BEFORE AN INDEPENDENT HEARINGS PANEL

THE PROPOSED WAIKATO DISTRICT PLAN (STAGE 2)

UNDER the Resource Management Act 1991 (the Act)

IN THE MATTER OF Hearing 27D: Coastal Hazards (Proposed Waikato District Plan) submissions and further submissions

STATEMENT OF REBUTTAL EVIDENCE FOR DR BRETT BEAMSLEY

11 MAY 2021

INTRODUCTION

Current Position

1. My name is Brett James Beamsley. I am the Principal Physical Oceanographer for MetOcean Solutions (MOS).
2. I hold a BSc, MSc (Hons.) and a DPhil from The Waikato University. These qualifications specialised in coastal and oceanic processes, including beach morphology, sediment transport, extreme value analysis, wave and hydrodynamic modelling.
3. I have more than 25 years' experience in physical oceanography, coastal processes and ocean engineering application, and managing port projects relating to dredging and disposal of dredged material. I have prepared more than 30 papers and scientific publications (which I have both authored and co-authored). I have also been involved in the preparation of over 200 technical reports covering a broad range of topics, including sediment dynamics and transport (including morphological modelling), drill cuttings and dredged sediment disposal characteristics, hydrodynamics and wave processes. I have specialist skills in finite-element model establishment, and I am a long-time user of the SELFE/SCHISM hydrodynamic modelling code.
4. I have prepared and presented hydrodynamic evidence at 5 Council resource consent hearings, and Environment Court hearings.

Code of Conduct and Conflict of Interest Declaration

5. I have read the Environment Court's Code of Conduct for Expert Witnesses 2014, and I agree to comply with it. I confirm that the issues addressed in this brief of evidence are within my area of expertise, except where I state I am relying on what I have been told by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.
6. I have no commercial relationship with the applicant, save in my role as an expert in relation to this application.

Response to council experts

7. In paragraph [5.5] Miss Gibberd states that she has used the available information to define coastal inundation hazard areas.
8. While Miss Gibberd is partially correct, in that available processed information has been used, what has not been considered is the more than 6-years of additional data available to define tidal and extreme water levels more accurately. However, s42 report Gibberd and Dahm, (2019) note that the coastal hazard assessment included a review of all available published and unpublished data available. This statement is incorrect.
9. Further in paragraph [5.5] Miss Gibberd states that a detailed re-analysis of the tide data was not within the scope of her services to council. If this is correct, then the values used by council do not represent the intent of the draft district plan, where Waikato District Council, (2020) note that high quality up-to-date information is important

for natural hazard risk management and requires the use of the best information available to identify land that may be subject to natural hazards (Chapter 15 (8) of the proposed District Plan).

10. Further, if the above statement is correct, neglecting to analysis 6-years of additional water level and storm surge data is a significant oversite in the process followed by council in my professional opinion.
11. Additionally, Miss Gibberd and Gibberd and Dahm, (2019) failed to undertake even a cursory comparison between Kawhia an Raglan harbour which would have shown that maximum water levels in Kawhia Harbour are of an order 10 cm larger than those in Raglan. Therefore, applying Kawhia Harbour water level values to Raglan is a very conservative approach.
12. Further in paragraph [5.5] Miss Gibberd states that the best information available at the time of her analysis was that of Stephens et al., (2015). This is incorrect. The best information is the contemporary water level data from the specific sites of interest (i.e., Raglan Harbour), as these represent high-quality up-to-date information is important for natural hazard risk management and requires the use of the best information available to identify land that may be subject to natural hazards (Chapter 15 (8) of the proposed District Plan).
13. In paragraph [5.6] Miss Gibberd states that the Raglan data was not included in the report by Stephens et al., (2015) due to the available duration of the record and due to some gaps. This is correct, however since that report there has been significantly more data collected at the Raglan Harbour site, which should have been analysed or at the minimum compared to Kawhia Harbour water levels. This was not done.
14. In paragraph [5.8], Miss Gibberd states that she believes that the analysis of a data record of 10 years of water level data at Raglan is insufficient to confidentially predict a 1% AEP storm tide level, however Miss Gibberd has based her recommendations for extreme water levels from analysis of Kawhia Harbour water levels that span only 6 years (Stephens et al., (2015)). This is a serious concern and illustrates why additional analysis should have been undertaken.
15. In paragraph [5.9] Miss Gibberd disagrees that the process undertaken has been negligent to have ignored important however her reliance on extreme water level data based on only 6-years, while she herself argues that 10-years is insufficient, illustrates that these data should have at least been reviewed, and that the scoping of the work was lacking.
16. In paragraph [5.11] Miss Gibberd acknowledges that the reason for the conservative approach she has applied is due to the short water level record analysed by Stephens et al., (2015)), which highlights why the additional 6 years of data should have been considered.
17. In paragraph [5.12] Miss Gibberd acknowledged that the value being recommended is likely to be less than 0.5% AEP, i.e. a 1:200 year event as noted by Stephens et al., (2015). The specific wording of by Stephens et al., (2015) was ***considerably*** less likely,

while analysis undertaken within my technical review indicates the extreme water level value is more similar to a 1:10000 year event.

18. In paragraph [5.14], Miss Gibberd suggests that the value used for the storm surge within their analysis could be relatively "common". I believe this to be an incorrect statement, and not able to be justified by recent analysis of the extended time-series from Raglan, which suggests a storm surge with 0.86 m is more consistent with a 1% AEP event.

19. Further, Miss Gibberd apply a highly conservative approach to defining the total water level, as noted both by the analysis I have undertaken and presented in the Technical Note to council and as acknowledged by both Stephens et al., (2015)) and Gibberd and Dahm, (2019) – i.e. a combined water level considerably less likely than a 1:200 year event.

20. In paragraph [5.14], Miss Gibberd states that she has not allowed any allowance for wave run up. This is incorrect, in that the storm surge value used in her approach includes wave run up, as does the extreme value analysis performed by Stephens et al., (2015)).