

## **EKETAHUNA WASTEWATER TREATMENT PLANT WETLAND: SUMMARY OF EVIDENCE OF ELOISE BOAM (GROUNDWATER) FOR TARARUA DISTRICT COUNCIL**

1. The proposed wetland is located adjacent to the Makakahi River on the contemporary floodplain.
2. There are 1 - 2 m of alluvial deposits, mainly of sand and gravel, overlying Eketahuna Group mudstone.
3. The shallow alluvial deposits occasionally host a rudimentary groundwater system; generally in winter and following either intense or prolonged rainfall. The sediment does not have the capacity to hold a significant or useable volume of groundwater. The mudstone bedrock is impermeable.
4. Any groundwater flows along the interface between the alluvial sediments and the underlying impermeable mudstone towards the wetland and the Makakahi River. On the lower terrace, adjacent to the river, the soil is waterlogged and the water table is near the ground surface.
5. The groundwater in the lower terrace is hydraulically-connected to the river, with the top of the saturated zone and the river level being coincident.
6. The development of the proposed wetland will not alter the natural groundwater flow to the lower terrace.
7. Any groundwater entering the lower terrace / wetland area will either: (a) flow through the alluvial deposits below the wetland and enter the river (ie. the existing situation); or (b) become part of the wetland system, with the water eventually also entering the river (ie. through the outlet).
8. Therefore, the development of the proposed wetland will have a less than minor effect on the groundwater system.
9. During floods rising groundwater will exert pressure on the base of the wetland. This pressure will be controlled by the head difference between the groundwater and the wetland, which will be minimal and only occur during high flow events. Such conditions will exist for only a very brief period during any large flood event, in themselves infrequent events.
10. If the river overtops the wetland, the groundwater and river levels will be the same. Any pressure difference through the base of the wetland will cease.

11. In my opinion, the wetland will have no adverse effects on groundwater during flood events of the Makakahi River.