

RESPONSE TO SUBMITTER EVIDENCE

1. My full name is Martin Bernard Single.
2. My qualifications and experience are set out in my evidence in chief (EIC) dated 3 September 2024.
3. I have now read the evidence of Uli Sirch.
4. I appreciate that Ms Sirch has drawn her evidence from her observations and experience living at Bluecliffs. As such, her observations provide a description of the changing environment of the Waiau River mouth, the hāpua and the erosion of the coastal cliffs. However, interpreting the causes of changes to the coastal environment requires an understanding of the interconnectedness of fluvial processes, river flow and sediment transport, and wave energy, coastal sediment transport systems and tides and the geomorphological work of the energy in those processes.
5. I have provided that interpretation through a description of the processes and geomorphological responses to interaction of the energy of the waves and river and the movement of sediment within the river mouth environment in my EIC.
6. As shown by Ms Sirch, the Waiau River in flood has a large quantity of water flowing through the river mouth. However, the river is considered as “small” with regard to the geomorphological work of the river to in comparison to the erosion work of the coastal wave environment. While the Waiau River may be big by discharge volume, it is a small river in the context of maintaining the shoreline position against the work of waves that move sediment along and off the shore.
7. My comparison of other South Island hāpua systems with the Waiau system, and in particular to the shore (south)east of the main Waiau River channel is apt (paragraph 58 in my EIC) and relates in particular to the paleo erosion of the cliffs when the river mouth was situated to the southeast with associated hāpua processes. I refer to the known periods of this situation in my EIC paragraph 65 and in paragraphs 33 to 64 of Appendix 2, and in Appendix 3. So although the lagoon to the southeast of the main Waiau River channel is of a waituna type at present, it has been of a hāpua type in the past and the processes of landform development and

cliff erosion were of a similar nature to those that have occurred and are occurring at present to the northwest of the main Waiau River channel.

8. With regard to the bulleted points in Ms Sirch's statement, the sediment load of the Waiau River is relatively small due to the catchment structure. I cover this point in paragraphs 87 to 91 in my EIC.
9. The hāpua processes I describe in my EIC paragraphs 46 to 52, including Figure 2 are appropriate for the process energies of Te Waewae Bay as they are based on the process/response relationships rather than the dynamics of any one river.

Martin Single

13 September 2024