

MINUTES OF ORAL EVIDENCE

taken before the

HIGH SPEED RAIL BILL COMMITTEE

on the

HIGH SPEED RAIL (CREWE – MANCHESTER) BILL

Monday, 20 March 2023 (Afternoon)

In Committee Room 8

A video of the proceedings can be found [here](#)

PRESENT:

Andrew Percy (Chair)

Tahir Ali

Dr Lisa Cameron

Grahame Morris

Holly Mumby-Croft

Martin Vickers

FOR THE PROMOTER:

Timothy Mould KC, Lead Counsel, Department for Transport

Tim Smart, Phase Two Managing Director, HS2 Ltd

Peter Miller, Director of Environment and Town Planning, HS2 Ltd

Promoter's exhibits referred to during the session can be found for [Plumley with Toft and Bexton here](#) and for [Rudheath here](#)

FOR THE PETITIONERS:

Cllr. Chris Wilson, Plumley with Toft and Bexton Parish Council

This petitioner's exhibits referred to during the session can be found [here](#)

Cllr. Nigel Hennerley, representative, Rudheath Parish Council

Cllr. Gaye Billington, Rudheath Parish Council

This petitioner's exhibits referred to during the session can be found [here](#)

IN PUBLIC SESSION

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(At 4.15 p.m.)

1. THE CHAIR: Good afternoon, everyone. Thank you for attending this afternoon's session of the HS2 hybrid Bill Select Committee. Before we start, I'm just going to make a quick reference to a previous commitment, for the benefit of Mr Mould.

2. The Committee just had a discussion. We are going to write to you formally regarding the previous commitment which was given, which the last HS2 Committee asked in relation to mental health, and that commitment was that HS2 would commission an ongoing epidemiological report to address community health and wellbeing, and the previous Committee noted that this would be 'a useful tool for the Committee appointed for Phase 2B to have a clearer overview of impact'. Obviously, I don't believe that work has been completed so we will write formally and then we may have a discussion about it at a future meeting. But, other than that, I don't propose to say anything else on that today.

3. MR MOULD KC (DfT): Thank you.

4. THE CHAIR: And can I thank both parties for attending? What we're going to do – this is our first petition hearing of the new Committee and so just to set out what our process will be, moving forward, for these petition hearings, we're going to ask the promoter to make a brief introduction to highlight and scene set the nature of where the petition is with regards to the route. We think that will be in the best interests of the Committee so that we understand exactly where the section is and give the promoter, as I say, a brief period to outline and scene set the petition we will be hearing.

5. Then we will hand over to the petitioner, when the petitioner will be able to present their case and then, of course, Mr Mould from HS2 will be able to respond do that petition. Members, if they have any questions or seek clarification, will jump in as and when they see fit. So, with that in mind, that's the process we'll be adopting for all our petition hearings from this point on. So, Mr Mould, if I could hand over to you for a brief introduction.

Plumley with Toft and Beckton Parish Council

6. MR MOULD KC (DfT): Thank you. We'll put up P45. The area of Plumley with Toft and Bexton Parish is shown with the red outline on the plan in front of you

and you can see that the parish lies to the south of Knutsford. It's within the area of Cheshire East Council. The HS2 railway will pass on viaduct on a north-south alignment to the west of the community of Plumley. You can see there, if you can put the cursor just at the point at which the railway passes into the parish.

7. If we turn then to P48, we have the operational plan. The access has changed so north is now to your right, south to your left. If we can put the cursor to the box which shows the Smoker Brook viaduct and then follow the line to that feature, that is the viaduct which crosses over into the boundary of the parish, as you can see on the screen, and that viaduct is taking the railway over the Smoker Brook but also over the A556 Shurlach Road and the A559 Manchester Road, which you can see if we move the cursor just to the left. You can see the Shurlach Road being pointed out now, the Manchester Road, which runs in a north-easterly alignment, and you can see that they merge just beneath the line of the Smoker Brook viaduct, so a viaduct carrying the railway over those existing features.

8. You can also see marked on this plan, Ascol Drive. That's a private road which runs at right angles to the A556 and, as it comes to that junction with the A556, you can see there the footprints of some residential properties. On the frontage of the A556, and marked on the plan, are Cranage Villas and along the frontage of Ascol Drive, on the eastern frontage of Ascol Drive, there are a number of residential properties which front on to Ascol Drive itself. And I think that is at least one of the main focuses of the petition that you're going to be hearing in a moment.

9. In terms of what the scheme is offering by way of environmental mitigation, if we can turn to P53, we've highlighted the area of the parish itself. You can see that the box towards the top of the page on the left refers to a noise-fence barrier, approximately three metres in height, along the Smoker Brook viaduct itself. You can also see reference to woodland habitat creation along the existing woodland, known as Winnington Wood, and to the north, beneath and next to the viaduct. That's that relatively bright green notation with the trees in it. So there's quite a belt of thick woodland planting in there.

10. And then on Ascol Drive, you can see there is provision for some woodland planting about halfway down Ascol Drive looking to the south-west and there's also

provision for some woodland habitat planting and an ecological creation field, as it were, just being pointed out to you now, at the bottom end of Ascol Drive. And in order to get to that ecological feature, in order to build it, it is necessary to use the private road that is Ascol Drive for a relatively short period, of about three months, for construction traffic and our estimate is that we would need to run up to 10 construction vehicles a day along Ascol Drive for up to three months, in order to enable that particular feature of the scheme to be constructed. Thereafter, Ascol Drive would cease to be used for construction purposes. It would, under the terms of the Bill, remain available to HS2 for monitoring and maintenance purposes for those ecological features and we predict a small number of light goods vehicles per annum using that road. I emphasise those points because, again, I think that is a subject of some interest in the petition.

11. In terms of principal construction features, can we just go on to P47? I mentioned the merging of the two main roads, the A559 and the A556. This shows you the construction arrangements. You can see obviously that the viaduct will need to be constructed over the top of that junction, which is being pointed out to you now, I hope. In order to enable that to happen, it will be necessary to carry out some temporary realignment of those two roads in a sequence. I can explain a little bit more about that later but, again, that sequence of temporary realignment is, I think, also of interest to the petitioners.

12. And then, finally, I think you wanted just a summary of any assurances that have been offered. I can take you to P63, and this is a letter sent on the 16th, so Thursday, I think, of last week, and this – if we go to the next page, P63(2) – three assurances, I think, are included in this letter. The first related to the provision of information. You can see that on the screen. I won't read it out to you. Just pause for a second. Essentially, confirming what would be required under the code of construction practice but in the form of a commitment to the petitioners.

13. The second, which is the under the heading, 'Early mitigation planting', requires early delivery of some of the mitigation planting I showed you briefly on the mitigation plan. If we look up the page, we can see that that mitigation planting at the top of the page is shown on a plan and I can take you to that plan, briefly, just so you've got a sense of what we're talking about. It's at P63(6). There are two areas of planting which are going to be carried out early. The first is the area of planting outlined on the right-

hand side of this plan with the red outline. Do you see that? That's that area of woodland planting I showed you on the plan a few moments ago, which is intended to thicken up the existing woodland in the vicinity of the viaduct, and, secondly, that planting and ecological mitigation that I showed you, which requires access to Ascol Drive for its creation.

14. The final point in opening, you'll see that we've outlined the frontage properties on the A556, Cranage Villas – we've outlined those with an orange line. If we go back to the letter at page 3, we can see the significance of that. That identifies the properties on Cranage Villas which are eligible on our noise impact assessment to receive sound insulation, and the purpose of this assurance is to indicate that that insulation will, if reasonably practical, be installed at an early stage in the construction process so that the benefit of that sound insulation is realised, not simply during operation but also during construction as well.

15. THE CHAIR: Okay. Alright, thank you, Mr Mould. Councillor Wilson, I'm going to hand over to you now. Are you the chair of the parish council?

16. MR WILSON: I'm not.

17. THE CHAIR: You're not.

18. MR WILSON: I'm not actually a councillor. I'm an ex-councillor of Plumley with Toft and Bexton Parish Council. I'm here to represent –

19. THE CHAIR: You are representing the parish council of Plumley with Toft and Bexton. So over to you, Mr Wilson.

Submissions by Mr Wilson

20. MR WILSON: Good afternoon, everyone. Can I have slide A9(1), please? Just to confirm, this is who we are. My name's Christopher Wilson, as I've said, and I'm an ex-councillor and here to represent Plumley with Toft and Bexton Parish Council.

21. Can I have slide A9(2), please? I think Mr Mould has outlined well what Plumley is. It's a small village, some 600 residents, who will be affected by the disruption of the A556 during the construction period of HS2 Phase 2B and this slide shows the hamlet of

Ascol Drive and Cranage Villas, which is situated on the south-western boundary of the parish, and I unashamedly focus on this hamlet throughout this presentation. It houses approximately 60 people who will be severely affected over the construction period of Phase 2B and during the operation of the railway.

22. Can I have slide A9(3), please? This shows the construction area in relation to Cranage Villas and Ascol Drive and during the construction period, the siting of the Smoke Brook viaduct compound next to Ascol Drive impacts this small community. And we know from Phase One that living close to construction works causes extreme anxiety and impacts the mental health and wellbeing of people living amidst major construction work. I note the Chair was mentioning mental health impacts at his opening statement.

23. HS2 shows a period of 10 years from start to finish for this project and a four-and-a-half-year life of the Smoker Brook viaduct compound. But ground investigations are still to be carried out, the results of which may affect the complexity of the design, build and therefore increase timescales, as we've already seen on Phase One. Until the lead contractor has finalised the design and the detailed works required, the scope, schedule and cost of the project cannot be fully understood, which ultimately leads to extended blight and impact on affected residents.

24. Within our petition, we highlighted 10 points of concern: the route; the hamlet of Ascol Drive and Cranage Villas; the surface condition of Ascol Drive; noise pollution; the Smoker Brook viaduct noise barrier; air quality; light pollution; footpaths; HS2 HGV traffic impacts; and impact on woodlands.

25. Now, we accept that the line can be made relatively safe but we believe that, because of the challenging geology, this will come at a significant cost and that it will continue to pose a risk to safe operation of the high-speed line. Ongoing ground subsidence is still evident along the chosen route and the extreme weather events that we will continue to experience present even greater challenges. HS2 say in their response document that ground subsidence is very rare across the area of interest but then go on to say that it does not mean that ground subsidence cannot occur along the alignment. In fact, during the design development for the hybrid Bill, an area of subsidence adjacent to Clive Green Lane in Stanthorne, north of Crewe, was identified

as showing signs of recent and ongoing growth.

26. Salt dissolution is probably the main hazard. I am given to understand that one of the main catalysts to salt dissolution and consequent subsidence is historic and recent wild brine operations and consequential increased development and spread of existing natural brine runs and formation of anthropogenic-initiated brine runs. The last such wild brine operation ceased only in 2006. I also understand that subsidence can occur some distance, up to several miles, from the original site of wild brine operations, and it is this that will pose a continuing risk to the route of HS2 B.

27. Now, HS2 also say that there is potential for climate change to result in increased levels of salt dissolution and ground surface subsidence, and go on to say that the route avoids major areas of former high subsidence as marked by flashes, with the exception of Billinge Flash. Billinge Flash is an extensive salt dissolution depression that is crossed by the proposed scheme and is a significant mapped cluster of former and active subsidised ground that is linked by an underground anthropogenic-enhanced brine run to an historic and recent area of brine extraction in Northwich.

28. HS2 list the things they avoid on this route: a line of meres; areas of ground subsidence; locations of historical wild brine well pumping sites; clusters of subsidence features and historical uncontrolled salt mines, all of which is meant to allay our fears but which simply shows that the geology is extremely challenging and hazardous. There are known hazardous features which HS2 avoid. There are known hazardous features which HS2 don't avoid – Billinge Flash. And there are unknown known hazardous features which HS2 hope they don't encounter along the route they've chosen. In fact, HS2 say that it has not been possible to select a route which avoids entirely all possible sources of risk posed by the ground conditions in the area of interest, hence the route was raised on to a series of embankments and the tracks are to be designed with features which allow for corrections of rail geometry, primarily in terms of lifting.

29. In the promoter's response to our petition, they say that HS2 has undertaken a significant amount of data gathering and a comprehensive desk study has been compiled for Phase 2B route and, following a review of the desk study information, two phases of ground investigations have already been carried out.

30. In answer to our question, ‘How many ground investigations will need to be completed on Phase 2B prior to construction?’, HS2 stated that approximately 3,000 ground investigations would be required between Crewe and Manchester – 3,000. Whether they will be completed before or after the hybrid Bill, we’re not sure, but probably not in time to fully inform HS2 nor MPs.

31. In HS2 Ltd’s publication, *Understanding the Ground Risk across the Cheshire Plain*, they say that based on interpretations of information obtained to date, they consider that the route alignment is appropriate for the intended purpose. The intended purpose is a 250 mile per hour train. The worrying phrase, of course, is ‘obtained to date’. Basically, it says things can change. Costs can rise. Impacts can be worse. Andrew McNaughton, when technical director of HS2, in a meeting with mid-Cheshire residents in 2014, said of the salt district geology, ‘We’ll just throw money at it’, an attitude that apparently continues to this day.

32. It’s a betting game, with very high stakes. Parliament, because it has cross-party support, are betting on a route that is extremely challenging. In a high-stakes game, you cover your risk. The proposed £300 million-plus ground investigation works, the 3,000 investigations required, should be completed and assessed prior to the passing of the hybrid Bill. MPs should be fully informed as to the actual cost and risk of this route.

33. Can I have slide A9(4), please? As we have previously noted, the ground conditions throughout mid-Cheshire dictate that the route of Phase 2B is on embankments and viaducts, which has a major and widespread impact on airborne noise, visual intrusion and landscape character. HS2 have said in the working draft environmental statement that many of the impacts of the construction and operation of Phase 2B are extremely difficult to mitigate. The parish council said that, if this project is to proceed, then throughout mid-Cheshire, we need measures to fully integrate HS2 infrastructure within the flat landscape. Creating a high-level concrete highway interspersed with green hillocks topped with trees will not provide suitable integration.

34. Far from that, the railway will be a massive feature through and change the character of Cheshire. The embankments typically range between one metre and 10 metres in height and viaducts can reach 20 metres plus in height. A possible consequence of ground investigations is that an increase of embankment heights of up to

three metres may be required. HS2 say that the landscape and visual effects of the Smoker Brook viaduct have been assessed in the environmental statement. That slide, by the way, shows the section of the Smoker Brook viaduct to the left-hand side of that slide and the line of the railway is in red and the line of the ground is in green. At no point does it touch the ground. It's all above ground.

35. Can I have slide A9(5), please? This slide is looking at viewpoints and we're looking here at viewpoint 31203008, looking west from footpath 8-2. Can I have the next slide, please, A9(6), please? This is the actual view, looking west from that same footpath. What you just see in the centre of the picture is the bridge carrying the A556 road over the mid-Cheshire rail line. Now, imagine that the trees are no longer there and, instead, we have a 10-metre-high embankment across that viewpoint, right the way across that viewpoint.

36. The next slide, A9(7), please. Here we see the position of viewpoints 31302002 looking west from Cranage Villas, the red arrow, and the red arrow shows the direction of view that HS2 have not considered as impacted, due to existing tree cover, and we also see the position of viewpoint 31302004 looking west from Holford Cottages, which is the purple arrow. The map also shows the dark pink areas which are to be cleared of trees for construction and the light pink areas that are mitigation planting. It's obvious that, during construction period, there would be no screening of the construction from Holford Cottages, the purple viewpoint.

37. And slide A9(8), please. This slide shows the actual view looking west from the frontage of Cranage Villas. Now, at this point, the height of the Smoker Brook viaduct will be approximately 15 to 16 metres above ground level and visible. The yellow lines are my estimate of the height of the Smoker Brook viaduct. As previously noted, tree clearance for the construction of HS2 will increase the visibility of the viaduct during the construction and initial operation of the railway. At no time in the winter will that railway be invisible. It will, obviously, be shielded during the summer months.

38. And slide A9(9), please. This shows the actual view looking west from the frontage of Holford Cottages. Again, the yellow line is my estimate of the height of HS2 and its visibility. During construction, the three viewpoints that we've seen are reported as experiencing significant effects due to views of the railhead and construction

of the proposed scheme. They will remain impacted for decades.

39. HS2 say that, by year 15 of operation, maturing mitigation planting would screen views of the Smoker Brook viaduct from Holford Cottages. It will not. To achieve this, a tree growth rate of 10 metres over 15 years is needed, 60 centimetres per year. According to the Woodland Trust, some trees – alder, birch, ash, willow, wild cherry – grow at a rate of 60 centimetres a year; others – oak, beech, rowan – are slower, gaining height at not much more than 30 centimetres a year. So the type of trees that are planted will decide the growth rate and the type of trees that are planted are based on the trees that are already there. So the actual realistic growth rate in this area would probably be about 40 centimetres a year. That means that after 15 years, we'd have a height of six metres and it would take 25 years to have a height of 10 metres. HS2 have taken a not uncommon, far too optimistic approach to mitigation.

40. The most effective mitigation for those impacted along the route can only be achieved by constructing the line at grade, in cuttings or green tunnels, and where these options are not possible, the only full mitigation is tunnelling. Now that might seem a ridiculous proposal, although it has been used on Phase One at various locations. The Long Itchington tunnel has been used by HS2 as a green credential, stating it 'preserves the ancient woodland above and is a vital part of how we manage environmental impacts through the design of the railway'.

41. HS2, in a recent communication I got, has said that tunnelling is going to be more expensive and difficult through this terrain, suggesting therefore it's not worthwhile, but they're tunnelling under Crewe; they're tunnelling under Manchester; they're tunnelling into London; they've done the Itchington tunnel; they've done the Chiltern tunnel, 10 miles through the chalk aquifer that feeds London. Challenging tunnels, so this is no more difficult than those.

42. Plumley with Toft and Bexton Parish Council would ask HS2 Ltd to undertake to consider tunnelling on the route between Crewe and Manchester as being both the best and only method of full mitigation and the safest means of traversing the mid-Cheshire salt district.

43. Can I have slide A9(10), please? Now, this is Ascol Drive. It's an unmetalled private road; it's in poor condition. HS2 have safeguarded Ascol Drive and the parish

council has asked that, since HS2 intend to use Ascol Drive during the construction period, they bring it up to a suitable standard. The parish council appreciate that the usage HS2 say they intend, is minor, and if this remains the case, then we accept that HS2 will repair any damage caused by their usage. If, however, the usage by HS2 is substantially greater, and things change on this project, HS2 cannot categorically state at this stage that the usage of Ascol Drive will be for the vehicles they've already started. So if the usage is substantially greater than anticipated, or of a heavier vehicle type, Plumley with Toft and Bexton Parish Council ask HS2 Ltd to undertake to make such road improvements of Ascol Drive as are warranted and necessary.

44. And the next slide, please, A9(11), yes. This slide shows the impact of noise on dwellings at Ascol Drive, Cranage Villas, Holford Farm and Holford Cottages. The green hatched areas, Cranage Villas and Holford Cottages, indicate that these areas are defined as 'noise important' in Defra 2014. The blue circles at all these locations basically indicate sound levels exceed 60 decibels. The purple cross at Cranage Villas indicates potential noise insulation and the black asterisk, also at Cranage Villas, indicates potential additional noise insulation.

45. There's very little indication of what form this insulation will take and, prior to this petitioning process, when or even if it would be installed. HS2, as has been mentioned, has recently offered an assurance to offer insulation for Cranage Villas prior to the operation of HS2 but we believe that a case exists for insulation to be offered prior to the construction, during the enabling works. We contend that the properties of Cranage Villas will be affected not only during the operation of the railway but, along with Holford Farm and Holford Cottages, during construction, due to the addition of HS2 heavy goods vehicle traffic along the A556.

46. HGVs are a source of considerable noise, peaking at approximately 85 decibels at the façade of Cranage Villas, Holford Farm and Holford Cottages. 1,140 HS2 heavy goods vehicle journeys will occur on the A556 between the Smoker Bridge viaduct, construction compound and Plumley Moor Road, over a 10-hour working day, averaging at 114 HGV movements per hour, two per minute. The traffic data shows a maximum current peak hour HGV movement of 183 in the morning rush hour and 92 in the evening. So the additional HS2 HGV traffic will give 297 movements in total in morning rush hour and one every 12 seconds – one every 12 seconds – and 206

movements in the evening rush hour, one every 17 seconds. In effect, HS2 movements double the incidence of noise experienced by the properties of Cranage Villas, Holford Farm and Holford Cottages over the expected 12-month busy period. 12 months is, again, dependent on no time slippage, no change in detailed design, no change in build techniques or build time.

47. Plumley with Toft and Bexton Parish Council ask HS2 Ltd to undertake to offer, supply and install sound insulation to the properties of Cranage Villas, Holford Farm and Holford Cottages, during the enabling works. It should be said, they've already moved from offering it after operation to offering it before operation. If you're offering something before the operation, then when you actually install that sound insulation is a moot point. You can move it to the enabling works. If you're going to do it before operation, why leave it until during construction? You can move it into the enabling works and that takes this problem away from those properties.

48. Smoker Brook viaduct. At a meeting in February 2023, the parish council asked whether a three-metre-high acoustic barrier was the maximum height of barrier that could be placed on the viaduct. The answer was, 'No, the maximum is four metres', but HS2 say there is no significant benefit from raising the barrier on the Smoker Brook viaduct from three to four metres, this even though a five-metre-high acoustic barrier is to be included in the design for the Lostock Gralam north embankment, which you can just see the start of on the left-hand side of that picture there. So whilst the viaduct is three metres, you can see up to five metres is just on the screen there for the embankment. Plumley with Toft and Bexton Parish Council ask HS2 Ltd to undertake to direct the nominated lead contractor to install the best available and technically achievable mitigation barrier to the Smoker Brook viaduct.

49. Now, we welcome the fact that air quality modelling receptors will be placed at Ascol Drive during the construction period and we trust that monitoring will include emissions of oxides of nitrogen, including nitrogen dioxide, fine particulate matter and dust, all of which are likely to arise from construction activities. We also note that the nominated undertaker would require its contractors to take steps to control or limit dust, air pollution, odour and exhaust, including measures relevant to control risks associated with asbestos dust. We thought that asbestos dust was no longer used in the construction industry. Plumley with Toft and Bexton Parish Council ask HS2 Ltd to

clarify whether asbestos is to be used in the construction of the proposed scheme and, if so, to state what definitive measures will be taken to eliminate the possibility of any emissions.

50. Can I have slide A9(12), please? Now, we welcome the response of HS2 to our concerns about light pollution during the construction period, with the reservation that HS2 assumes screening of trees obliterates views of the construction compound, which is not necessarily the case at night, especially if lighting is badly designed, installed or controlled. As you can see from, admittedly, a poor photograph, Ascol Drive at night is a dark place. The viewpoint you see is from Ascol Drive looking towards the only light source, which is the A556. The viewpoint HS2 say is representative of views within the parish potentially affected by the proposed scheme looks west from Cranage Villas along the A556 towards the position of the Smoker Brook viaduct. But the viewpoint that Ascol Drive residents see is 90 degrees to the left of this photograph, looking west towards the Smoker Brook viaduct construction compound. Plumley with Toft and Bexton Parish Council ask HS2 to ensure that construction compound lighting does not intrude on properties of Ascol Drive.

51. Can I have slide A9(13), please? This slide shows footpaths: 15-1 in red, in the middle of the screen, and its connection to the footpath network leading to Plumley village, 15-2 blue and 8-2 purple and footpath 7, which is light blue, connecting to Lostock Green and Lostock Gralam. HS2 have acknowledged that these footpaths are used daily by many walkers, providing a link between communities and a link to numerous other footpaths in the area. They state there are no temporary or permanent significant adverse effects on journey length or hindrances reported for non-motorised users on footpath 15-1, 15-2 or 8-2, this despite notice served on these footpaths and HS2 stating that the temporary stopping up powers would only be used on a precautionary basis and for public safety reasons, such as separation of HS2 contractors' vehicles from pedestrian users of the footpath.

52. HS2 cannot have it both ways. Either there is a hindrance of footpath users or there is no temporary stoppage. There are no proposed works that impact on these footpaths. The reasoning given by HS2 is that temporary closures of these footpaths may be required for safety reasons during mitigation planting but HS2's transport route stops well short of these footpaths.

53. Can I have A9(14), please? This shows the transport route for HS2. On Ascol Drive, the route is shown to end prior to the start of the footpaths shown in blue. We also note that on map CT05316A in the environmental statement footpath 15-1 is not within the land take area. It's not coloured pink. 15-1 runs from the top end of Ascol Drive to the right of your viewpoint – from the top end of Ascol Drive, sorry, or the bottom end if – right, from that point and right along that blue line, that is footpath 15-1 and that footpath is not within the land take area. So the question is, is it within Bill limits? But notice has been served on it for stopping it up. There is no need to have vehicular access to these footpaths as the construction compound site and all areas of mitigation planting can be accessed via the existing field entrance opposite Holford House.

54. Next slide, please, A9. This is the entrance to the field where the Smoker Brook compound will be situated. The field entrance is at the end of HS2's transport route. Next slide, please, A9. 90 degrees to the left of that field entrance is the gateway across Ascol Drive at the end of HS2's intended transport route. The footpaths in question are way down in the distance at that line of trees across the bottom of the very top end of Ascol Drive.

55. In the 40 years that I've resided at Cranage Villas, agricultural vehicles have accessed fields using the footpaths. Gas engineers have accessed the pumping station at the top of Ascol Drive. A bottled gas company has used the buildings within the SSSI site at the top of Ascol Drive. That's those trees at the top of Ascol Drive. At Ascol Drive, railway maintenance engineers have accessed the level crossing down Ascol Drive, and the footpaths, and Ascol Drive and footpath 15-1 are also noted as an emergency use by Holford Hall in their capacity as a wedding venue, all without a single incident.

56. HS2 state that the temporary use of Ascol Drive would be for up to 10 light goods vehicles per day during mitigation planting and for a predicted future use of up to four times per year, two vehicles per day, over a two-day period. One assumes temporary closure of footpaths would not be required for this future use. The promoter's assertion that these temporary closures would be of short duration and/or distance and would not have a significant effect on users is not borne out by the experiences on Phase One. Aylesbury MP Rob Butler said in the house, 'Fairford Leys is a perfect microcosm of

what dealing with HS2 Ltd can be like on the ground. The company has refused to reopen a path that's extremely popular with walkers, despite residents saying there's no sign of work taking place at that spot'.

57. This is the kind of avoidable problem that the parish council foresee because of the unnecessary notices on these footpaths. We also note that the promoter states that the notice is a requirement of parliamentary standing orders and that these notices could not be revoked. It would appear to be fait accompli. It could be argued that this is why HS2 has been the subject of so much controversy. This is a mammoth project with a severe effect on communities. More should have been done to avoid these types of impacts. It is of no comfort to be able to appear before this Select Committee if, as HS2 have said, no action can now be taken in relation to the notices on these footpaths. Plumley with Toft and Bexton Parish Council ask that the notices on the footpaths be revoked, 15-1, 15-2 and 8-2.

58. Can I have slide A9(17), please? This slide shows the traffic assessment data for the A556 between Manchester Road and Linnards Lane, and Linnards Lane and Plumley Moor Road. This is the section of road that passes in front of Ascol Drive and Cranage Villas. The parish council's concerns relate to the temporary stoppages of the A556 Shurlach Road and Chester Road and the A559 Manchester Road, and the effect these stoppages will have on Plumley Moor Road and the general disruption to the usage of the A556 and the connectivity it affords. Slide A9(17) shows the number of traffic movements along the A556 as 38,500 per day: 2,817 in the morning rush hour; 2,717 in the evening. With this number of vehicle movements, it does not take long for substantial queues to build up on the A556.

59. Can I have slide A9(18), please? This slide, shown in red are the nominated scope of works for the temporary realignment of the A556/A559. The red circle is the limit of works for the diversion of a gas main. Stoppages on the A559 Manchester Road occur three times. Stoppages on the A556 Chester Road occur four times.

60. Next slide, A9(19), please. Slide A9(19) and its continuation slide A9(20) show the scope of works for the permanent realignment of the A556 Shurlach Road, marked in red, during which stoppages on that road occur seven times. Next slide, please, A9(20). A minimum of 14 stoppages, which does not include any closures needed for

the erection of the Smoker Brook viaduct, nor for the erection of the viaduct over the A556 at Lostock Gralam. These road closures will impact traffic movements along the A556. The parish council notes that the Phase 2B draft code of construction practice would require the nominated undertaker to prepare a route-wide traffic management plan and local traffic management plans, in consultation with local highway and traffic authorities, as well as emergency services, and that the promoter states that the road closures or short-term lane closures will be scheduled at weekends or overnight when the road network is less busy. And once again, we take note of the experience on Phase One. Aylesbury's MP, Rob Butler, said, 'Residents and businesses across my constituency are blighted by traffic delays caused by HS2'.

61. Next slide, A9(21), please. This slide shows Ellesborough Road. During consultation, HS2 said they expected this road to be closed for two days. A sign shows 21 days of closure. The parish council continues to have concerns that diversionary routes during weekend and unexpected weekday closures would be unable to cope with the traffic volumes and that this would result in delays on the A556 and increased usage of rural roads such as Plumley Moor Road. Plumley with Toft and Bexton Parish Council therefore ask HS2 Ltd to give an assurance that local traffic management plans include a system to discourage the use of rural roads during closures of the A556 Shurlach/Chester Road or the A559 Manchester Road.

62. Can I have slide A9(22), please? This slide shows ancient woodland in turquoise green and local wildlife sites in the dotted moss green. The construction of HS2 Phase 2B impacts and fragments four woodlands within the parish of Plumley: Winnington Wood, ancient woodland; Peas Wood, a local wildlife site; Smoker Wood, ancient woodland; and Leonard's Wood, ancient woodland. All these woods are traversed by the Smoker Brook viaduct and will be permanently impacted. The extension of the Lostock Gralam north embankment has increased the land take at the end of Long Wood, adjacent to the A556. Long Wood is on the left, that long strip of dotted moss green. HS2 stated at a meeting in February '23 that dark pink areas on map CT05316A in the environmental statement volume 2 are 'deemed by HS2 to be cleared of trees, hedges and vegetation'. The director of hybrid Bill delivery, in answer to the question, 'Who monitors the removal of trees and hedgerows?', wrote, 'Contractors are contractually bound to adhere to the draft code of construction practice. The removal of

trees would be restricted within the consolidated construction boundary set out in the Bill and accompanying environmental statement. During detailed design, the contractor would consider opportunities to retain existing trees through the measures set out in section 12(2)'.

63. 12(2) relates to the protection of trees and basically says, 'The nominated undertaker requires its contractors to put in place, appropriate controls, including a survey plan showing areas of existing trees and vegetation within the construction site, to be retained and protected, and those to be removed. It will also require its contractors to employ an arboricultural consultant to oversee works relating to the protection of trees and retained trees. Retained trees will be protected in line with the recommendations in BS5837'.

64. So it's the contractor who decides which trees need to go. The ecological specialists only come into the picture if the trees are deemed 'not to be removed by the contractor', and therefore need protection from construction activities. All of the area – all of the woodland of Long Wood and portions of the woodland of Winnington, Peas, Smoker and Leonard's Wood will be removed as part of the construction clearance. We asked at a meeting in February '23 what width of tree clearance in metres through Winnington, Peas, Smoker and Leonard's Wood will be required for the construction of the Smoker Brook viaduct. The answer was not known. It will be determined at the time of construction.

65. Next slide, please, A9(23). This photograph shows Diamond Wood in 2020. It's on the University of Warwick land and it's not ancient woodland. It was apparently planted in 2012, knowing HS2 was coming, and a gap was left, based on the land take HS2 told them would be needed. Next slide, please, A9(24). This is that same woodland in 2022. Our fears for the decimation of the four woodlands are not unfounded. A rough measurement from map CT05316A indicates a land clearance of approximately 50 metres wide.

66. If you could just bring up P50(4), please. Now, this shows the Smoker Brook viaduct going through Winnington and Peas Wood. To the right of it, there is an access road, which is not shown on the original plans, by the way. If you look at the distance from the access road to the centre of the railway, we're looking at 50 metres from the

centre of the railway to the access road. So it looks as though the clearance for that route could well extend 50 metres one way, 25 metres the other, making 75 metres wide. So that view that we're seeing there, which HS2 have presumably shown as an indication of tree cover for the railway, is not going to have that much tree cover. The only bit of tree cover will be the bit beyond the access road going towards Cranage Villas.

67. Now, the promoter says it's not possible in all instances to avoid ancient woodland. The Woodland Trust say, 'Ancient woodlands are our richest and most complex terrestrial habitat in the UK. They are home to more threatened species than any other.' You can't replace complex biodiversity of ancient woodlands. Many species that thrive in ancient woodland are slow to colonise new areas. All ancient woodlands are unique and are distinctive of their locality. Our problem is, we're only just beginning to understand the complexity and interdependence of organisms within all woodland, but especially within ancient woodland. Removal of a large tract of trees and ground through these woodlands will affect the viability of the species that currently thrive in the woodland.

68. To fully compensate for the loss of ancient woodland and Long Wood, the parish council suggested that, when the Smoker Brook viaduct construction compound is no longer required, if we could go back to slide A9(22), creating an area of woodland habitation over the whole of the land take area east of the proposed route and east of the A556 Chester Road. That would take us from the route of the A556, right across beyond Long Wood into the whole of that field area. That is what we asked. The promoter noted our suggestion but stated that both construction compound areas may be required for a mixture of future land use. Land not required for operation is intended to be reinstated to the original land use, which at this location is agricultural.

69. Plumley with Toft and Bexton Parish Council ask that HS2 Ltd reconsider creating an area of woodland between the A556 and the existing position of Long Wood. This would increase the screening of the high-speed line for residents of Ascol Drive, integrate Long Wood and provide a habitat connectivity, enhanced landscapes for green infrastructure, as well as connectivity of historic landscape features. And that concludes my –

70. THE CHAIR: Thank you.

71. MR WILSON: If you want a list of the actions, I'll just run through them again if that's necessary.

72. THE CHAIR: No, no. We've got them. Our clerk has been writing them down as well. So, thank you, Mr Wilson. Members, any points of clarification questions before I ask Mr Mould to respond? No? Mr Mould?

73. MR MOULD KC (DfT): I'm going to ask Mr Smart to come and deal with the ground conditions issue.

74. THE CHAIR: Right, okay.

75. MR MOULD KC (DfT): And if we can put up P59.

76. MR SMART: Good afternoon, sir.

77. THE CHAIR: Good afternoon.

Evidence of Mr Smart

78. MR MOULD KC (DfT): Mr Smart, the petitioner has told the Committee that the ground conditions through which the railway is proposed to be constructed and operated in this part of Cheshire will, to use his words, be 'extremely challenging'. Has HS2 investigated the nature of that challenge?

79. MR SMART: Yes, we have and we have published our report in response to the challenge, if you like, of the sort of geology in this area, and it's a risk that we understand and, in fact, have dealt with in the route alignment in the first place in order to take the best line across what is known as the Cheshire salts, if you like. We also did another refinement to that alignment as well, which was responded to in our report in July 2017, I think it was.

80. MR MOULD KQ (DfT): That was the report that led to the Government's identification of the refined route, which ultimately was the route upon which this Bill is based.

81. MR SMART: Correct.

82. MR MOULD KQ (DfT): You mentioned a more recent report. On the screen is a report – the front page of a report entitled, *Crewe to Manchester: Understanding the Ground Risk across the Cheshire Plain*, dated 3 March 2023. Can you just explain to the Committee what is the purpose of that report? I'll put up P59(2) whilst you do so.

83. MR SMART: The purpose of that report is to outline how we propose to deal with the challenge of the salt geology in this area, and also, of course, outline what the geology is in terms of what we have got to deal with. We have got, effectively, a response that deals with this in terms of our design, and you heard talk about embankments and that's really in the area where we need to make sure we avoid the potential for salt dissolution.

84. It's also in our construction and how we can use piling techniques, geogrids and, indeed, use embankments to traverse this area so we can control the drainage so it doesn't get into the ground, and also, of course, in terms of how we monitor the railway once it's in operation because there are a number of sophisticated ways of monitoring ground movement and settlement etc. So that's all set out in the report effectively in construction and design response. Do you want – I've probably got the reference to where –

85. MR MOULD KQ (DfT): For the record, the report is a reference document.

86. MR SMART: 937, I think it is.

87. MR MOULD KQ (DfT): It's R12 on the parliamentary system. I think what you had in mind was part 4 of the report which is headed, 'Proposed scheme response'.

88. MR SMART: That's it.

89. MR MOULD KQ (DfT): Yes. If we turn to P59(4) – we'll just dwell on that for a second just so that Members can just see what it says.

90. MR SMART: In summary, I think that really just outlines the fact how we've done our best to avoid the areas of the higher-risk ground.

91. MR MOULD KQ (DfT): Then P59(5), I think you mentioned some aspects of the design response. Is that a summary of the key points that you want to make?

92. MR SMART: That's the key points drawn out from the report in terms of the design response, yes.

93. MR MOULD KQ (DfT): The petitioner also referred to HS2 taking opportunities to lower the railway in the landscape as it passes across the Cheshire plain. If we take the case of embankments, does the route that is shown on the Bill plans, following the route refinement consultation that took place in 2016 and 2017, take opportunities to lower the route on embankment where those opportunities are seen to exist?

94. MR SMART: It does, yes.

95. MR MOULD KQ (DfT): And can you give us an idea of what's the minimum height above existing ground level that you see on some of the embankments that we see?

96. MR SMART: I think we get down as low as one metre, I think.

97. MR MOULD KQ (DfT): One metre. When one comes to the question of a viaduct, we saw on the plans that the Committee saw earlier in this presentation that the Smoker Brook viaduct has to negotiate the merging of the A556 and the A559 and also to negotiate the Smoker Brook itself.

98. MR SMART: Correct, yeah.

99. MR MOULD KQ (DfT): In the case of taking the railway over those existing features, what opportunity is there, firstly, to avoid a viaduct as the appropriate civil engineering response to those existing features in the landscape?

100. MR SMART: Well, we have to go with the roads in viaduct because you've got to have the headroom to pass traffic underneath, so there's not an alternative to the viaduct as such, in terms of, if you're looking at an embankment or something, clearly the viaduct is the elegant solution.

101. MR MOULD KQ (DfT): Is the height of the viaduct defined by those existing features on the ground it has to negotiate?

102. MR SMART: Yes, it is.

103. MR MOULD KQ (DfT): Yes. Can we turn to the suggestion that tunnelling might be an alternative here? We've just put up P58. The suggestion was that, if all else fails and it's not possible to lower the route further than is shown on the plans, then the option is to go underneath the ground. Can you give us an idea of the depth of tunnel that you think would be required in order to negotiate the subterranean geology and avoid the risks that this petitioner and others have highlighted in that respect?

104. MR SMART: Yes, it would be over 100 metres and possibly up to 150 metres deep.

105. MR MOULD KQ (DfT): And have we got an idea of the length that tunnel would need to be?

106. MR SMART: Well, that's the issue because the track alignment is, of course, within certain characteristics and parameters, so effectively, if you start to lower the route, you unravel the alignment, so we would end up with a tunnel which would be in the order of 50 kilometres, 31 miles of length. That, of course, would require a lot more intervention, so we would need another nine vent shafts, and the Committee may recall, when I went through tunnelling fire and life safety, that there's a certain limit of length of a tunnel that you can get to before you need an intervention point where you can stop trains and get passengers out rather than use the adjacent walkways because of the number of times you're going to have trains in that length of tunnel.

107. So it would need a significant intervention point within that 50 kilometres, 31 miles, and you would also end up with – the NPR junction could not be provided really in tunnel without very, very significant expense of another tunnel which would make that connection, and you'd also end up with an airport station at a much lower point than it would otherwise be as well, so you'd be bringing people up to the airport station from a depth – not probably 100 metres because you'd be on the way up at that point, but still more significant than you would be with the current proposal.

108. THE CHAIR: Can I just clarify this? What you're saying is you would have to continue the Crewe tunnel to effectively meet the Manchester tunnel. Otherwise this would be another section of tunnel.

109. MR MOULD KQ (DfT): We would have a length of tunnel that would almost

start to connect that, yes.

110. THE CHAIR: So then you would have – the whole route is only like 40 miles or something.

111. MR MOULD KQ (DfT): Yes, that's right.

112. THE CHAIR: But the Crewe tunnel route wouldn't – it would still come out of Crewe tunnel at the northern portal and then –

113. MR SMART: It would, but you would then go probably very quickly down into the tunnel again. We'd have to work in alignment, but, yes, you would end up with virtually quite a lot of the route in tunnel.

114. THE CHAIR: Well, more of it in tunnel than not, by a substantial margin.

115. MR SMART: Yes. And it wouldn't be also altogether clear that by tunnelling underneath the salt geology that would you avoid some of the problems of salt dissolution because tunnels tend to act as drains and water flows into tunnels, and so you could disturb the underground drainage as well. So not necessarily the answer to the problem.

116. THE CHAIR: Thank you.

117. MR MOULD KQ (DfT): Thank you. Can I turn to one other topic, which is the temporary realignment of the A559/A556 just to the south of Ascol Drive? We'll put up P57. You remember that Mr Wilson showed the Committee a series of slides which, he said, showed a sequence of stoppages. Can you just explain, please, what's going on in this slide in relation to the sequence of temporary realignment that is shown on the plan?

118. MR SMART: Yes. Well, the aim of course is not to have these roads disconnected. So, we've got to divert the road in order to get the viaduct in place. So we create an off-line diversion on both the north and southbound carriageway. But of course we then have to tie in, connect the realigned roads into the live traffic road, which is a series of shorter possessions, if you like, or closures of the road to do those tie-ins, which would be done typically over a weekend or overnight in a period of around about 40 days or so.

119. We would do the northbound first and then, once that's in place, we would follow that by doing the southbound, so that the disconnections are only for a limited period of time and done in, certainly, low peak time, also low peak in terms of any construction activity because nights and weekends are much, much lower. Really, that's just the best plan for getting the road through here with less disturbance to traffic.

120. MR MOULD KC (DfT): Are these roads both main HS2 construction routes?

121. MR SMART: Yes. That's a good point, Mr Mould, because we would be shooting ourselves in the foot if we closed these roads for any significant period of time.

122. MR MOULD KC (DfT): And the other question that was raised was whether, during those periods of tie-in, the local traffic management plan that HS2 would put into place to manage traffic on local roads, whether that would include measures which were designed to limit and to manage – what I think essentially was contemplated was rat-running into unsuitable rural roads in the area.

123. MR SMART: That's what really those local transport plans are – part of what they're designed to avoid, yeah, or make sure are properly managed.

124. MR MOULD KC (DfT): And does the process of developing those local traffic management plans involve consultation with the local highway authority?

125. MR SMART: It does, absolutely.

126. MR MOULD KC (DfT): Okay. Thank you very much. I don't know if there are any questions for Mr Smart.

127. THE CHAIR: Thank you. Members, any questions?

128. MR MORRIS: Could I ask about the parish council's suggestion of the five-metre-high acoustic barrier. Is that reasonable given –

129. MR MOULD KC (DfT): If you don't mind, I'll ask Mr Miller to deal with that.

130. MR MORRIS: Oh, I do apologise.

131. MR MOULD KC (DfT): No, not at all. I think he's better placed to comment on that than Mr Smart, with due respect to Mr Smart.

132. THE CHAIR: Mr Wilson, do you have any questions at this point?

133. MR WILSON: No. The only thing I would just comment on, the 31-mile tunnel needn't necessarily be under the salt at all. It could be taken from the southern portal of Crewe. If it's taken then round to the right, it avoids the salt and it can then be taken on a much straighter line up to Manchester. It makes it much faster than currently. Currently, we've got a dog-leg so the train has to slow down to come into Manchester Airport before it goes into Manchester Piccadilly.

134. Yes, there are problems that would have to be sorted. One is the connections for NPR. It has to be said that there is no plan for NPR at the moment, but these connections are being put in prior to NPR being finalised and NPR might not necessarily need or want to use these connections.

135. THE CHAIR: Okay. We'll leave it there. Mr Smart do you just want to respond to that briefly?

136. MR SMART: Well, we of course are liaising with the NPR and they are very aware of where our connections points are, and in fact, they are building into their thinking. I would say that taking the tunnel in the way that the council are articulating would not necessarily avoid the issue of the salt geology because it's quite extensive. And finally, of course, more tunnel does not mean quicker because I think I explained before, one train between vent sections because of fire and life safety etc. So there are a number of issues I think I've probably highlighted.

137. MS MUMBY-CROFT: What would the length of that route that Mr Wilson describes be compared to the 31-mile one that we discussed? Does Mr Wilson know?

138. MR WILSON: It wouldn't reduce it considerably, but it's probably about 28 miles.

139. MS MUMBY-CROFT: Thank you.

140. MR MOULD KC (DfT): Let me just remind myself – what's the length of the Chiltern tunnel?

141. MR SMART: 16.8 kilometres.

142. MR MOULD KC (DfT): So 12 miles or so.

143. MR SMART: Yes.

144. MR MOULD KC (DfT): And is there a longer tunnel on HS2 at the moment?

145. MR SMART: No.

146. MR MOULD KQ (DfT): No.

147. THE CHAIR: Thank you.

148. MR MOULD KC (DfT): Sir, if I may, I'll just ask Mr Miller to come and deal with the environmental matters.

Evidence of Mr Miller

149. MR MOULD KQ (DfT): Mr Miller, first of all, I just want to ask you a couple of questions about trees and so forth. Just to orientate ourselves, can we just remind ourselves of this image that the petitioner showed the Committee a few minutes ago?

150. MR MILLER: Yes.

151. MR MOULD KC (DfT): Looking across the road, effectively, from Cranage Villas. I wanted to ask you then, please – and the Committee if they can just have that in mind – to turn to P49, which shows – you can see, there's a series of cross-sections; we're going to look at one of them in a minute. Can I just ask the Committee to note 4(a) and 4(b), which is broadly speaking the view that you saw in the photograph a few minutes ago, so that photograph being taken from point 4(a), I think.

152. Can we then turn on, please, to A50(4)? And this is the image that the petitioner put up himself and commented on in his presentation.

153. Mr Miller, the suggestion was that there was a real risk that, in fact, during construction of the Smoker Brook viaduct, it would be necessary to clear existing woodland to a depth of up to 15 metres to the east of the viaduct as shown on this plan. What do you say about the likelihood of that being carried out?

154. MR MILLER: It's pretty slim. I think the best way to describe it is that the limits

of deviation within the parliamentary plans give some room for manoeuvre for the position of the viaduct itself. We do have to accommodate an access road but that extent of woodland clearance is highly unlikely. So, although the parliamentary plans show a potential wide corridor, that wide corridor is not likely to be realised when we get to the detailed design; it will be much smaller than that.

155. MR MOULD KC (DfT): Just help me with the accuracy of the trees that we see shown on this cross-section. Does the project try and plot those trees so, as far as we can, they actually reflect their actual height to the crown when in leaf?

156. MR MILLER: It does, yeah. And the aim of that is to try and give people an idea of where the height of the deck and the trains are likely to be within the tree canopy.

157. MR MOULD KC (DfT): If we go back to P49, that overview plan – it's convenient just to look at this – there's some scepticism about the rate at which the new planting that we see across the page on this plan, from mid-Cheshire line in the south all the way across to the northern side, to the area to the east of the Smoker Brook viaduct on the right-hand side of the plan. That's proposed woodland planting to thicken existing ancient woodland in the area, I think, isn't it?

158. MR MILLER: Yeah. It's to compensate for ancient woodland losses and what you might call ordinary woodland, and some local wildlife sites which are also woodland in this location.

159. MR MOULD KC (DfT): And do you see any opportunities to add – or do you see the need to add to what is proposed on this plan along the lines that was suggested by the petitioner a few moments ago?

160. MR MILLER: No. We've got to strike the right balance between the mitigation for the woodland that's taken and provide new woodland for habitat creation and also to provide the screening of the railway itself.

161. I think it's fair to say if you look from the mid-Cheshire line, which is just on the left hand side of this drawing, across, I think there was a – sorry, Mr Wilson had a photograph – the embankment, I think, goes up to 10 metres at its highest point. That will be in front of the A556 Shurlach Road, which I believe is on the embankment itself

in that location, with a bridge which was shown in that photograph going over the mid-Cheshire line.

162. We emulate that with the railway and then what we do is, we plant up the embankments on either side of our railway and you can see, there's a triangle of woodland where it says, 'Lostock Gralam north embankment', which is in the corner of the field – that's the far end of the photograph – well, midpoint of the photograph that was shown to you earlier.

163. And then we've got a belt of planting alongside the mid-Cheshire line. So our new railway will help screen the Shurlach Road and the Committee will remember that we drove along that busy road on our site visit, and I think we went onto the Manchester Road past Cranage Villas.

164. So in addition, we've got some areas of woodland stretching away from the railway and that's for the woodland compensation that compensates for the losses that's taken by the footprint of the railway itself.

165. MR MOULD KC (DfT): That area that was shown that is proposed during construction to serve as the Smokers Brook south satellite work compound which is the area which is bounded by –

166. MR MILLER: Long Wood.

167. MR MOULD KC (DfT): Exactly. That's agricultural land at the moment.

168. MR MILLER: Yeah. Long Wood is in the middle and that divides two fairly large agricultural fields. I'm not sure what the landowners or the farmers think about our plans in that location. Certainly, through construction we will be taking it for a period of about four and a half, four and three quarter years, something along those lines. Our assessment assumes that the Long Wood would be removed as a result.

169. There's no need to plant anything further in that area because the compensation that we put in follows the expert views of our assessors across this section of the route, and we've also enabled that land to be restored back to agricultural use as part of our general principles of restoring land back to its former use wherever we practically can.

170. We're not in the business of taking land unnecessarily from farmers and landowners, as I said in my teach-in a couple of weeks ago, but we have got plans to include ecological mitigation and it's quite extensive in this area.

171. MR MOULD KC (DfT): If the local planning authority had views about the appropriate end use to restore that land to, after it had ceased to be required for construction, would they be able to bring their views into account under the operation of the planning schedule?

172. MR MILLER: They would, and they might choose to go down that route to reconfigure the planting that we've got, or indeed take further land from that area, but I think they would take into account whatever the landowner's views were on that particular land, or indeed, any undertakings or assurance that might be entered into with that landowner or farmer on that land.

173. THE CHAIR: So, is your point on that, Mr Mould, that if the principal authority – Cheshire East here, isn't it – wished a different land use for that, they could suggest that at that stage, once the land is returned?

174. MR MOULD KC (DfT): They have powers of approval in relation to the restoration of land and the nominated undertaker – let us assume it's HS2 Ltd at the time – would have to present its draft restoration plans to the local planning authority for consideration under the terms of the planning schedule, yeah.

175. THE CHAIR: The land would return to the original owner, should they so wish.

176. MR MOULD KC (DfT): In terms of, yes, the proprietary position, it would return, and of course, the original owner also has a stake in that decision. I say it would; I think when we went through the arrangements for land disposal at the outset, we pointed out that arrangements for disposal differ, depending on whether the land is judged to have changed materially as a result of the works, or whether it is considered essentially to have retained its former character.

177. But in the case of land that was formerly farmland and is available to return to farmland, the promoter's default position is that it would be expected that land to would be returned to – be offered back to its original owner and restored to its agricultural use.

So, there's a tension here to which the statutory arrangements and the policy arrangements I've just summarised to you is designed to mediate, yeah.

178. THE CHAIR: Thank you.

179. MR MOULD KC (DfT): Mr Miller – I'm so sorry; there were one or two other things – what I was going to do was to ask Mr Miller one more question, if there are any questions for him. I then have one or two points I need to cover directly with you, if I may?

180. THE CHAIR: Yes, of course.

181. MR MOULD KC (DfT): Mr Miller, can we just put up A9(23) and A9(24) because we were shown the before and after situation at Diamond Wood. This is just between Kenilworth and south-west Coventry, isn't it?

182. MR MILLER: It is, yeah.

183. MR MOULD KC (DfT): Just go to the next slide, we can see the result. So just to help the Committee just to get some context, what is it that HS2 is building here?

184. MR MILLER: So, in this location – this was subject to quite a bit of debate in Select Committee, and in this particular field where Diamond Wood was located, it was decided there should be a false cutting in this location to help screen the railway. Unfortunately, that did mean that the railway and its formation had to take a large chunk of Diamond Wood that had been previously planted and was shown on the previous photograph, but that was subject to a bit of debate with the University of Warwick and there is a restoration plan to put as much of that woodland back and a sum of money was entered into with the University of Warwick to enable further mitigation to come about in that location.

185. So there's a fuller picture to that particular slide and the final outcome. It is unfortunate that that woodland was lost but it was subject to other considerations.

186. MR MOULD KC (DfT): Thank you. Any questions for Mr Miller?

187. THE CHAIR: Any questions? No. Thank you. Mr Wilson, did you have a question?

188. MR WILSON: No. Looking back at –

189. THE CHAIR: Is that a yes, then? It started with a ‘no’ and you continued speaking, so that suggests a ‘yes’.

190. MR WILSON: Sorry. P49. Just to come back to P49 because I’ve had chats with HS2 before as to just what does go and what is going to be retained. This plan shows the retention of Long Wood. I had a chat with HS2 about this when they admitted that, in actual fact, Long Wood would go as part of the enabling works.

191. But in all these plans, they show existing features as being retained; they don’t show them as newly planted, so I’m a little confused as to whether Long Wood is retained, replanted or not there at all.

192. MR MILLER: Can I try and help with that?

193. THE CHAIR: Yes.

194. MR MILLER: On the plan, the light green areas on P49 and that Long Wood area – I don’t know if you can show that on the –

195. THE CHAIR: Can you just mark it? This is this bit here.

196. MR MILLER: Yeah, with the arrow. That is part of the map base; that is part of the Ordnance Survey map base and we can’t alter that. So, it is an unfortunate quirk of the plans and I’m sorry about that, Mr Wilson. But the plan, I think, to look at is the construction plan, which is P47. You can see Ascol Drive in the middle there and that triangle of land going up between the mid-Cheshire line and HS2. You can see that there’s a whole area bounded in pink which is potentially used for construction.

197. Now, we’ve included the full loss of Long Wood in that location, mainly because there’s an awful lot going on in the construction in that area, whether that’s site compound storage for materials, or just generally using that area to move vehicles around and so forth, but you’ll see that there are probably four utilities which variously pass over that land, or underneath that ground, I should say, all of which will have to be moved in one form or another, in conjunction with the utility companies.

198. I think we showed you one of those utilities when we went out on the site visit a

bit further up at Hoo Green, where there is a major gas pipeline in the ground, so what might not be apparent on the ground which is in the ground we've actually shown on these construction plans, and you can see that the way that it's configured at the moment, the vast majority of the woodland, which is that diagonal in the middle, is likely to go.

199. Now, what I will say is that our intention, and I said this to you all in my teach-in, is to look again at this during the detailed design phase and try and retain as much of the existing planting as we possibly can, but I don't want to pull any wool over anybody's eyes at this moment in time, and I think we need to assume that Long Wood goes.

200. THE CHAIR: Can you replant it or not then?

201. MR MILLER: It could be replanted as part of the final plans but, again, that would come back to that restoration point, what the landowner needs in that area. I've looked at that and I think there's a complex arrangement of drainage on those two fields, so it may well mean that, if those fields go back to agriculture, that may need to be restored with a new drainage plan, and that may well reconfigure those two fields in any case.

202. So I think there's a bit of a way to go there, unfortunately. So I can't reassure Mr Wilson or this Committee that we would be able to retain that at this stage, but I can reassure this Committee that we will look to retain that as part of our policies and practice. I think what I showed you in previous experience on Phase One, certainly with the ancient woodland experience, that we've been able to retain about one third of those woodlands that would have been lost on Phase One and I spelt that out in my teach-in.

203. So we are committed to continue to look at this and it is in our interest to try and avoid these effects on biodiversity because, on Phase 2B, we are seeking to achieve biodiversity net gain which we've talked to you about previously. Of course, if we can keep the base condition down, then the likelihood of getting to a biodiversity net gain condition is that much easier. So if we can avoid it, then we can be more successful going forward.

204. MR MOULD KC (DfT): I've remembered, I completely forgot to ask the

question that Mr Morris wanted answered, which was to do with why not a five-metre barrier on the viaduct? Have we looked at the value for money case for increasing the height of the noise barriers on the Smoker Book viaduct?

205. MR MILLER: Yeah, there's a case for providing noise insulation on the basis of the current plans at Cranage Villas. So the six properties that are subject to an assurance. We've looked briefly at extending the height of the noise barriers and it doesn't really make any difference – it makes no difference to the lowest adverse effect level contour. The reason for that is that the noise that's dominant is the A556 in this location.

206. So yes, you could probably put a five-metre – well, I say you could put a five-metre noise barrier up. Probably at its structural limits on the viaduct itself, it probably wouldn't want to go any more than four metres high, but at the moment, we see no material value in doing so. So in effect, it would be a waste of public money.

207. THE CHAIR: Thank you.

208. MR MOULD KC (DfT): That's all I have for Mr Miller.

209. THE CHAIR: Thank you. Yes, Holly.

210. MS MUMBY-CROFT: If Long Wood goes, are there any drainage consequences for the road or for the properties closest to it?

211. MR MILLER: No. What I'm talking about here is field drainage. It seems to me that there are ditches going across those fields and I think there's a certain drainage pattern. I think it's a fairly flat field with a very slight slope on it and I suspect that it probably does get quite waterlogged up so, with us going on that ground, we will have to think about what that drainage pattern looks like, and field drainage can be even clay pipes under the ground that might need to be reconfigured. But it's not something that would concern – it's not a major flood issue or anything like that.

212. THE CHAIR: Right. Thank you.

213. MR MOULD KC (DfT): Thank you.

214. THE CHAIR: I am conscious of time. We have another petitioner and today's

session is due to end at 7.00, so I just encourage the parties to make the points they need to make which are important to make but be conscious of the fact that we have another petitioner as well today.

215. MR MOULD KC (DfT): Two or three very short points, if I may, just so things aren't left hanging.

216. THE CHAIR: When you do, Mr Mould, perhaps you could respond to the petitioner's requests around insulation and the timing on that on Cranage Villas because I was intending to ask about that, and – I can't read my own writing – but the farm, Holford Farm, is it?

217. MR WILSON: Holford Farm. Holford Cottages.

218. THE CHAIR: Obviously, the petitioner's other point with regard to Ascol Drive and the surfacing of that should the usage be greater than that originally envisaged. And Long Wood I'd written down but we've dealt with that one. But those are the two I would obviously be keen to hear, given the petitioner had raised them, what the response is on those issues. So the insulation and the timing of that, and the Ascol Drive road surface, given you'll obviously be benefiting from access to that road.

219. MR MOULD KC (DfT): Yes. In terms of the insulation, I showed you earlier the assurance offered last week. It certainly seems to me to make sense to have another look at that and to see if we can give a slightly firmer commitment in terms of the timing of that insulation. So do you mind if I leave it that way? That assurance is already offered; that's in the bag. We may be able to firm it up a bit.

220. THE CHAIR: Okay.

221. MR MOULD KC (DfT): And I think Mr Miller was happy to take that course.

222. MR MILLER: Yes. I think, elsewhere along the HS2 route, we've attempted to get the noise insulation into properties prior to construction. So those noise insulation qualifiers, I think we will look to see if we can get that in so it's effective for construction.

223. THE CHAIR: Okay.

224. MR MOULD KC (DfT): In terms of Ascol Drive –

225. THE CHAIR: Also, Grahame has just reminded me the footpath issues that were raised as well.

226. MR MOULD KC (DfT): Yes. Can I put up P49 because I think I can deal with both those questions directly to you through submission by reference to that plan?

227. You can see Ascol Drive – perhaps we can just show it on the cursor; I think you're familiar with it now. The footpaths, there are two footpaths at the eastern end of Ascol drive which run across the bottom of that private road, and you can see those there, 15.1 and 15.2. Notices were put up – this was a requirement of parliamentary standing orders – because it was contemplated that it may be necessary, on a very temporary basis, to manage or control the use of those footpaths.

228. You can see why because that area of planting and environmental mitigation that I showed you when I opened – which, if the cursor just goes to that area there – to get to that area, the HS2 construction vehicles will have to go right to the bottom of Ascol Drive and the powers of the Bill enable them to do so.

229. So you can imagine that, when that three-month period of construction of that feature is at its height, it would make sense, from a safety perspective, to be able to manage people using those footpaths so that they don't come into conflict with unexpected construction vehicles on what is otherwise a private road.

230. That was the reason why those notices were served, as I understand it. So there's no question of revoking them; they've been served, but they were served for a practical purpose. I hope I can reassure the petitioners that it wasn't part of a sinister, wider agenda which involved closure of those footpaths either on any meaningful temporary basis or permanently, or indeed any further closures. If you look at the plans, there is no proposed footpath closure in the parish that we're concerned with in this petition. So the Bill doesn't empower any closure of that kind.

231. In terms of the impact on the private road itself, the Bill itself, in granting powers to the nominated undertaker to use Ascol Drive as a construction access, imposes an obligation to restore Ascol Drive insofar as any damage or wear is caused to the surface

during the course of its use by HS2, and indeed, to make compensation to the owners of that private road in the event that, as a result of its use by HS2 for construction purposes, they incur any loss and damage.

232. So the Bill itself, when it becomes law, will impose those obligations. I won't read out the references now; I can give those to you via your clerk if you'd find it helpful, but there isn't – in fact, there's no need, therefore, for any further assurance, because the Bill already gives the protection that is required.

233. I should emphasise that my instructions are very clear. There is certainly, presently, no intention, no contemplation of using Ascol Drive in the extensive way that the petitioner feared. Now, I can't give a guarantee that there won't be some other use beyond that which I've identified, but it would seem unlikely because there's no obvious reason why HS2 would need to use Ascol Drive significantly more extensively than I'd pointed out. There's nothing else to do on Ascol Drive under this Bill.

234. THE CHAIR: Except the planting.

235. MR MOULD KC (DfT): That's all – I mention that to you, and that's up to three months, and I think I said – predicted 10 construction vehicles a day, then very limited use for – during the period of operation of the railway, just for monitoring and maintenance purposes.

236. There was one other point, and I know I'm preying on your patience, but if we go back to that – which I hope that covers the point you asked me about. If we go back to that now familiar slide, P57, I think it is, because I want to be clear on the extent of the Bill plans here. Whatever else HS2 may be able to do when the Act become law, it cannot exceed the powers granted under the Bill.

237. If you look at – if you orientate yourself to the junction of Ascol Drive and Cranage Villas, and you can see Cranage Villas along the frontage there, and you'll remember that viewpoint and that cross-section which took us across to the railway, you can see here the extent of the Bill powers. The Bill powers are defined by the pink area. You can see that a substantial proportion of Winnington Wood is outside the Bill limits. So the Act, once it becomes law, will not empower the nominated undertaker to undertake woodland clearance within those areas that are showing green on this plan.

238. You can also see that access road that the petitioner mentioned to you; that that's column of pink that runs from the temporarily realigned junction – just up a bit there – that runs down there. So, within the pink, some of the frontage trees on the north western side of the main road are obviously within the Bill limits. You can see where the pink extends along just opposite Cranage Villas, but behind that area which is immediately to the north-west of the road, there is a substantial area of green and that represents existing woodland, and we saw the height of those trees on the plans, of which this Bill, in its current terms, does not authorise any works or clearance.

239. THE CHAIR: Thank you. Members, any questions? No. Okay, well, I'll thank the petitioner for attending today and also, obviously, the promoter. We do have another petitioner in a moment. We will – I don't know whether it's been explained to Mr Wilson – we will be issuing regular reports as we go, throughout this process, in which we may or may not respond to the points that have been raised, but we don't be responding to anything else today. We're here to obviously listen.

240. What I'm going to do is just suspend the Committee for five minutes for a comfort break and then we'll return.

Sitting suspended.

On resuming –

Rudheath Parish Council

241. THE CHAIR: Thank you very much, everybody. We're going to hear next from the second petition today, which is from Rudheath Parish Council, of which Gaye Billington, you're a member of the parish council there.

242. MS BILLINGTON: Yes.

243. THE CHAIR: And we've got Nigel Hennerley, who is a parish councillor from High Legh Parish Council who is going to speak on behalf of Rudheath Parish Council. So, just for same process as before, if Mr Mould could, as briefly as is possible, given our time constraints, outline to us, or scene-set for us where this petition relates to and any assurances provided so far. And then we'll get straight into it.

244. MR MOULD KC (DfT): Thank you. If we put up P64, I'll just show you briefly, the red line on this plan shows you the area of Rudheath parish. You can see that the railway runs along and just clips into the eastern borders of the parish at two points, being shown now. Rudheath itself lies to the east of Northwich in Cheshire.

245. If we go to P67, essentially, what we have are the Gad Brook viaduct, which is being pointed out to you now, and then, taking the railway north from the Gad Brook viaduct, we have the Rudheath embankment which is being shown to you now.

246. The other feature of note is the A556, Shurlach Road. We were talking about that a few minutes ago further north. That road, which you will recall from your site visit, is an existing major road, is subject to realignment under the terms of the Bill to enable the railway to be accommodated along its existing alignment.

247. If we turn to P71, I can show you very, very quickly indeed the environmental mitigation map. Just two points: noise mitigation, four-metre-high barriers on the embankment and on the viaduct, and you can see – if you just see the community of Broken Cross which is right in the middle, which is that part of settlement of Rudheath which I think is – in terms of residential properties – closest to the route – you can see some screen planting and tree planting in the area between that settlement, the road and the proposed railway line, and planting on the slopes of the Rudheath embankment itself.

248. I won't take the time to show you the construction plan. Suffice it to say that, as you would expect on a line of the route which has a mixture of embankments and viaducts, there's quite an array of construction sites and laydown areas along the route.

249. And the other point I should make in opening is that the A556 realignment is proposed to be carried out off-line. That is a very major road through Cheshire. It's an HS2 construction route. It will be necessary to divert traffic off that road for short periods when the northbound and southbound carriageways on the realigned road are being tied in. But subject to that, the new stretch of the A556 will be constructed whilst the existing road remains in full operation.

250. THE CHAIR: Thank you. Councillor Hennerley, I believe. It's over to you.

Submissions by Mr Hennerley

251. MR HENNERLEY: Thank you. I don't want to disappoint the Committee but I don't intend to have such an in depth presentation as our previous colleague.

252. THE CHAIR: You've endeared yourself already.

253. MR HENNERLEY: Which I commend him very highly for – it was a very well put together presentation.

254. THE CHAIR: It was a very thorough petition.

255. MR HENNERLEY: And I look forward to seeing you again in due course on behalf of High Legh Parish Council, of course.

256. What I'd like to bring the Committee's attention to in regard to the Rudheath Parish Council is, again, the geology of mid-Cheshire and the loss of agricultural land. I'd like also to draw the Committee's attention to a parliamentary debate of 6 September 2017 on Phase 2B, where certain assurances were made from HS2, which I will come onto shortly. I wonder if we could have the A10 document shown, please. Thank you.

257. I'd also like to draw attention to the Wardell Armstrong report. Wardell Armstrong are HS2's mineral and engineering consultants. The *Sunday Times* newspaper saw a copy of their report concerning salt-related ground stability and noted in an article of 29 January 2017 that it says, 'HS2 would be at high risk of ground collapse,' which I think illustrates the severity of the geology in which we speak.

258. Moving on, and I think this is possibly the document that Tim Smart related to previously, and it was also the document that Parliament received assurances from, documents dated July 2017. In that document of High Speed 2 Phase 2B Crewe to Manchester West Midlands to Leeds route refinements, below are extracts concerning the salt mining area north of Crewe.

259. '9.3.9. A raised route is considered less likely to result in drainage path changes in the area and thus reduce risk. However, it may be possible to mitigate some of the drainage concerns by other means that would emerge during further design work undertaken as part of hybrid Bill preparation. We will therefore take more detailed

consideration of the specific salt dissolution risks and the possible range of alternative risk mitigation measures with a view to developing a design solution where the HS2 route can be lowered in the vicinity of the local communities.’

260. I’ll come onto the next paragraph, actually. ‘9.3.11. We do, however, recognise that this is a sensitive and complex section of the route and that there is more work to be done before the hybrid Bill is deposited to further understand the geological risks and provide suitable mitigation solutions. We are looking into carrying out early geotechnical investigation work in the mid-Cheshire area and gathering more advanced survey information InSAR technology.’

261. Unfortunately, that work has never been done. So I sympathise with the Committee and I sympathise with Parliament because what you’re being asked to consider within hybrid Bill Phase 2B is without any of this in-depth investigation taking place. We do not have an engineering solution design identified and we do not know the cost of such a design.

262. So my ask is, what undertakings and assurances we’re asking for, is that in depth technical investigations are carried out of the geology and an engineering solution is found and presented, and costed, prior to notice to proceed is given on Phase 2B.

263. I’d also like to draw attention –

264. THE CHAIR: Just a point of clarification there – is your contention then that the solutions that have come forward, such as a viaduct or whatever, may not be required if this work were done and it were found that the land could take a different option, either an embankment or lower route, or have I misunderstood that? Is it the entire concept of the route passing over this land shouldn’t proceed without this work undertaken? You see my point.

265. MR HENNERLEY: Yes, I do. I think that’s the point. The point is that assurances were made that in-depth technical investigations would take place and what we’ve had, if we look at the HS2 response so far, it talks of, ‘HS2 has held discussions with relevant agencies and captured data. A comprehensive desk study has been compiled. HS2 has planned a route with wide ground investigation activity, which is proposed to commence in 2023’. And yet, in 2017, Parliament was given assurances

that this sort of work would have been completed and provided to. It hasn't happened.

266. THE CHAIR: And if that work had been completed, I'm correct in understanding that your contention is this raised viaduct may not be required and that that would be –

267. MR HENNERLEY: Well, I don't know whether – I can only be guided by engineers as to what the best route, and how the best route is delivered. I can't really comment on that. But what we're looking at is a best guess on a desktop exercise.

268. THE CHAIR: Thank you.

269. MR HENNERLEY: And that is not the assurances that Parliament was given in 2017. So my concerns are that you are now given the task of giving Royal Assent to a hybrid Bill without such detailed information to hand and knowing what costs are involved.

270. MS MUMBY-CROFT: Can I ask a question please?

271. THE CHAIR: Yes, Holly.

272. MS MUMBY-CROFT: There's a section at the bottom of this, paragraph 9.3.11, which describes something that sounds very technical about synthetic aperture radar.

273. MR HENNERLEY: Radar, yeah.

274. MS MUMBY-CROFT: To your knowledge, has that specific testing been carried out or something similar?

275. MR HENNERLEY: Not to my knowledge.

276. MS MUMBY-CROFT: Thank you.

277. MR HENNERLEY: And maybe Tim Smart can advise us if it has been and provide us with the evidence of that. So that's the gist of what I'd like to put forward to you this evening.

278. And further to that, there was also a request from Rudheath Parish Council regards HS2's own identified alternative from getting HS2 trains from Crewe to Manchester, and indeed, Stockport, using existing infrastructure, improvements to junctions and

signalling, platforms at Manchester and Stockport. Those alternatives, which were identified by HS2 themselves, should not be discarded at this stage until such thorough ground investigation works are carried out and we have a detailed engineering solution and costing put forward. Does that make sense?

279. THE CHAIR: Yeah, what was the Manchester and Stockport station alternatives then? What –

280. MR HENNERLEY: Okay. So within HS2's own documentation, they have provided an alternative plan for phase 2B, if you like, and that includes using existing infrastructure, improvements to the West Coast Main Line, improvements to railway junctions, improvements to signalling, and also their platforms at Manchester and Stockport. We're not going to get that at Stockport at the current design. So that alternative may turn out to be a better provision for providing flexibility in the north-west than the current design.

281. All I'm saying is that should not be discarded, as has been suggested, until we know the full, in-depth investigations to Cheshire's geology and what technical engineering solutions there are to be.

282. THE CHAIR: Okay, thank you. Any questions, anybody? Anything else you'd like to add at this stage?

283. MR HENNERLEY: I think that's really the gist of what I wanted to say. I appreciate there's been a lot of other mentioned comments in the petition, and I appreciate that HS2 has responded to those comments and I'm grateful for that.

284. THE CHAIR: Okay, thank you. Mr Mould.

Response by Mr Mould

285. MR MOULD KC (DfT): First of all, I have myself read the Wardell Armstrong report, to which reference is made in A10. I am able to say with complete confidence that the way in which that report was reported in the *Sunday Times* article to which reference is made is, with a degree of understatement, misleading. If the Committee would like a note on that, which, of course, I will share with the petitioners, I will provide it.

286. The second point is the parliamentary debate, which, of course, is on record in Hansard, where the then Minister, Mr Maynard, responded to questions from Ms Antoinette Sandbach MP. I do not read the Minister's responses in that debate as amounting to what might sensibly be described as assurances. He certainly made some – he attempted to give some reassurance on work that had been done to date at that point, in part reflected in HS2's published July 2016, I think, report to Government.

287. But to suggest that, as it were, the Minister at the Dispatch Box was looking to give binding assurances is, in my respectful submission, to overstate the matter. Again, rather than make assertions to you, we can provide the relevant extracts from Hansard to you, and we can draw your attention to what the Minister said.

288. Insofar as the assertion that the project has not – that HS2 Ltd has not delivered on what was said in paragraph 9.3.11 in the July 2017 report, I think if I may, I'm going to ask Mr Smart to come in and just deal with that, because he speaks as the chief engineer.

289. THE CHAIR: Just as Mr Smart stumbles his way to the table –

290. MR MOULD KC (DfT): It's quite tight around there.

291. THE CHAIR: But we're not moving, sorry. Just to go back to the point about the parliamentary debate, so your contention is that the Minister didn't give assurances around the ground conditions in Cheshire.

292. MR MOULD KC (DfT): In the sense that I understood the petitioner to be referring to, using that phrase, that is something, as it were, that the Minister regarded, himself, as being binding. The Minister certainly sought to give, in a general sense, reassurance, as you would have expected he would wish to do. And he had the benefit of advice that he had received from HS2, who themselves had had the benefit of advice from Wardell Armstrong, who are the specialist mining engineers, as you heard reference to.

293. But the project, the design of the railway and the preparation of this Bill at that time was in inchoate. It was in the process of being developed, and the ability to deliver further on those route refinements that Mr Smart told you about earlier, which were themselves the product of the consultation on the refined route which was published in

2016, that process is reflected in the Bill that is before you.

294. If it's helpful to identify particular features of the railway, as it passes through Cheshire, where further changes were made to the vertical alignment of the railway in response to further design work between 2017 and the publication of the Bill last year, then obviously we can provide you with that information as well.

295. I don't have the detail of that in exhibits before you today because, frankly, this A10 is not quite what I was expecting in the light of having read this petition. That's not in any way said to be a criticism, and I know that there are other petitioners coming later in the course of your hearings who clearly are intending to go into these issues in rather more detail. Indeed, I believe there may be a geologist who is going to come and give evidence to you in some of your sessions after Easter.

296. So this isn't the final chapter in this particular – this is the opening salvo, as it were. But if it would be helpful to you for us to identify elements of the vertical alignment of the route through Cheshire where further design work has enabled some further lowering of the alignment, we'd be very happy to do that, and of course, to share that with these petitioners.

297. THE CHAIR: Because the ground conditions were not as challenging as expected, is that?

298. MR MOULD KC (DfT): Maybe for a range of reasons. I wouldn't want false hope to be raised by that, because those examples are likely to be relatively few.

299. The route had been the subject of significant refinement and development in advance of the publication of HS2's July 2017 report. And therefore you wouldn't be surprised, I am sure, to hear that the residual improvements that were achievable thereafter were relatively limited in scope. But there were some and we can help you with that.

300. THE CHAIR: I think it's just because we're not geologists. So I'm just trying to understand the impact that geology has on the height of infrastructure that's required.

301. MR MOULD KC (DfT): Yes.

302. THE CHAIR: So what we're effectively saying here is, if the geology is more challenging because of this wild brine, salt, whatever, then higher viaducts and other works are required because of that challenging geology.

303. MR MOULD KC (DfT): Perhaps I should ask Mr Smart this because I don't want to –

304. THE CHAIR: I think it's important for us to get this –

305. MR MOULD KC (DfT): Yes.

306. MR VICKERS: Can I just go back to the *Sunday Times* article that you refer to?

307. MR MOULD KC (DfT): Yes.

308. MR VICKERS: We're politicians; we're used to the media misleading people.

309. MR MOULD KC (DfT): Yes.

310. MR VICKERS: But could you be a little bit more specific? Was the whole tone of the article critical, or was it just the conclusions that you were unhappy about?

311. MR MOULD KC (DfT): The article selected the reference to 'a degree of risk' without acknowledging that the report also referred to the opportunities to mitigate that risk. And in other words, it looked for – it isolated the thing that was bad but didn't refer to the things that were good. Perhaps I can put it that way.

312. I understand why that was done, particularly as I understand that there was an element of – there was some positioning on the part of the author, who is no friend of HS2. But be that as it may, it was – I simply comment on the fact that, if one reads the report upon which it was based, in full, one can see that the article might have been a little more balanced, one might say.

313. THE CHAIR: Thank you. Holly.

314. MS MUMBY-CROFT: Thank you. I just wanted to understand in relation to the parliamentary debate, and the use of the word 'reassurances' rather than 'assurances', what reassurances you felt were given in that debate, and how they differ from assurances.

315. MR MOULD KC (DfT): Yes. Well, I use the word ‘assurances’ in the context in which it is used in proceedings before this Select Committee. That is to say, something that is a specific and defined commitment that is given in the form of a letter, and which is then recorded on the register, and which is published at the date of Royal Assent, and which then is required to be built into the development – by the development agreement, built into the construction contract and honoured.

316. Reassurances at the Dispatch Box are – in a sense, I’m presuming on your own knowledge – but as you will know, it is commonplace for Ministers to seek to give reassurance to Members of the House as to points of controversy and concern. And those are not intended, in themselves, to set up any sort of binding commitment, but they are intended to give a sense of reassurance and confidence that the Government is acting prudently and understands and will respond to the concern that is being raised by Members of the House. That’s how I read the exchanges and the –

317. MS MUMBY-CROFT: I’m just not clear if that’s what the petitioner was –

318. MR MOULD KC (DfT): I had understood that it was – they were saying more but I may have attributed more to what they were saying than they intended. I don’t know.

319. THE CHAIR: Mr Mould, it’s your turn but are you happy for Mr Hennerley to respond to this point?

320. MR MOULD KC (DfT): By all means, yeah.

321. THE CHAIR: Thank you.

322. MR HENNERLEY: Thank you very much.

323. MR MOULD KC (DfT): On that point.

324. THE CHAIR: On that point, yeah.

325. MR HENNERLEY: It’s just very briefly on two points.

326. THE CHAIR: The points related to that one point.

327. MR HENNERLEY: Yeah. As regards to the assurances to parliamentary debate, this is available verbatim on the parliamentary website. So please do take a look at it

and you'll be able to – you can hear the comments that were made as they were made.

328. And secondly, the quote from the *Sunday Times* was 'at high risk of ground collapse.' I think that's pretty self-explanatory.

329. THE CHAIR: Yes. We understood Mr Mould's point about whether or not that could be mitigated and that not being reported. I think the point is important though. A reassurance given at the Dispatch Box isn't the same as a legal assurance provided through this process. And I think that's the point Mr Mould was making, which I think we're all clear on now.

330. MR MOULD KC (DfT): Yes, indeed.

331. THE CHAIR: Mr Mould, I'll hand back to you again.

Evidence of Mr Smart

332. MR MOULD KC (DfT): Thank you. I think, sir, you'd asked – you raised the question as to whether, as a matter of design approach, HS2 had found it necessary to raise the height of viaducts and embankments in order to provide, if you will, some degree of a precaution, cordon sanitaire, against the ground conditions represented in the area of the Cheshire salts. Mr Smart, can you just comment? Is that a design approach that's been followed?

333. MR SMART: Well, may I just correct something for the record? The report was actually a 2017 report, in which we gave a response to the consultation in 2016, which dealt with how we will mitigate some of the risks.

334. MR MOULD KC (DfT): Did I say 2016?

335. MR SMART: Yes.

336. MR MOULD KC (DfT): I do apologise.

337. MR SMART: So a viaduct per se would not be a way we would necessarily deal with the ground problem, because usually they are getting over things, existing infrastructure, as you heard about with the road schemes that we've got as we go over Smoker Brook.

338. But the important thing with the embankments is to try not to create a potential water solution of the existing geology. So if you were to go into a cutting, for example, you would disturb the ground and you then would have a drainage into the ground. So you would have embankments to form that capping.

339. But of course, when you've got the track alignment and you've got other obstacles to cross, it does mean that the embankments are sometimes higher than you would need to stop the effects on the salt deposits, because that's only a capping layer, which would be relatively modest. But because you've got to get that whole alignment through and get over other obstacles, it can mean, in some areas, that the embankments are higher, which I hope deals with the question on that.

340. THE CHAIR: Yes. I'm trying to get my head around this geology question of the salt deposits and the geology of this area. 'Make it more prone to collapse' is what the report appears to say, and what, obviously, lots of the petitioners are going to be saying. So I'm trying to work out what's the engineered response to that which mitigates against that. Is that embankments, is it viaducts or is it mitigated in a different way?

341. So have you put these – where embankments are, are they there because the embankment is required for the track alignment or are they there because the embankment is required as a mitigation for the risk of collapse?

342. MR SMART: The embankments are there, originally, in some of the areas, to protect the salt deposits. The height will be driven by the alignment. So it isn't axiomatic that the higher the embankment, the better the protection. But you would want to put some earth over the salt deposit to – so that we didn't disturb the ground water regime, as such.

343. THE CHAIR: Right. Okay, right. So an embankment is a mitigation for that risk.

344. MR SMART: That risk.

345. THE CHAIR: Right.

346. MR SMART: But we also would mitigate in the foundations of a viaduct, because, if the viaducts go over an area where there have been, for example, previous

mining and there could be ongoing settlement, we would take the piles, which are the concrete columns which are the foundations for the viaduct – we would take those into an area where we've got good ground to support the infrastructure.

347. So in a way, the viaduct itself is not necessarily mitigating the salt settlement, because we need that viaduct to get over existing infrastructure. But the way we design the viaduct would be – and construct the viaduct – would be designed to overcome problems with the salt. So it's a combination of things, actually.

348. THE CHAIR: Okay.

349. MR MOULD KC (DfT): I wonder if it might be helpful if I just put up for you a page in the published March '23 report. If you just look at the bottom of the page – for the record, this R12(39). Do you see the subheading 'Design response'? And at 4.4.1, Mr Smart says, 'The proposed scheme has been designed to account for the risks posed by ground conditions in the area of interest, as outlined below.'

350. And then the first subheading is, 'Risk mitigation by designing the horizontal and vertical alignment', and we see what is said in paragraph 4.4.2 and following. I don't know if you want to just glance through that. Just really, the question is whether that, in essence, distils what you just said in this published report.

351. MR SMART: Indeed, and I think we referred earlier to the – in the –

352. MR MORRIS: I wonder if I might just clarify that, Mr Mould, with Mr Smart, that the contention made by the petitioner that assurances that had been given to Parliament by the Minister, Paul Maynard, of further in-depth technical investigations that petitioners suggested hadn't been carried out – or he wasn't aware if they had been – are you telling us, Mr Mould, that that technical report that we've got up there on the screen, that March '23 –

353. THE CHAIR: The InSAR one, was it?

354. MR MORRIS: Pardon?

355. THE CHAIR: The InSAR.

356. MR MORRIS: Sorry, yes, yes. Yeah, the InSAR is, in fact, the in-depth

technical investigation that was referred to by the Minister.

357. MR MOULD KC (DfT): No. This report is a report which sought to bring up to date, for publication purposes, firstly the product of HS2 and its specialist advisers' understanding of the natural and manmade geology, and secondly, the design response to designing, constructing, operating and maintaining a railway with a design life of 120 years or thereabouts across that geology. That's what this report is for. And so this report draws upon a whole host of work that has been carried out in the years leading up to this year in relation to that.

358. The reason I showed you this page, and particularly paragraph 4.4.2 and following, is because it is where, in this published report, for the benefit, amongst others, of petitioners, we have sought to show, in the design response for the railway that is before the House, how vertical and horizontal alignment has played its part in, if you like, managing the risk which is presented by the natural and manmade geology over which it is passing.

359. But on the separate point as to whether – as to the degree to which these electronic techniques have been used, that's dealt with in an appendix to the report. And perhaps we should go there now so I can show you, with Mr Smart's help, what's been done in that respect. So if we turn to page R12(61). You can see that, in appendix C, there's a section C1, dealing with light detection and ranging survey. And Mr Smart, if we look at paragraph C1.3, we can see reference to LiDAR data having been obtained for a 500-metre zone either side of the proposed scheme alignment.

360. MR SMART: That's right.

361. MR MOULD KC (DfT): Is that correct? Right, okay.

362. MR SMART: May I also add to that? First off, in a desktop survey, it does take account of existing geological information in terms of boreholes, which is held by the British Geological Society. So it does mean that any on-record previous boreholes will be taken account of in a desktop survey.

363. And furthermore, we ourselves have done 487 interventions in the form of either a borehole or what is known as a cone penetrometer test, which is a cone that you push

into the ground which measures things such as earth resistance and water pressure, etc, which you correlate to the boreholes.

364. So we've done, also, which informed this report, 487 of those in the areas of the Cheshire salt. So we have started what you would call physical geotechnical investigation, as well as the more remote sensing, which is highlighted in the report.

365. And I take Mr Hennerley's point, of course. As we go forward, we'll be doing more geotechnical site investigation. And of course, important in that is also the monitoring. It's not just the boreholes; it's actually monitoring things such as what the water regime is as you – over the period of the seasons.

366. MR MOULD KC (DfT): And then insofar as InSAR is concerned, if we turn onto page R12(63), C2 deals with InSAR. And if we just scroll down to the next page, we can see, at C2.5, that there is a reference to the InSAR data that HS2 has procured and analysed from a number of satellite sources. We see those set out from May 1995 onwards.

367. And then C2.6 gives an indication of where you are in terms of workstreams, moving forward, which is then summarised, I think, in the main body of the report, in, I think, section 5.

368. MS MUMBY-CROFT: Does this cover the mid-Cheshire area that's been described in that A10 paragraph at the bottom of it, on A10?

369. MR SMART: It does. Yes, it does.

370. MS MUMBY-CROFT: It does. Thank you.

371. THE CHAIR: So the petitioners' contention around InSAR, which is that it hasn't been completed, as far as the petitioner is aware, in relation to the section you're concerned with, you're saying, Mr Mould, that it has been completed then.

372. MR MOULD KC (DfT): I'm not saying that the process of data gathering and collection has been completed. Indeed, Mr Smart, I think that that process will continue for many decades, won't it, whilst the railway is operation?

373. MR SMART: We'll always be monitoring settlement for – once the railway is

under service. But we'll also continue monitoring right up to, and more importantly, during construction as well. So it's an important technique of controlling ground movement.

374. MR MOULD KC (DfT): What the project has – as I understand my instructions, what the project has satisfied itself of, in advance of depositing this Bill before the House, is that, in principle, in the light of the engineering knowledge and analysis that has been carried out, including geological work, hydrogeological work and a consideration of the design responses that are available for the construction of a high-speed railway line across geology of the kind that we see in the Cheshire plain, the project has satisfied itself that, in principle, it is able to design, to construct, to operate and to maintain the railway, applying known techniques and with an acceptable measure of assurance, or, if you will, an acceptable measure of manageable risk.

375. The risk register identifies risks in relation to designing, constructing and operating and maintaining the railway across this landscape. There's no secret about that. But equally, as I understand it, Mr Smart, there's nothing unusual about that.

376. MR SMART: Nothing unusual. Ground always has risks, but it's a question of how you deal with it in the engineering analysis and response, and that is what we've done. And of course, as I've said, as we go forward we'll be doing more geotechnical investigation to make sure that the response that we anticipate we do in this report. But maybe there's some other responses we can look at that we actually firm that up and get that into the design as we move forward.

377. MS MUMBY-CROFT: So is that level of comfort arrived at using information that's been gathered post that 2017 report, or using information that already existed prior to that 2017 paragraph on the A10 slide?

378. MR SMART: All the reports that we've done have been taken account of in this latest published report. The March 2023 report consolidates the information that we've done from the early reports right through to now.

379. What it doesn't necessarily refer to is some of the analysis that's coming out now of our site investigations that we have done. But they corroborated there's nothing unusual in terms of what we thought, from the published information available on the

ground and the risks that we could see in front of us, that we were dealing with, both in the route selection and where we sited the railway, and indeed, how we could then mitigate it in either design or/and construction.

380. MS MUMBY-CROFT: I suppose what I'm trying to understand is, in that paragraph 9.3.11 there's an acknowledgement that further geotechnical investigation work should be carried out and would be carried out. So the position that you're in now, is that reliant on work that's been carried out, including those investigations post 2017?

381. MR SMART: Yeah. That report highlighted further work. We've done the further work I've just explained to the Committee.

382. MS MUMBY-CROFT: Yeah.

383. MR SMART: And we'll be doing further work on top of that now, as we move the design forward before we get into construction, because the design process itself will need more information about the ground to complete that design than we currently have, but that's why we need to gather more information as we move forward.

384. MS MUMBY-CROFT: Okay, thank you.

385. MR SMART: But what we have got now is the appropriate level of information to know that our proposed risk mitigation scenario, as set out in terms of the design, the construction and the operational monitoring, which are all set out in that report and in some of the slides, actually, that are in this submission – it confirms that that's the appropriate response.

386. MR MOULD KC (DfT): I've put up another two pages of the report, which summarise the work done hitherto, including, as you see at paragraph 5.2.4, 'Advance ground investigation works undertaken at targeted locations in 2020 and 2021. Other work done in advance.' And then over the page there's a reference to future ground investigation works as well.

387. MS MUMBY-CROFT: Is the area that we're looking at one of those locations that's described?

388. MR SMART: We've done – so the interventions I've talked about when I talk

about 487, they're across that whole salt, what we call the Cheshire salt area that we're traversing, yeah.

389. MS MUMBY-CROFT: Yeah, and includes this specific area.

390. MR SMART: We're targeting – if there's high-risk areas which we need to reduce to moderate and low, and that's what this is aimed at doing, that's where we've targeted these interventions.

391. MR MOULD KC (DfT): It's also perhaps helpful to the Committee to know this. The report that was the subject of the *Sunday Times* article was – the particular section of the report upon which the article alighted was a section concerned with what's known as the Winsford rock salt mine. And if we put up R12(33), you can see what the significance of that particular facility is.

392. This is figure 8 on page 32 of the March report. And you can see, as is reported in 3.3.29, it's the only active salt mine within Cheshire, and has been in continuous operation since the 1930s. And you can see that, as we've showed you earlier on today, that is the one active and controlled mining operation which is – over which the railway passes on its – on the Bill alignment.

393. But just to take you to where the project currently is in terms of understanding and designing against the risks associated – such as they are, associated with passing over that facility, if you go on to page R12(35), I'd just invite you to read the summary at 3.3.34, which is the end of this little section.

394. So if there's a sharp point, if you like, in terms of ongoing risk associated with active salt mining that is going on beneath the route of the railway, it's the Winsford salt mine, which is operated by a commercial company with whom HS2 has been in discussion, and it's perhaps pertinent to note that that company has not seen fit to petition against this Bill.

395. So that's by way of just a flavour. There will be other things to be said about it, I've no doubt, in future petitions about this, and so I'm not going to go into detail.

396. THE CHAIR: No.

397. MR MOULD KC (DfT): But I want to give you a sense, there's another part of this story, which it's important that the Committee understands. Yeah.

398. THE CHAIR: Thank you. Any further questions, colleagues? No. Counsellor Hennerley, did you wish to –

399. MR HENNERLEY: Just a couple of points. So I think you can take my point, that what was assured in 2017 was that this sort of evidence-based engineering solutions would be provided to Parliament before the hybrid Bill. And I think we can clearly see that we're not quite at that point, are we?

400. We have talked about some measures, piling. We've not talked about what depth those piling measures may be. I understand very deep piling; about 80 feet, is that – would that be –

401. MR SMART: It could be.

402. MR HENNERLEY: It could be. It could be more.

403. MR SMART: It would depend on what further investigations reveal for a stable bedrock.

404. MR HENNERLEY: Thank you. Would you have an indication of what kind of costs per mile we're talking about when we talk about building a railway across such geology?

405. MR SMART: Those costs are all included in the estimate of expense. Off the top of my head I wouldn't – I can't – if I gave them to you now I would probably misquote.

406. MR HENNERLEY: Would it be fair to say it's probably double than anywhere else?

407. MR SMART: Not necessarily, no.

408. MR HENNERLEY: Okay.

409. MR SMART: Because certainly not when you compare it to a tunnelled route.

410. MR HENNERLEY: Okay. But no doubt those costings will be provided to

Parliament before a decision can be made.

411. MR SMART: I think it's fair to say that, if you've got ground with issues, okay, it doesn't matter whether you're in salt or other problems, like very weak soil, there's always going to be some sort of cost to deal with that. But that cost has to be balanced by other effects, as you take a railway through a congested landscape, both in terms of the existing infrastructure and agriculture, etc.

412. So it's a balance that has to be struck and there will be a cost of dealing with the salt, but it will be an appropriate cost compared to putting the railway somewhere else, or dealing with it, as we discussed earlier in this Committee, in tunnel.

413. THE CHAIR: Fine. Well, thank you to the petitioners and also the promoter for attending today. We'll stay and have a private meeting for a few moments afterwards. But thank you all for attending. Thanks. I'll bring the meeting to a close.