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The Cambourne to Cambridge Order

Cambridgeshire County Council

Transport and Works Act 1992

Transport and Works (Inquiries Procedure) Rules 2004

Inquiry into:

THE CAMBOURNE TO CAMBRIDGE ORDER

REBUTTAL IN RELATION TO FLOOD RISK

of

Jack Southon

of WSP

On behalf of Cambridgeshire County Council

03 September 2025

Planning Inspectorate Reference: DPI/E0535/25/1

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1. INTRODUCTION

- 1.1.1 This rebuttal has been prepared in response to the Proof of Evidence of Graham Sinclair **[CD26-08-W3-1]** in relation to flood risk ### carried out for the Cambourne to Cambridge Order.
- 1.1.2 My name is Jack Southon. I am a Technical Director in the Sustainable Water Management Team at WSP. Details of my qualifications, professional career and key project experience are contained in my Proof of Evidence **[CD26-01-APP-W9-1]**.

2. SCOPE OF REBUTTAL

- 2.1.1 The scope of my rebuttal is specifically in response to matters raised in the Proof of Evidence of Graham Sinclair **[CD26-08-W3-1]** entitled Proposed Cambourne to Cambridge Busway – Bin Brook Crossing and Impact on Clare Hall Flood Risk Proof of Evidence – Graham Sinclair. Graham Sinclair's Proof of Evidence questions the accuracy of the flood risk modelling undertaken for the Scheme and presented in the Environmental Statement **[CD1-10.01 being the Main Report]** and in Technical Report TR13 Appendix 1: Flood Risk Assessment **[CD1-11.13.02 Appendix TR13.1]**.
- 2.1.2 The fact that I do not respond to a particular point should not be taken as a concession in any respect. I have sought to focus my rebuttal evidence on the matters that I consider most likely to assist the Inspectors and Secretary of State by being addressed in writing.

3. REBUTTAL

3.1 Introduction

- 3.1.1 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 9, paragraph 3.3]** alleges a "lack of engagement by the Applicant" and later **[CD26-08-W3-1, pdf page 10, paragraph 3.8]** states there "is no evidence that the EA were fully engaged in the process up to submission since their involvement some time before. Specifically, there was no record of a RAG spreadsheet or equivalent feedback being returned to the Applicant."
- 3.1.2 As can be seen from the extensive correspondence between the applicant and the Environment Agency provided as part of my Proof of Evidence **[CD26-01-APP-W9-2]** significant engagement in regard to the flood risk modelling occurred through the pre-application and post application period. The Environment Agency's pre-application review findings of hydraulic modelling were shared with the applicant in November 2023 **[CD26-01-APP-W9-2, pdf pages 3-5]** subsequent correspondence was shared in December 2023 **[CD26-01-APP-W9-2, pdf pages 6-13]** to confirm the proposed scope of the model amendments required. These amendments were undertaken and the associated reports (flood risk assessment and appended flood risk modelling report **[CD1-11.13.02 Appendix TR13.1]**) were prepared between January and October 2024 prior to the submission of the draft Order in November 2024. Further Correspondence between the Environment Agency and the Applicant covering the period March 2025 and August 2025 are also provided 2023 **[CD26-01-APP-W9-2, pdf pages 14-192]**. The provided correspondence provides multiple iterations of the RAG spreadsheet documenting the ongoing engagement by the Applicant with the Environment Agency.
- 3.1.3 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 12, paragraph 3.20]** states that: "no information was provided regarding the EA's response to the February 2025 submission. As such, there remained a six-month gap – between February and July 2025 – during which it was presumed that ongoing dialogue occurred between WSP and the EA."
- 3.1.4 Correspondence from this period have been provided as part of my Proof of Evidence **[CD26-01-APP-W9-2]**. This includes model review documents from the Environment

Agency from March 2025 [CD26-01-APP-W9-2 pages 14-71], the WSP responses to this review from April 2025 [CD26-01-APP-W9-2 pages 72-114] and May 2025 [CD26-01-APP-W9-2 pages 115-123], the Environment Agency response to the April-May 2025 submissions received July 2025 [CD26-01-APP-W9-2 pages 124-178] and the additional technical note provided by WSP to rebut the July 2025 review submitted in July 2025 [CD26-01-APP-W9-2 pages 179-190] and finally the Environment Agency August 2025 correspondence confirming they consider the flood risk modelling acceptable for informing the application [CD26-01-APP-W9-2 pages 191-192].

- 3.1.5 The Proof of Evidence of Graham Sinclair [CD26-08-W3-1, pdf page 9, paragraph 3.6 and pdf page 12, paragraph 3.18] references the objection from the Environment Agency [CD2-OBJ-301] in January 2025.
- 3.1.6 It should be noted that the Environment Agency have written to the Inspector to confirm their withdrawal of this objection and satisfaction with the flood risk modelling work used to inform the Flood Risk Assessment and Environmental Statement [CD25-17]. This is also evident from the Environment Agency August 2025 correspondence provided as part of my Proof of Evidence [CD26-01-APP-W9-2 pages 191-192] confirming they consider the flood risk modelling acceptable for informing the application.
- 3.1.7 The Proof of Evidence of Graham Sinclair [CD26-08-W3-1, pdf page 12, paragraph 3.22] states that at a meeting on 07 August 2025 "It was confirmed by the applicant that discussions with the EA are ongoing"
- 3.1.8 This was correct at the time of the meeting. However, from correspondence provided as part of my Proof of Evidence [CD26-01-APP-W9-2 pages 191-192] it can be seen that subsequent to this meeting the Environment Agency wrote to WSP on 08 August to confirm their intention to write to the Inspector by 19th August to withdraw their objection [CD2-OBJ-301]. The Environment Agency objection [CD2-OBJ-301] was formally withdrawn 19 August 2025 [CD25-17]. As such further correspondence beyond agreeing a Statement of Common Ground is not ongoing at this time.
- 3.1.9 The Proof of Evidence of Graham Sinclair [CD26-08-W3-1, pdf page 11, paragraph 3.10] states that "CCE noted that the flows rates used in the submitted FRA are between 15%-20% lower than the EA model. Justification required." And [CD26-08-W3-1, pdf page 24, paragraph 6.23] "when comparing like for like flood estimation points, the WSP estimated design flow rates are 15-20% lower than the CCE design flow rates and are lower than the EA Approved 2023 JBA Model design flow rates."
- 3.1.10 As noted in my Proof of Evidence [CD26-01-APP-W9-1 pages 11, table 3-1] the maximum water level results for the JBA 2023 model are shown to be lower than Applicant baseline model results for the same location. The WSP prepared Hydrology used in the FRA [CD1-11.13.02 Appendix TR13.1] has been found by the Environment Agency to be appropriate for the assessment of the scheme [CD25-17].
- 3.1.11 The Proof of Evidence of Graham Sinclair [CD26-08-W3-1, pdf page 12, paragraph 3.16] states that in the ES addendum submitted on 23 July 2025 [CD1-10.07] "WSP state that water levels decrease along the Bin Brook, downstream of the proposed route, reducing flood risk to third parties including Clare Hall. Water levels upstream of the crossing point would be similar to the baseline with 8mm increased in depths over a short reach of the watercourse. WSP then states that this difference in flood extent is not considered an increase as it would not affect any buildings or assets." And "WSP acknowledge that no floodplain compensation is proposed for the embankment introduced within the floodplain. They seek to justify this by stating that the removal of the existing bridge, combined with the introduction of the proposed embankment and bridge, results in no significant impact on flood levels, thereby negating the need for compensation."

- 3.1.12 As can be seen in the original document **[CD1-10.07 pdf page 10, paragraphs 3.1.1-3.1.3]** says, “the flood extent is not increased such that it would affect any additional buildings or assets”. And “it is not proposed to include flood plain compensation equal to that of the introduced embankment as it was found that by removing the to-be redundant downstream existing access bridge, in conjunction with the introduction of the scheme embankment and bridge, there was no significant impact on flood levels outside of the Order Limits to compensate. Additionally, due to the generally very flat topography of the catchment, there is limited opportunity for level floodplain compensation local to the area of works.”
- 3.1.13 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 13, paragraphs 3.23-3.24]** list a number of matters raised by the Environment Agency in correspondence in regard to the Flood Risk Modelling and alleges that “the lack of timely and transparent communication has resulted in CCE undertaking additional and unnecessary work to interpret the model without access to adequate supporting information – an outcome that could have been avoided through more effective engagement by the Applicant.” And that **[CD26-08-W3-1, pdf page 13, paragraph 3.23-3.26]** “This situation clearly has the potential to result in work undertaken by CCE proving to be abortive. This has arisen directly as a result of the Applicant’s inadequate initial assessment and report, its lack of engagement on this matter and failure to resolve these issues in good time prior to the start of this inquiry.”
- 3.1.14 As has been acknowledged by the Environment Agency in their August 2025 correspondence, both the email correspondence provided as part of my Proof of Evidence **[CD26-01-APP-W9-2 pages 191-192]** and their 19 August 2025 letter to the Inspector **[CD25-17]** the flood risk modelling and hydrology prepared through 2024 used to inform the Flood Risk Assessment and ES **[CD1-11.13.02 Appendix TR13.1]** was found to be acceptable for assessing flood risk in the area of interest. The Applicant fully engaged with the Environment Agency to address the concerns raised by their 3rd party reviewer (Arcadis) and document fully the robustness of the 2024 flood risk modelling and hydrology. It has been borne out that the concerns raised were not material and the results from the 2024 flood modelling and conclusions of the 2024 flood risk assessment stand. It is considered that any work CCE have undertaken is in response to the ultimately withdrawn Environment Agency initial Objection and not as a result of any defect in the work prepared by the Applicant. The time taken to overcome the ultimately withdrawn Environment Agency initial Objection is outside of the control of the Applicant and the correspondence provided as part of my Proof of Evidence **[CD26-01-APP-W9-2]** show frequent and timely correspondence to the Environment Agency on the part of the Applicant following the receipt of the objection seeking to resolve the objection in a timely manner. As confirmed by CCE and Claire Hall from their own enquires **[CD26-08-W3-1, pdf page 13, paragraph 3.28]** the Environment Agency were found to have “limited capacity for model reviews and meeting attendance due to workload pressures from large scale strategic sites” and this resulted in protracted delays to resolving their initial objection.
- 3.1.15 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 13, paragraph 3.25]** states that Graham Sinclair’s proof of evidence has been prepare “without any assurance that the modelling has been, or will be, accepted or given the requisite technical sign off by the EA.”
- 3.1.16 It is my opinion that it would be inappropriate for the Applicant to have sort to provide CCE or Claire Hall with any assurances that the Environment Agency had or would ‘sign off’ the modelling and that should the CCE or Claire Hall should rely on their own enquiries to the Environment Agency in this matter as part of their own engagement with the Environment Agency noted in Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 13, paragraph 3.28]**. I also consider that there is no “requisite” for technical sign off of modelling from the Environment Agency. Clearly it is helpful to the Inspector to hear from the Environment Agency their professional option of the robustness of the flood risk modelling and hydrology evidence based used to inform the FRA and ES **[CD1-11.13.02 Appendix TR13.1]** and in this case the Environment

Agency's August 2025 endorsement of the modelling **[CD26-01-APP-W9-2 pages 191-192 and CD25-17]** supports the applicant's case that the flood risk evidence base is robust and conclusions of the FRA / ES are appropriate, but there is no statutory requirement for Environment Agency "sign off" of modelling as any evidence base can be subject to review during examination.

- 3.1.17 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 13, paragraph 3.29]** states that "it is important to note that neither the hydraulic modelling undertaken by WSP (on behalf of the Applicant) nor that prepared by CCE (on behalf of Clare Hall) has received formal approval from the EA. The WSP modelling has been submitted as part of the Department for Transport (DfT) submission without confirmation that the EA's comments and requested clarifications – outlined in their formal objection – have been addressed." And **[CD26-08-W3-1, pdf page 27, paragraph 6.33]** states "[...] the EA objection (dated January 2025) remains against the application as their review has not been completed"
- 3.1.18 It is correct to say that, at the time of writing this rebuttal, the modelling prepared by CCE (on behalf of Clare Hall) has not, to my knowledge been reviewed or endorsed by the Environment Agency (beyond the review they likely undertook of the base model as prepared by JBA in 2023 when this was adopted, and which was subsequently supplied to CCE in response to their data request). However as confirmed in correspondence **[CD26-01-APP-W9-2 pages 191-192 and CD25-17]** the hydraulic modelling undertaken by WSP (on behalf of the Applicant) has received formal endorsement from the Environment Agency. The FRA **[CD1-11.13.02 Appendix TR13.1]** was submitted as part of the Department for Transport (DfT) submission included technical appendices TR13.1.1 (hydraulic modelling report) and TR13.1.2 (supporting hydrology) set out the work on the model and hydrology in response to the 2023 preapplication advice. It is true to say that the Environment Agency raised an objection in January 2025 **[CD2-OBJ-301]** seeking further assurances that WSP had undertaken the work to update the flood risk model and hydrology as described in the FRA Technical Appendices and as proposed in pre-application correspondence **[CD26-01-APP-W9-2 pages 6-13]**. This assurance was subsequently provided by way of providing a full copy of the flood risk model to the Environment Agency for their re-review ultimately resulting in their removal of their January 2025 Objection in August 2025 and acceptance of the 2024 evidence base.

3.2 Application Background

- 3.2.1 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 17, paragraph 4.9]** states: "The EA requested submission of the full hydraulic model (dated 15 November 2023) due to multiple issues, stating it was unsuitable for its intended use."
- 3.2.2 The Environment Agency correspondence from 15 November 2023 attached to my Proof of Evidence **[CD26-01-APP-W9-2 pages 3-5]** do not request submission of a full hydraulic model. Rather they are the response to the Applicant from the Environment Agency of a review of the Bin Brook hydraulic model undertaken as part of pre-application advice to identify any improvements to the model that would be required to inform the site specific Flood Risk Assessment for the scheme. The Environment Agency did request the model was re-submitted for re-review "to ensure that [...the identified...] issues have been addressed" in their objection **[CD2-OBJ-301]** but this was not until January 2025.
- 3.2.3 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 17, paragraph 4.10]** states: "Additionally, the EA requested further information to increase confidence in the model outputs. Certain elements of the model, such as elevation values being used to represent structures, were flagged for reassessment. This approach can lead to inaccurate results, as elevation alone does not capture the hydraulic behaviour of features like culverts, embankments, bridges or weirs. Such structures should be represented using appropriate hydraulic components with defined parameters, rather than relying solely on ground elevation data."

- 3.2.4 It should be clear that the first part of this statement - “Additionally, the EA requested further information to increase confidence in the model outputs. Certain elements of the model, such as elevation values being used to represent structures, were flagged for reassessment” - is a summation of a comment made by the Environment Agency in their 15 November 2023 correspondence attached to my Proof of Evidence **[CD26-01-APP-W9-2 pages 3-5]**. However, the latter part of the statement - “This approach can lead to inaccurate results, as elevation alone does not capture the hydraulic behaviour of features like culverts, embankments, bridges or weirs. Such structures should be represented using appropriate hydraulic components with defined parameters, rather than relying solely on ground elevation data” - should be understood to be the opinion of Graham Sinclair and not reflective of Environment Agency’s comments.
- 3.2.5 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 17, paragraph 4.11]** represents that the Environment Agency consider model log is ‘essential’. The Proof of Evidence continues to that that “modelling log was received from WSP on 24 July 2025; however, it should be noted that the modelling log has only been updated to November 2024, corresponding to the point of the Applicant’s submission”.
- 3.2.6 Correspondence attached to my Proof of Evidence **[CD26-01-APP-W9-2 pages 3-5]** confirms that the model log is desirable as “the provision of a model log with all modelling decisions would aid the review procedure along with a standard model user report” but does not raise to the level of ‘essential’. As noted above the modelling from November 2024 was used to inform the FRA **[CD1-11.13.02 Appendix TR13.1]** and has been found by the Environment Agency to be suitable for this purpose. Therefore it is not expected that more recent model log would be required or be material.

3.3 Relevant Planning Policy

- 3.3.1 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 19, paragraph 5.14]** states that “Policy CC/9 of the South Cambridgeshire Local Plan **[CD6-02, pages 109-111]** states that development is only acceptable if the NPPF’s Sequential and Exception Tests (if required) are passed, flood risk is not increased elsewhere and opportunities to reduce flood risk are taken.”
- 3.3.2 Referring back to bullet point ‘d’ of policy CC/9 of the South Cambridgeshire Local Plan **[CD6-02, pdf pages 109-111]** a more complete quote “There would be no increase to flood risk elsewhere, and opportunities to reduce flood risk elsewhere have been explored and taken (where appropriate) [...]” shows that opportunities to reduce risk should be taken “where appropriate”. The appropriateness of opportunities to reduce risk at discussed in the ES Addendum **[CD1-10.07, pdf pages 10-11 paragraph 3.13]** and my Proof of Evidence **[CD26-01-APP-W9-1, pdf pages 12-13, section 3.4]**.

3.4 Inadequacy of the WSP Submission

- 3.4.1 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 22, paragraph 6.9]** states that: “Given that WSP’s subsequent submittal is only marginally different to the previous submittal that was the basis for that EA comment, it is clear the document remains insufficient.”
- 3.4.2 As confirmed in correspondence **[CD26-01-APP-W9-2, pdf pages 191-192 and CD25-17]** the hydraulic modelling undertaken by WSP (on behalf of the Applicant) has received formal endorsement from the Environment Agency as appropriate to inform the FRA. Therefore it is considered that the documentation provided as part of the FRA **[CD1-11.13.02 Appendix TR13.1]** and subsequently via correspondence [which can be found in **CD26-01-APP-W9-2**] are suitably robust and detailed.
- 3.4.3 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 22, paragraph 6.10]** states that “The latest EA approved model for the Bin Brook catchment is the 2023 JBA Bin Brook Flood Model. This model supersedes the Gough Way 2017 model and is designed to represent the full catchment risk. There is no mention of this model

in any of the documents that have been submitted and therefore there is no confirmation that the work used to build the 2023 JBA model was incorporated into the WSP hydraulic modelling work, even as a comparison and check against the extents published.”

- 3.4.4 The Gough Way 2017 model was the latest approved model available at the start of this assessment. The 2023 JBA model was not available at the time of preparing the FRA for the scheme. Both the JBA and the applicant models were developed in parallel in 2023. Both were based off the 2017 model and both undertook new survey and hydrology to update the 2017 model. The JBA model is not referenced in the FRA as the FRA was completed prior to its availability. However comparison between the two models is made in my Proof of Evidence **[CD26-01-APP-W9-1, pdf pages 8-9, paragraphs 3.2.20-3.2.23 and pages 10-11, paragraphs 3.3.3 and Table 3-1]**.
- 3.4.5 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 23, paragraphs 6.16-6.17]** states that “there are several structures in and around the purchase order area that are not included in the hydraulic model. These missing structures were flagged by the EA in item 5.1 of their review spreadsheet” and “Despite the EA comment, these structures are still not within the latest version of the model received”
- 3.4.6 Clear justification has been provided to the Environment Agency (and accepted) **[evidenced in my Proof of Evidence CD26-01-APP-W9-1, pdf page 168, table row 5.1 ‘2nd review response’ and ‘3rd review comments’]** as to why these structures are not material to the outcome of the flood risk modelling. The Environment Agency consider the flood modelling appropriate to inform the Flood Risk Assessment. Mr Graham Sinclair’s Proof of Evidence is referencing out of date information.
- 3.4.7 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 23, paragraph 6.18]** references the concurrency of the hydrology estimation used to inform the Flood Risk Assessment.
- 3.4.8 This is clearly addressed in my Proof of Evidence **[CD26-01-APP-W9-2, pdf pages 118-123]** to the satisfaction of the Environment Agency. The concurrency of hydrology estimates and the sensitivity testing provided has specifically be acknowledged by the Environment Agency in their letter dated 19 August 2025 which states the Environment Agency “consider that an update to the current version of the hydrology data sets would not materially change the outcome of the modelling, and this issue is resolved.”
- 3.4.9 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf pages 23-24, paragraph 6.19-23]** include general discussion on the virtues of including gauged flow data to inform flow estimates. Graham Sinclair’s proof highlights that prior to JBA preparing a model based rating for the level only gauge there was no local flow gauge available.
- 3.4.10 This was the case at the time of preparing the WSP hydrology. I would recommend caution in relying too heavily on a modelled gauge rating not supported by spot flow gauging. The rating produced can itself be another source of uncertainty due to the subjective choices of key model parameters and coefficients. Careful calibration and verification of new ratings should be made against observed flow and level measurements for a range of water levels representing the full range of conditions the rating will be relied upon wherever possible to provide confidence in the rating – this has not been done here. Ultimately the 2023 WSP Hydrology has been reviewed and approved by the Environment Agency as suitable for informing the FRA **[CD26-01-APP-W9-2, pdf pages 191-192 and CD25-17]**.
- 3.4.11 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 26, paragraphs 6.30-6.32]** states that the FRA is “in contradiction to the EA guidance for impact assessment” for schematising the impact grid plate **[TR13.1-1-3 of CD1-11.13.02]** to focus on impact on flood level greater than 10mm.

- 3.4.12 However I would highlight that the Environment Agency guidance quoted specifically referenced 'flood risk' and not 'flood level'. The 10mm schematisation is not to account for model calculation error or model tolerance as alleged. It is used to highlight where more material impacts on flood risk may be occurring. Risk is a combination of probability and consequence. In my opinion the proposed works do not increase the probability of inundation to the surrounding area to a measurable degree in the 1% AEP event plus climate change. For smaller, more frequent flood event the proposed works are likely to reduce the probability of inundation locally to the new bridge as more flow is contained in the channel that would otherwise surcharge from the old (existing) bridge. I observe that there are small increases in maximum modelled flood depths to some areas of the flood plain and in channel. These are discussed in my Proof of Evidence **[CD26-01-APP-W9-1, pdf pages 8-12, section 3.3 "Modelling results - predicted impacts and likely significant effects"]**. It is my opinion that these small increases in maximum flood water level on top of existing significant flood water depths do not constitute a material increase in flood risk. This is an opinion shared by the Environment Agency as set out in their letter of 19 August 2025 **[CD25-17]** which states:
- "The model shows minor increases in flood depths in some already inundated areas. These increases are maximum 8mm increase on depths of approximately 900mm in open fields. There are decreases of similar magnitude in the built up area immediately downstream of the bridge in the proposed design. The Design Manual for Roads and Bridges (Standards for Highways¹) states a less than or equal to 10mm increase in water levels, as demonstrated in modelling, is an acceptable detriment in road and bridge schemes. There is a minor increase in the flooded extent. A small number of extra grid cells in the model domain, upstream of the bridge in the open fields, are indicated as wet in the after vs the baseline case. This occurs in the open fields area within the redline boundary. As this is within the redline boundary, we consider this acceptable."
- 3.4.13 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 27, paragraph 6.35]** states that "[...] ES Note addendum (CD1-10.07) which states in section 3.3.2 that there would be an increase in depth of 8mm upstream of the Bin Brook within the Gough Way Estate."
- 3.4.14 It is noted that there is no section 3.3.2 of the ES Note addendum **[CD1-10.07]**. Section 3.1.2 references a "minimal 8mm increases in depth over a short reach of the watercourse" but does not state that this is 'within the Gough Way Estate'. Table 3-1 from my Proof of Evidence **[CD26-01-APP-W9-1, pdf page 11, table 3-1]** shows that the 8mm change in water level is observed 225m upstream of the proposed crossing location at node BB01_0796 which is located North of the Gough Way Estate. Node BB01_1189 located 648m upstream of the proposed crossing and south of the Gough Way Estate is observed to show 0mm difference in water level.
- 3.4.15 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 28, paragraph 6.36]** discusses flood plain compensation and states: "The applicant also asserts in the ES Addendum (CD1-10.07) that there is no need to include flood plain compensation equal to that of the introduced embankment. This alludes to the fact that according to the NPPF (CD8-01), a development either has to provide level-for-level, volume-for-volume calculations showing that it is providing sufficient mitigation in the design to offset the impacts of the development or else a development must provide EA approved flood risk modelling that demonstrates that there is no offsite adverse impacts to flood risk. The applicant is arguing that their reporting achieves the latter and therefore the former is not required. CCE and Clare Hall contest this assertion."

¹ The Design Manual for Roads and Bridges (Standards for Highways) - LA 113 - Road drainage and the water environment, 2020, located at <https://www.standardsforhighways.co.uk/dmrb>

- 3.4.16 It is not clear to me which section of the ES Addendum **[CD1-10.07]** is intended to be characterised by this statement. However, I would observe that paragraph 3.1.3 of that document states that “[...] it is not proposed to include flood plain compensation equal to that of the introduced embankment as it was found that by removing the to-be redundant downstream existing access bridge, in conjunction with the introduction of the scheme embankment and bridge, there was no significant impact on flood levels outside of the Order Limits to compensate. Additionally, due to the generally very flat topography of the catchment, there is limited opportunity for level floodplain compensation local to the area of works.”
- 3.4.17 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 28, paragraph 6.37]** states that: “A review of the surface water fluvial flood risk maps for planning on the EA website indicates that the flooding does not affect Adams Road to a significant degree, instead affecting built up areas adjacent to the road or Grange Road to the north east.”
- 3.4.18 It is not clear if Mr Sinclair is referring here to the current flood mapping or the flood mapping at the time the FRA was prepared. The surface water flood mapping at the time the FRA was prepared (Figure 1 below) show Adams Road and to be subject to low Surface water flood risk across its full width, additionally there are areas of high and medium risk along Stacey Lane. The flood mapping available at the time of preparing this rebuttal (Figure 2) shows that the northern carriage way of Adams Road is within the present day Flood zone 3 and the entirety of Adams Road is shown to be in the future Flood Zones. As noted in the ES Addendum **[CD1-10.07, pdf page 12 paragraphs 3.1.8-3.1.11]** given the constrained nature of Adams Road (physically and by heritage / conservation considerations) there are limited opportunities to reduce flood risk to a route in this location. The proposed Rifle Range track route is less constrained to mitigation and the proposed crossing of the Bin Brook is designed to be flood free in the event of a 1% AEP flood including an allowance for climate change.



Figure 1 Extract of Flood Map for Surface Water [Data extracted 01-09-2022]

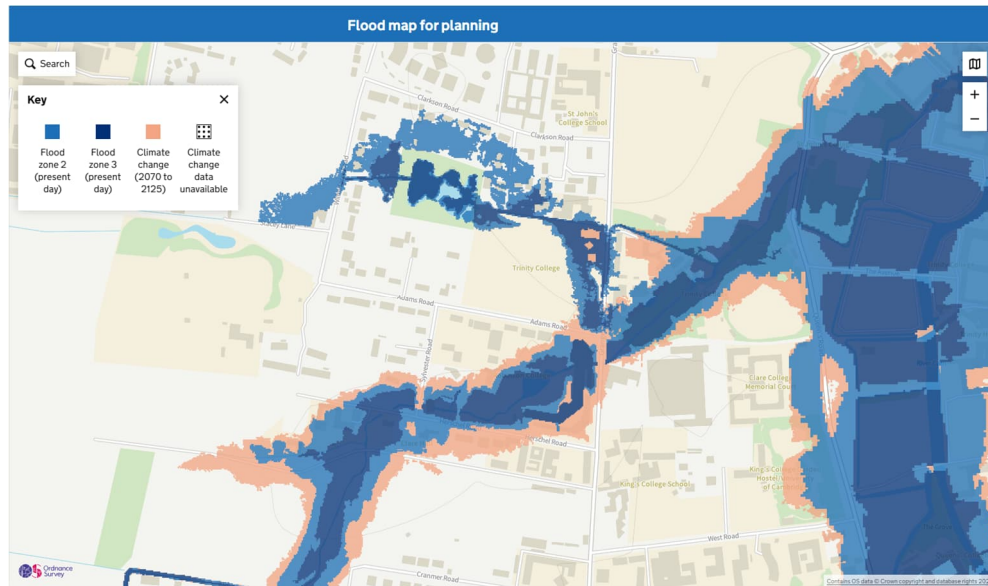


Figure 2 Extract of Flood Map for Planning [05-09-2025]

3.5 Likely Impact on Claire Hall – CCE Modelling

- 3.5.1 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 29, paragraph 7.4]** states that: “The Applicant’s Statement of Case (CD23-17 OBJ-214) and the Applicant’s Addendum to the ES chapter (CD1-10.07) both acknowledge that there are offsite increases that are not clearly presented in the WSP hydraulic modelling report (CD1-11.13.02 Appendix TR13.1.1), nor the WSP FRA (CD1-11.13.02)”.
- 3.5.2 I would suggest that the FRA **[CD1-11.13.02]**, WSP hydraulic modelling report **[CD1-11.13.02 Appendix TR13.1.1]**, the Applicant’s Statement of Case **[CD23-001, pdf pages 88-89, paragraphs 11.20.6 and 11.20.7]**, the ES Addendum **[CD1-10.07, pdf page 10, paragraphs 3.1.1 and 3.1.2]** and my proof of evidence **[CD26-01-APP-W9-1]** all consistently describe the impacts of the proposed work on flood water levels and flood risk. These impacts are also noted in the Environment Agency 19 August 2025 letter to the Inspector **[CD25-17]** which notes the Environment Agency consider them to be of acceptable scale. It is Mr Sinclair opinion that the increases are not clearly presented in the FRA **[CD1-11.13.02]** or modelling report **[CD1-11.13.02 Appendix TR13.1.1]**, this is not a finding supported by the Applicant’s Statement of Case **[CD23-001]** or the ES Addendum **[CD1-10.07]** as may be interpreted by Mr Sinclair’s Proof **[CD26-08-W3-1]**.
- 3.5.3 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 30, paragraph 7.6]** states that: “Aside from the impact grids and change in extent shown in the WSP hydraulic modelling report (CD1- 11.13.02 Appendix TR13.1.1), no other results have been provided.”
- 3.5.4 It is observed that the full hydraulic model and full results has been shared with the Environment Agency on an ongoing basis through development as noted in correspondence **[CD26-01-APP-W9-2]** (and latterly with CCE) and that in addition to the results shown in the FRA **[CD1-11.13.02]** additional detail on the results can be found in the technical notes provided **[CD26-01-APP-W9-2]** and my proof of evidence **[CD26-01-APP-W9-1]** including tabularised in channel levels.
- 3.5.5 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 30, paragraph 7.7]** hilights a finding from the CCE modelling that indicates an increase in peak modelled channel velocity from 0.4m/s in the baseline to 0.8m/s with the development.

- 3.5.6 These values should be understood to be referencing cross-sectionally averaged modelled peak velocity. The change in velocity does not change the hazard classification² in this location. In my opinion the change in velocity is not of a scale to constitute a material increase in flood risk as a result of the proposed works.

3.6 Policy Test – Impact on Flood Risk Elsewhere and Floodplain Compensation

- 3.6.1 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 32, paragraph 8.3]** states: “The 2024 CCE Model is deemed more appropriate for this assessment given the significant limitations outlined above, making the WSP modelling unfit for purpose.”
- 3.6.2 This statement should be understood to be Mr Sinclair's opinion. Mr Sinclair's opinion is contrary to the findings of the Environment Agency independent review of the WSP modelling work as confirmed in the Environment Agency letter to the inspector **[CD25-17]** which concludes that the WSP modelling is suitable for use to assess the impact of the proposed scheme.
- 3.6.3 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 32, paragraph 8.4]** appears to seek to represent the Environment Agency position in regard to the scheme and the need for flood plain compensation.
- 3.6.4 It is considered that reference to a primary source, namely the Environment Agency letter to the inspector **[CD25-17]** is more appropriate than relying on a third party statement to in regard to the Environment Agency position in regard to flood plain compensation and the acceptability of the scheme.
- 3.6.5 SEQUENTIAL TEST – RALF
- 3.6.6 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 33, paragraph 8.10]** re-iterates the discussion about increases in modelled flood depth and modelled velocity and the objector's opinion that these increases are significant and constitute an increase in flood risk.
- 3.6.7 These points have previously been addressed in 3.4.12 and 3.5.6 of this document.
- 3.6.8** The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 33, paragraph 8.12]** suggests that the applicant has failed to meet flood risk and coastal change PPG³ paragraph 049 because no formal floodplain compensatory storage is proposed.
- 3.6.9 Section 3.4.16 of this note addresses the requirements for floodplain compensatory storage which have been reviewed as part of a site specific flood risk assessment and independently reviewed by the Environment Agency who have accepted the findings of the FRA in their letter to the Inspector **[CD25-17]**.
- 3.6.10 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 33, paragraphs 8.13-8.14]** reference is made to Table 2 of the flood risk and coastal change PPG which states that: “essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:
- (a) remain operational and safe for users in times of flood;
 - (b) result in no net loss of floodplain storage;

²

[https://assets.publishing.service.gov.uk/media/602d040fd3bf7f721a23a993/Flood_risk_assessment_guidance_for_new_development - phase 2 technical report Full Documentation and Tools.pdf](https://assets.publishing.service.gov.uk/media/602d040fd3bf7f721a23a993/Flood_risk_assessment_guidance_for_new_development_-_phase_2_technical_report_Full_Documentation_and_Tools.pdf) pdf page 126 section 13.7

³ <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

(c) not impede water flows and not increase flood risk elsewhere”

- 3.6.11 I would propose that the short bullet points under Table 2 of the flood risk and coastal change PPG should be read alongside the more detailed discussion of requirements in paragraph 049 of the PPG. Paragraph 049 of the PPG describes the role of a site-specific flood risk assessment in considering these themes and makes clear that while development proposals generally should be designed and constructed in accordance with the themes, there are circumstances where departure from these themes may be permitted as a key consideration in whether planning permission is granted. As noted above the FRA **[CD1-11.13.02]** sets out how the proposed development will remain operational and safe for users in times of flood and in particular the crossing of the Bin Brook Channel will be set back from the channel banks and raised above the flood level. Section 3.4.16 of this note addresses the requirements for floodplain compensatory storage. Sections 3.4.12 and 3.5.6 discuss the impact of the scheme on water flows and flood risk elsewhere. Nearly all linear road infrastructure schemes (e.g. Road and Rail) will require to cross a watercourse at some point along their length and therefore will cross over Flood Zone 3b when considered as a plan view. I would suggest that it should be considered how a scheme that spans Flood Zone 3b with bridge abutments set back from the channel and bridge parapet/deck set above the predicted flood level interacts with the Flood Zone 3b area in three dimensions, not just plan form.
- 3.6.12 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 34, paragraph 8.15]** references the Cambridgeshire Flood and Water SPD **[CD7-14]** in regard to flood plain compensation.
- 3.6.13 I note that Section 3.4.16 of this note addresses the requirements for floodplain compensatory storage, and that the SPD **[CD7-14]** notes that: “any proposals to modify ground levels will need to demonstrate in the FRA that there is no increase in flood risk to the development itself or to any existing property elsewhere” so as to avoid new flood risk being not created elsewhere in an unknown or unplanned for location. Sections 3.4.12 and 3.5.6 of this document discuss the impact of the scheme on water flows and flood risk elsewhere.
- 3.6.14 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 34, paragraph 8.16-8.18]** discusses the requirements for a site specific flood risk assessment to demonstrate that the proposed development will not be increased elsewhere; residual risks are managed safely, and that development incorporates appropriate flood resilience and resistance measures.
- 3.6.15 Sections 3.4.12 and 3.5.6 discuss the impact of the scheme on water flows and flood risk elsewhere. The FRA **[CD1-11.13.02]** sets out how the proposed development will remain operational and safe for users in times of flood for its lifetime by virtue of being designed to sit above the modelled flood level including an allowance for freeboard.

3.7 Potential Mitigation and Associated Viability

- 3.7.1 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf page 35, paragraph 9.1]** references that a number of alternative designs for the proposed works were considered during the development of the design and that the modelling analysis of these were not shared.
- 3.7.2 This is correct and considered appropriate given that the alternative draft designs were not progressed. The modelling of the proposed scheme has been shared with the Environment Agency and more recently with CCE.
- 3.7.3 The Proof of Evidence of Graham Sinclair **[CD26-08-W3-1, pdf pages 35-38, paragraph 9.2-9.10]** summarise CCE’s own work to consider alternative design proposals including realignment of the Bin Brook Crossing and excavation of the flood plain to form storage areas.

- 3.7.4 Section 3.4.16 of this note addresses the requirements for floodplain compensatory storage. My proof of evidence [CD26-01-APP-W9-1, pdf page 12, paragraph 3.4.2] discusses the objector's alternative proposals. Section 3.4.16 of this note addresses the requirements for floodplain compensatory storage. It is observed that the Objectors alternative proposals have not been adopted by the Applicant and as such consideration of the landscape or ecological impacts of the Objector's proposed works are outside the scope of the ES and ES addendum.

3.8 Summary and Conclusions

- 3.8.1 The Proof of Evidence of Graham Sinclair [CD26-08-W3-1, pdf page 39, paragraph 10.1-8.7] revisit a number of the points raised above including the Applicant's flood risk modelling (and the EA 'approval' of this); the impact of the scheme on modelled flood water levels and velocities and impact of the scheme on flood risk; the objector's own modelling evidence base; the objector's own proposals for mitigation, the Sequential Test and requirements for development in Flood Zone 3b.
- 3.8.2 These points have been addressed throughout this document. I would observe that Mr Sinclair's characterisation of his own 2024 CCE Model as "more accurate and reliable" would appear to be entirely his own opinion as it would appear that Mr Sinclair's proof confirms that the 2024 CCE model has not be subject to independent 3rd party review. I would observe that the WSP modelling prepared to support the FRA has been subject to 3rd party review and the Environment Agency concluded in their letter to their 19 August 2025 letter to the Inspector [CD25-17] that they accept the evidence base provided and the conclusions of the FRA in regard to the acceptability of the impact of the proposed scheme.

4. STATEMENT OF TRUTH

- 4.1.1 The rebuttal which I have prepared and provide is true and is given in accordance with the guidance of my professional institutions. I confirm that the opinions expressed are my true and professional opinions.