre basis. And in circumstances where there is a greater length of tunnel for our scheme than the two tunnels, then the saving is greater. He did seek to confirm that was the saving that had been made.

161. MR WIGGIN: I think you're fine with all that. But it's not as helpful as you think it is. Please carry on. It doesn't help. Sorry.

162. MR BOOTH QC: No, no, no. No.

163. MR WIGGIN: Reducing the proposed scheme isn't in your interest even though it may be what you want to –

164. MR BOOTH QC: It's out of fairness. It wouldn't be right at all –

165. MR WIGGIN: I accept that but my point is –

166. MR BOOTH QC: – for Mr Hindle to say, 'We'll have that saving but you can't have it'.

167. MR WIGGIN: No, no, that's fine. But I think we've ruled out the mechanised open-faced shield borer for the deeper tunnel because of the water issues.

168. MR BOOTH QC: Well, if that's the view taken by the Committee, that's the view taken. That's not how –

169. MR WIGGIN: That's what we were told.

170. MR BOOTH QC: No, no, that's –

171. MR WIGGIN: Is that not right, Mr Smart?

172. MR SMART: That is our view, sir.

173. MR WIGGIN: Yes.

174. MR BOOTH QC: But that's not Mr Hindle's –

175. MR WIGGIN: It may not be Mr Hindle's view.

176. MR BOOTH QC: No, Mr Hindle says that this technology can be utilised and indeed should be utilised.

177. MR WIGGIN: Because of the sandstone.

178. MR BOOTH QC: Say again?

179. MR WIGGIN: It was because he thought the sandstone was suitably non-porous –

180. MR BOOTH QC: Yes, he says the geology is such that it is sufficiently robust and that's the topic of my last question.

181. MR WIGGIN: But Mr Smart doesn't agree with that.

182. MR SMART: I don't and as I said, Mr Hindle doesn't take account or doesn't even note the presence of the fault zone.

183. MR BOOTH QC: That's the issue, the topic on which I ask the last question – which is this.

184. THE CHAIR: Okay, shall we go on to the next question? Unless – we're simply

going over the same – do you want to go on to the next question? Mr Smart's intervened. Now, you're I'm very grateful on Mr Smart's –

185. MR WIGGIN: I'm sorry.

186. MR BOOTH QC: My apologies. I was coming to the end of my list of questions and he had raised an issue and it was on that very issue that my last question –

187. THE CHAIR: I understand. Carry on.

188. MR BOOTH QC: And that is this. In the course of the evidence you've just given, what you did Mr Smart was to refer to the faults which you say Mr Hindle has not had sufficient or indeed any regard to. Yes?

189. MR SMART: Yes. It seems he hasn't.

190. MR BOOTH QC: Yes. On that – it's slightly unfortunate because of course that proposition was not put to him when he was giving evidence – but what I'm interested in is this. The Committee has raised the question of bore holes and the bore hole evidence – i.e., this is as regards the intervention by Sir William Cash earlier in the piece. He was querying whether or not bore holes had been done. And what I'm interested in is where we look to for the bore hole evidence obtained by HS2 demonstrating the presence of and, as importantly, the extent of the faults on which you rely in this context.

191. MR SMART: They are shown on geological maps and on information published from the British Geological Survey. So, it's helpful we can provide where that comes from. It is referred to as the 'Madeley fault'.

192. THE CHAIR: Right. I don't think we need to see evidence. We will take your word. If you want to provide that further evidence, we will happily receive it.

193. MR BOOTH QC: Yes. Sir, I think it should be provided on the basis that Mr Hindle wasn't taxed with it.

194. THE CHAIR: Well, Mr Smart said he was going to provide it. I just said I didn't require it but if you want it. He's offered it. You've said it would be good for him to send it in. Let's have it. Thank you very much.

195. MR BOOTH QC: Sir, those are the only questions I have.

196. THE CHAIR: Thank you very much. I think we'll move to the next petitioner. Thank you very much.

Sir William Cash MP

Submission by Sir William Cash MP

197. THE CHAIR: Can we clear the way for the next petitioner? I understand that the next petitioner has been sworn in so there's no additional problems. If I can call Sir William Cash MP?

198. SIR WILLIAM CASH: Shall I sit here?

199. THE CHAIR: I think if you can sit in front of us that schedule be delightful.

200. SIR WILLIAM CASH: Chairman.

201. THE CHAIR: Over to you, Mr Cash.

202. SIR WILLIAM CASH: I've already put in a petition and you've seen it. I also want to say that I feel passionately for all my constituents. Just for the record, everybody knows I voted against this on all occasions – and by that, I mean the whole project. And I appreciate that has been decided by Parliament and there were only 12 of us who voted against this particular Bill. I may add that actually out of 650 MPs, one might just note for the record, that there were a very significant number of people who didn't vote at all. And I don't know really know why that was. But that's as may be.

203. The fact is however that this project is causing the most enormous amount of anxiety in my constituency from top to bottom. It is also well known that there are two sets of petitioners from within my constituency represented in effect by what would have been to action groups but they've been translated into parish council objections for the sake of locus standi and all that sort of thing. And I will make it clear that, as I've said in my petition, that they both have very, very strong cases to make.

204. If I may say so – this is all I need to say by way of an opening preliminary remark – the fact is that the Committee has got the petitions of both of them. I believe that they

are both very powerful petitions. I do feel very strongly that manner in which they've been effected, particularly if I may say as far as the trial is concerned, the longer and deeper tunnel – there have been some very helpful remarks made by the Secretary of State from time to time, making arrangements for matters to be looked into, to translate the two-tunnel system into a one tunnel system, a longer and deeper tunnel. And since the petitions were deposited, and I really do think frankly – as I said in my petition – it's pretty wrong for us to be in a position in which the date on which the petitions had to be lodged was not actually preceded by the sort of things like the engineering, design, the bore holes and the things I've heard mentioned just now. And it would I think have been much more helpful had we been in the position to know exactly how they were going to adjust the proposed scheme to the lower, deeper tunnel scheme by coming forward with their proposals much earlier. But we are where we are. And I have no doubt at all that this Committee will be evaluating both petitions in the light of that.

205. It so happens – and it is not a secret – that they are – as somebody wrote to me in a letter which I received on 15 March I think it was – it was sent to me on 15 March – 'Our interpretation of your petition is that you appear to be supporting both your constituents advocating the Whitmore Heath to Madeley tunnel and those advocating for the proposed Aldersley Rough alternative to the Stone infrastructure and maintenance base railhead. I wanted to make it clear' – this comes from HS2, they say – 'to make it clear at this point and for the avoidance of doubt that we consider the two proposals to be incompatible with each other.'

206. Well, I have to say that it seems to me that is the case subject only to this. That as a matter of fact, if you were to pause this – having heard all the evidence – and I'm not going to try in any way to pre-judge that, by any means. It's not my job. My job is to try and protect my constituents at both ends of the constituency. And I feel very passionately – I've never been in the position since I became a Member of Parliament, and I've represented this area generally speaking, 20 years in Stone itself and its adjacent area, and as far as the Whitmore, Madeley, Baldwins Gate area, I've represented them since 1984 – I feel very, very strongly on behalf of my constituents. And I feel that we've been put in this position by the manner in which – as far as the lower part of the constituency is concerned – been put in this position because we thought that the whole of this railhead maintenance depot was going to be up in Crewe.

I don't want to flog all the way through that with you because you'll be receiving evidence from that. You've seen it on the record. You know it's true. But there was a move, in my opinion, with completely inadequate consultation. And we were suddenly presented with the fact it was going to take place right the way down by Stone and Yarnfield and the adjacent area. And it is going to cause the most enormous damage. Equally, as regards the lower, deeper tunnel, that is something which is extremely important to the constituents who live in that area, as you will hear. So, you've got two situations. It's not of their making. This has been created by the manner in which this has been dealt with, in my opinion.

207. I don't really understand why we've ended up where we are. But I do feel and want to put on record very strongly that I feel that HS2 bear a big responsibility for the manner in which all this has happened. And if you were to evaluate the situation and find for example against one or other of the two petitions, I would ask you to really ask yourselves the question, 'Well, we wouldn't have started here' and therefore to consider at the end of hearing all the evidence that you would have wanted to pause the situation and ask them perhaps to go back to the drawing board. But I know that's a big ask. But I want to put it on the record that I believe the situation is such that my constituents have been put in an impossible situation in both parts of the constituency.

208. There is another point and that is regarding the issue of cost. The total amount of money which is the difference between the proposed cost is – the total cost difference is £177 million. And as I understand it, that is myself is a matter on which – I heard a long discussion going on with the previous witness – but that is something which you'll be looking into very closely. What is it really going to cost? And I have to say, if you ask the question, 'Where's the money going to come from for the lower, deeper tunnel?' – I don't know at the moment that there is any statement that guarantees that if you were to decide that that were the right way to go, that there would be any guarantee from the Treasury that that would necessarily be forthcoming. I can say no more than that is a position which seems to me to be quite clear. And there was some evidence taken I believe today where the figures turned out to be much less than people had expected. But I wasn't hear so I can't – it's only hearsay on my part. But I think that there are a lot of very big questions about this whole project which really require a very great deal of careful examination which I know this Committee is going to give it.

209. But I think I can say no more at this stage. I'm very worried for my constituents at both ends. And I very much support their approach to the subject matter, which is to try to prevent maximum damage to the maximum number of people at either end. It is an invidious situation but I'm afraid that's where I stand.

210. THE CHAIR: Thank you for petitioning. Thank you for your candour. I very much appreciate in wanting your petitioners to be heard respectfully and fulsomely. There is a contradiction within those two positions which has consequences but – well, it's clear to me that you're passionate about your constituents and what us to make that decision to the best effect we can.

211. SIR WILLIAM CASH: I'm really asking you to be very, very tough – if I may suggest – and be robust – if I may presume to say so – in the manner in which this proposal from top to bottom is acceptable to the Committee because if it's not, there may be other solutions that can be found. And I don't think I need to enlarge on that.

212. THE CHAIR: Okay. Any questions from the Committee?

213. MR WIGGIN: Yes, Bill, first of all, I sympathise entirely with the position you're in. But it is possible that this Committee will support the existing plan, both with the two short tunnels and with leaving the maintenance depot where it is. Now, in the way you put your statement, I got a sense – and correct me if I'm wrong – that you were pushing us to a one or the other situation. Is that a wrong interpretation?

214. SIR WILLIAM CASH: Well, I would say that the longer, deeper tunnel is one option and that's going to be examined and you're taking evidence on all that.

215. MR WIGGIN: Indeed.

216. SIR WILLIAM CASH: And you'll evaluate that. I can see very, very considerable reasons from the point of view of the people who live in that area. I entirely understand and agree with them that that is something that they would want – not the two tunnels – but the longer, deeper tunnel.

217. MR WIGGIN: Of course they would.

218. SIR WILLIAM CASH: As far as the other end of the constituency is concerned, I

really do not believe that the alternatives which you will be hearing about can easily be gainsaid because it's not that they want to be in the position of having to move it. It's that they've been put in a position where they had something thrown at them that they actually – and by the way I see the Member of Parliament for Stafford sitting shortly behind me. He too has got grave worries about the manner in which the lower end of the constituency will be deeply affected by all that. And I don't think, if I may say so – I've never heard any of my constituents actually say, 'We want the other lot to suffer'. It's quite the opposite. Everybody in my constituency would like to be done with this.

219. MR WIGGIN: Of course.

220. SIR WILLIAM CASH: So, it's a very, very big ask of the Committee to pause this in the light of the evidence that you get but I think there is a strong case for it. And I think you may know I've been involved in this sort of business for a very long time, since 1964, in terms of my legal knowledge of these matters and my engagement in it. And I've never seen a situation, frankly, in all those years – and that's a very long time – which has presented so many dilemmas. It's like the judgment of Solomon.

221. THE CHAIR: Let's not go there. That's a diversion. Any other questions before we come to Mr Mould? Mr Mould, do you have any questions for Sir Bill, as I should have called him, rather than 'Mr Cash'?

Response by Mr Mould

222. MR MOULD QC (DfT): I mean plainly, on behalf of the promoter I acknowledge without hesitation the very strong concerns that Sir William expresses on behalf his constituents in relation to the perceived and actual impact of this railway. And as you know, our case, as we seek to respond to the petitions that you hear during the course of your meetings, will be to seek to show that we have thought about what we can do to seek to alleviate the impacts of the railway both during construction and its operation and to listen carefully to whether there are things that we can do which are not already within the scheme in order to improve its performance. Many might say, that is the central function of this part of the Parliamentary procedure and so we are very much alive to that.

223. The only other thing I would – if you will allow me to say this – is that I

understand that people both in the Stone area, including Yarnfield, and indeed people in the area of Madeley and Whitmore and the other towns and villages thereabouts affected by the surface works between the two tunnels, that they are particularly concerned about those impacts.

224. As regards whether people were, as it were, taken by surprise by the provisions of the Bill, so far as the Bill's proposals for the maintenance depot at Stone was concerned – although that proposal was not a feature of the route when it was first announced in November 2015, the Secretary of State did carry out a public consultation, described as a 'design refinement consultation' in the autumn of 2016. And foremost of the proposals canvassed publicly in relation to this scheme at that stage was a proposal that the maintenance depot should be moved from the former proposal – which was at Crewe – and relocated to the site that is now proposed in the Bill at Stone. So, there was an opportunity before the Bill was deposited in the House for people in late 2016 to make their views known to the Secretary of State as to whether that was a good idea or not.

225. Now, plainly the Secretary of State took account of those views and he decided that on balance he should locate the depot at Stone in the Bill and that is what happened. People now have the opportunity to raise their concerns about that and as you know you're going to hear a proposal that it should be relocated further to the north at Aldersley Rough. I simply draw that point to your attention.

226. THE CHAIR: Can I just clarify? You've answered the issue about consultation – perhaps not to some people's satisfaction.

227. MR MOULD QC (DfT): Of course –

228. THE CHAIR: But so be it. But the issue of substance in that report, why was the change made from Crewe to Stone? What were the killer reasons for the Secretary of State's decision?

229. MR MOULD QC (DfT): There were really two reasons. Firstly, the site at Stone was considered to be on reflection the optimal location to serve the purposes of a maintenance depot. And it was also considered to be the optimal location to provide the site for a railhead during construction because of the opportunity for it to be readily served by the Norton Bridge to Stone railway line. And it was felt that it would make

obvious sense to locate each of those facilities – that is to say, the construction facility, the railhead and the permanent facility – the maintenance base – at essentially the same location.

230. The reason why the Crewe location which had previously been mooted was discarded was firstly because of the impact it would have on rail freight operations at Crewe. And secondly, because it would impact very significantly on regeneration proposals for housing development of Crewe, for which the site in question had been earmarked in East Cheshire Council's forward planning documents. And it was considered an undesirable piece of planning for the Government to frustrate housing need in East Cheshire and Crewe being met through locating a railway facility where there was an alternative site at Stone that would serve the purposes of the railway better. If you see what I mean.

231. The other point I should just mention is the question of the tunnel. Sir William has mentioned the public position of the Government in relation to the single-tunnel scheme. The Secretary of State certainly required HS2 to examine the competing merits of a single-tunnel scheme following the deposit of the Bill last July. The report that you have seen in the documents is the result of that examination. But what I would wish to put on the record is this. And as you and Sir William will readily acknowledge, I have no doubt, it was never the case that substituting the twin-tunnel proposals in the Bill for a single-tunnel scheme would be acceptable to the Government at any cost. It was critical to understand what the cost implications of the obvious advantages of a single-tunnel scheme in environmental and social terms would be – to draw that rare balance that you asked me about some minutes ago. That is all I wish to say at this point.

232. THE CHAIR: Thank you very much.

233. SIR WILLIAM CASH: Can I make one last comment?

234. THE CHAIR: You certainly can.

235. SIR WILLIAM CASH: It is simply this. I hear what's being said. But with respect to this question of it being moved from Crewe, I would ask you – because obviously I won't be here when this happens necessarily – to really dig into this question of how the Crewe? You've already done it very perceptively in what you've

just said. But I think digging into it would be very interesting to find out just how valid it really was to move from Crewe to Stone – because it's caused the most enormous amount of trouble. And actually, if we'd had a lower and deeper tunnel on the assumption that HS2 was going to actually take place and therefore this was the best answer for the people who live in the area up there, then that would have been a solution.

236. But the killer blow – if you like – was to suddenly transfer the railhead without, in my opinion, any sufficient analysis or reason, down to Stone. I can't say more than that. I put that to you as a thought. That you will want to look into that very carefully because that is really in many respects at the root of the problem because they could have had a lower and deeper tunnel at the top and the people down at the bottom end of the constituency wouldn't have been much affected other than they just don't like the idea of the HS2, nor do I. So, there we are. I don't think I've got anything further to add. But I'm very grateful to you for listening to what I have to say, and I'm very, very concerned for my constituents. That's all I have to say. Thank you.

237. THE CHAIR: Thank you very much for coming in and petitioning. I think that closes the meeting.